

# STATE OF MISSOURI

## DEPARTMENT OF NATURAL RESOURCES

### MISSOURI CLEAN WATER COMMISSION



## MISSOURI STATE OPERATING PERMIT

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

Permit No. MO-0097837

Owner: City of Columbia  
Address: PO Box 6015, Columbia, MO 65205

Continuing Authority: Same as above  
Address: Same as above

Facility Name: Columbia Regional Wastewater Treatment Plant  
Facility Address: 4900 West Gillespie Bridge Road, Columbia, MO 65203

Legal Description: See page 2 & 3  
Latitude/Longitude: See page 2 & 3

Receiving Stream: See page 2 & 3  
First Classified Stream and ID: See page 2 & 3  
USGS Basin & Sub-watershed No.: See page 2 & 3

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

### FACILITY DESCRIPTION

See page 2

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

September 24, 2010  
Effective Date

July 2, 2013  
Modification Date

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

September 23, 2015  
Expiration Date

John Madros  
John Madros, Director, Water Protection Program

FACILITY DESCRIPTION (continued)

Outfall #001 – POTW – SIC #4952

Activated sludge/anaerobic sludge digester/portions of dry sludge are land applied or hauled to Missouri Biosolids /sludge storage basin/wetland treatment.

Design population equivalent is 178,875.

Design flow is 20.6 MGD. Actual flow is 15.8 MGD (2009 average).

Design sludge production is 3,948 dry tons/year.

Actual sludge production is 3,337 dry tons/year (CY 2009).

Legal Description: SE ¼, SW ¼, Sec. 7, T47N, R13W, Boone County

Lat/Long: X - 549130 Y- 4302043

Receiving Stream: Unnamed Trib. to Missouri River (Eagle Bluffs Conservation Area (U))

First Classified Stream & ID: Missouri River (P) (00701)

USGS Basin and Subwatershed: (10300102–110008)

Outfall #001 (linked with Outfall #001 above) - Sludge Lagoon

Outfall #003 - POTW - SIC #4952

Stormwater discharge from wastewater plant grounds.

Flow dependent upon precipitation.

Legal Description: NE ¼, SW ¼, Sec. 29, T48N, R13W, Boone County

UTM Coordinates: X - 551107 Y- 4307953

Receiving Stream: Hinkson Creek (P)

First Classified Stream & ID: Hinkson Creek (P) (01007)

USGS Basin & Subwatershed: (10300102–120002)

Outfall #004 – POTW – SIC #4952

Stormwater discharge from wastewater plant grounds.

Flow dependent upon precipitation.

Legal Description: SE ¼, NW ¼, Sec. 29, T48N, R13W, Boone County

UTM Coordinates: X - 551008 Y- 4308212

Receiving Stream: Unnamed Tributary to Hinkson Creek (U)

First Classified Stream & ID: Hinkson Creek (P) (01007)

USGS Basin & Subwatershed: (10300102-120002)

Groundwater Wells –

Ground water samples will be collected from monitoring wells (MW) located around the Wetland Area (eight locations, two wells per location).

01A & 01B

Legal Description: Sec. 06, T47N, R13W, Boone County

UTM Coordinates: X – 548489.9 Y- 4305427.4

Receiving Stream: Tributary to Perche Creek (P1) (01005)

First Classified Stream & ID: Perche Creek (P1) (01005)

USGS Basin & Subwatershed: (10300102-110008)

02A & 02B

Legal Description: Sec. 01, T47N, R14W, Boone County

UTM Coordinates: X – 548106.7 Y- 4305055.1

Receiving Stream: Tributary to Perche Creek (P1) (01005)

First Classified Stream & ID: Perche Creek (P1) (01005)

USGS Basin & Subwatershed: (10300102-110008)

FACILITY DESCRIPTION (continued)

03A & 03B

Legal Description: Sec. 01, T47N, R14W, Boone County  
UTM Coordinates: X – 547722.6 Y- 4304837.0  
Receiving Stream: Tributary to Perche Creek (P1) (01005)  
First Classified Stream & ID: Perche Creek (P1) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

04A & 04B

Legal Description: Sec. 31, T48N, R13W, Boone County  
UTM Coordinates: X – 548799.4 Y- 4306015.0  
Receiving Stream: Tributary to Perche Creek (P1) (01005)  
First Classified Stream & ID: Perche Creek (P1) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

05A & 05B

Legal Description: Sec. 07, T47N, R13W, Boone County  
UTM Coordinates: X – 548675.4 Y- 4302685.0  
Receiving Stream: Tributary to Perche Creek (P1) (01005)  
First Classified Stream & ID: Perche Creek (P1) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

06A & 06B

Legal Description: Sec. 07, T47N, R13W, Boone County  
UTM Coordinates: X – 548896.0 Y- 4302069.8  
Receiving Stream: Tributary to Perche Creek (P1) (01005)  
First Classified Stream & ID: Perche Creek (P1) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

07A & 07B

Legal Description: Sec. 13, T47N, R14W, Boone County  
UTM Coordinates: X – 548370.8 Y- 4301265.1  
Receiving Stream: Tributary to Perche Creek (P1) (01005)  
First Classified Stream & ID: Perche Creek (P1) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

08A & 08B

Legal Description: Sec. 18, T47N, R13W, Boone County  
UTM Coordinates: X – 548422.7 Y- 4300648.9  
Receiving Stream: Tributary to Perche Creek (P1) (01005)  
First Classified Stream & ID: Perche Creek (P1) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

FACILITY DESCRIPTION (continued)

Ground water samples will be collected from monitoring wells located around the sludge application area.

SW-1 & SW-2 & SW-3 & SW-4 – have been removed and replaced by the wells SW-1R, SW-2R, and SW-3R listed below.

SW-1R

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X – 550521.2 Y- 4308175.4  
Receiving Stream: Tributary to Perche Creek (P1) (01005)  
First Classified Stream & ID: Perche Creek (P1) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-2R

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X – 550441.5 Y- 4310569.7  
Receiving Stream: Tributary to Perche Creek (P1) (01005)  
First Classified Stream & ID: Perche Creek (P1) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-3R

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X – 550441.4 Y- 4308994.5  
Receiving Stream: Tributary to Perche Creek (P) (01013)  
First Classified Stream & ID: Perche Creek (P) (01013)  
USGS Basin & Subwatershed: (10300102-110008)

**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

PAGE NUMBER 5 of 15

PERMIT NUMBER MO-0097837

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

**Outfall #001 – Main Outfall- POTW – SIC #4952**

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<b>Outfall #001</b>						
Flow	MGD	*		*	once/day	24 hr. estimate
Biochemical Oxygen Demand <sub>5</sub> ***	mg/L		45	30	once/weekday**	24 hr. composite
Total Suspended Solids (Note 1)***	mg/L		45	30	once/weekday**	24 hr. composite
pH – Units	SU	****		****	once/weekday**	grab
Temperature	°C	*		*	once/weekday**	grab
Oil & Grease	mg/L	15		10	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE NEXT REPORT IS DUE AUGUST 28, 2013. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

<b>Outfall #001 (linked with Outfall #001) - Sludge Lagoon</b> Lagoon Freeboard (Note 2)	feet	*			once/quarter*****	depth
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MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE NEXT REPORT IS DUE OCTOBER 28, 2013.

**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

PAGE NUMBER 6 of 15

PERMIT NUMBER MO-0097837

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 after two (2) years of issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

**Outfall #001 – Main Outfall- POTW – SIC #4952**

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Ammonia as N	mg/L	*		*	once/quarter *****	Grab
Arsenic, Total Recoverable	µg/L	32.9		16.4	once/quarter *****	24 hr. composite
Copper, Total Recoverable	µg/L	29.4		14.7	once/quarter *****	24 hr. composite
Zinc, Total Recoverable	µg/L	*		*	once/quarter *****	24 hr. composite
Nickel, Total Recoverable	µg/L	*		*	once/quarter *****	24 hr. composite
Cadmium, Total Recoverable	µg/L	0.9		0.5	once/quarter *****	24 hr. composite
Mercury, Total Recoverable	µg/L	0.8		0.4	once/quarter *****	24 hr. composite
Lead, Total Recoverable	µg/L	13.8		10.1	once/quarter *****	24 hr. composite
Chromium III, Total Recoverable	µg/L	313.7		156.4	once/quarter *****	24 hr. composite
Chromium VI, Total Dissolved	µg/L	15.0		7.3	once/quarter *****	Grab
Silver, Total Recoverable	µg/L	20.1		14.2	once/quarter *****	24 hr. composite
Cyanide, Amendable to Chlorination (Note 4)	µg/L	8.2		4.0	once/quarter *****	Grab
Hardness	µg/L	*		*	once/quarter *****	24 hr. composite

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE NEXT REPORT IS DUE OCTOBER 28, 2013. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Whole Effluent Toxicity (WET) test	% Survival	See Special Conditions	once/year	24 hr. composite
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MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE NEXT REPORT IS DUE OCTOBER 28, 2013.

**B. STANDARD CONDITIONS**

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I, II, & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 7 of 15	
					PERMIT NUMBER MO-0097837	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<b><u>Outfalls #003 &amp; 004- Stormwater</u></b>						
Flow	MGD	*		*	once/quarter*****	grab
Biochemical Oxygen Demand <sub>5</sub>	mg/L		*	*	once/quarter*****	grab
Total Suspended Solids	mg/L		*	*	once/quarter*****	grab
Settleable Solids	ml/L/hr	1.5		1.0	once/quarter*****	grab
pH – Units****	SU	6.5-9.0		6.5-9.0	once/quarter*****	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE NEXT REPORT IS DUE <u>OCTOBER 28, 2013</u> .						
<b><u>Groundwater Monitoring Wells at On- Site Sludge Application Area</u></b> (Note 3)						
Water Level	feet	*			once/month	depth measurement
Total Suspended Solids	mg/L	*			once/month	grab
Total Dissolved Solids*****	mg/L	*			once/month	grab
Nitrate Nitrogen as N	mg/L	10			once/month	grab
Ammonia Nitrogen as N	mg/L	*			once/month	grab
pH - Units	SU	****		****	once/month	grab
Copper, Total Recoverable	µg/L	1000			once/year	grab
Zinc, Total Recoverable	µg/L	5000			once/year	grab
Nickel, Total Recoverable	µg/L	100			once/year	grab
Cadmium, Total Recoverable	µg/L	5			once/year	grab
Mercury, Total Recoverable	µg/L	2			once/year	grab
Lead, Total Recoverable	µg/L	15			once/year	grab
Silver, Total Recoverable	µg/L	50			once/year	grab
Arsenic, Total Recoverable	µg/L	50			once/year	grab
Manganese, Total Recoverable	µg/L	*			once/year	grab
Cyanide, Amenable to Chlorination (Note 4)	µg/L	50			once/year	grab
Molybdenum, Total Recoverable	µg/L	*			once/year	grab
Selenium, Total Recoverable	µg/L	10			once/year	grab
Aluminum, Total Recoverable	µg/L	*			once/year	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE NEXT REPORT IS DUE <u>OCTOBER 28, 2013</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
<b>B. STANDARD CONDITIONS</b>						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I, II &amp; III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

<b>A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS</b>					PAGE NUMBER 8 of 15	
					PERMIT NUMBER MO-0097837	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<b>Groundwater Monitoring at Wetland Cells Area (Note 5)</b>						
Water Level	feet	*			once/quarter*****	depth measurement
Conductivity	µmhos/cm	*			once/quarter*****	grab
Nitrate Nitrogen	mg/L	*			once/quarter*****	grab
Total Nitrogen	mg/L	*			once/quarter*****	grab
Copper, Total Recoverable	µg/L	*			once/quarter*****	grab
Zinc, Total Recoverable	µg/L	*			once/quarter*****	grab
Nickel, Total Recoverable	µg/L	*			once/quarter*****	grab
Cadmium, Total Recoverable	µg/L	*			once/quarter*****	grab
Mercury, Total Recoverable	µg/L	*			once/quarter*****	grab
Lead, Total Recoverable	µg/L	*			once/quarter*****	grab
Silver, Total Recoverable	µg/L	*			once/quarter*****	grab
Manganese, Total Recoverable	µg/L	*			once/quarter*****	grab
pH- Units	SU	****		****	once/quarter*****	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> , THE FIRST REPORT IS DUE <u>OCTOBER 28, 2013</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
<b>B. STANDARD CONDITIONS</b>						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I, II &amp; III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)**

- \* Monitoring requirement only.
- \*\* Once each weekday means: Monday, Tuesday, Wednesday, Thursday, and Friday, except National Holidays.
- \*\*\* This facility is required to meet a removal efficiency of 85%. The 30-day average percent removal shall not be less than 85%.
- \*\*\*\* pH is measured in pH units and is not to be averaged. If not specified in table above, pH is limited to the range of 6.0-9.0 pH units.
- \*\*\*\*\* Once per quarter – use table on page 9 of 16 for sample months.
- \*\*\*\*\* An estimated TDS value calculated from conductivity is acceptable.
- Note 1- Total Suspended Solids (TSS) may be exceeded periodically due to heavy use by waterfowl. The effluent limits for TSS during these periods shall be a weekly average of 100 mg/L and monthly average of 70 mg/L. Each instance of heavy waterfowl usage shall be documented by the City and confirmed by the Missouri Department of Conservation.
- Note 2 - Depth measured from the top of the supernatant overflow weir to the top of the sludge layer.
- Note 3 - Ground water samples will be collected from the monitoring wells located on the dedicated sludge disposal site. The depth of the water in the well shall be measured from the top of the well casing.
- Note 4 - The effluent limitation above is below the minimum quantification level (ML) of the most common and practical EPA approved methods. The Department has determined that current acceptable ML for Cyanide, Amendable to Chlorination to be 16 µg/L when using the Cyanide by Automated Colorimetric Method #335.3 from the U.S.EPA National Exposure Research Laboratory.
- Note 5- Ground water samples will be collected from monitoring wells located around the Wetland Area (eight locations, two wells per location). These include MW1-1A & MW1-1B, MW1-2A & MW1-2B, MW1-3A & MW1-3B, MW1-4A & MW1-4B, MW2-1A & MW2-1B, MW3-1A & MW3-1B, MW4-1A & MW4-1B, and MW4-2A & MW4-2B. Well's MW2-2A and MW2-2B will no longer be sampled. The depth of water in the well shall be measured from the top of the wall casing. The sample may be collected from the shallowest well at each location which contains ground water.

<b>C. INFLUENT MONITORING REQUIREMENTS</b>	PAGE NUMBER 9 of 15
	PERMIT NUMBER MO-0097837

The facility is required to meet a removal efficiency of 85% or more for BOD and TSS. 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
<u>Influent</u>			
Biochemical Oxygen Demand <sub>5</sub> ***	mg/L	once/week	24 hr composite
Total Suspended Solids ***	mg/L	once/week	24 hr composite

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE NEXT REPORT IS DUE OCTOBER 28, 2013.

**B. STANDARD CONDITIONS**

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I, II & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

\*\*\* This facility is required to meet a removal efficiency of 85%. The 30-day average percent removal shall not be less than 85%.

Sample discharge at least once for the months of:	Report is due:
January, February, March (1st Quarter)	April 28
April, May, June (2nd Quarter)	July 28
July, August, September (3rd Quarter)	October 28
October, November, December (4th Quarter)	January 28

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. Changes in Discharges of Toxic Substances  

The permittee shall notify the Director as soon as it knows or has reason to believe:

  - (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
    - (1) One hundred micrograms per liter (100 µg/L);
    - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
    - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
    - (4) The level established in Part A of the permit by the Director.
  - (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.
4. Report as no-discharge when a discharge does not occur during the report period.
5. Water Quality Standards
  - (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
  - (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
    - (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
    - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
    - (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
    - (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
    - (5) There shall be no significant human health hazard from incidental contact with the water;
    - (6) There shall be no acute toxicity to livestock or wildlife watering;
    - (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
    - (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

D. SPECIAL CONDITIONS (cont'd)

6. The permittee shall comply with any applicable requirements listed in 10 CSR 20-8 and 10 CSR 20-9, unless the facility has received written notification that the Department has approved a modification to the requirements. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. If a modification of the monitoring frequencies listed in 10 CSR 20-9 is needed, the permittee shall submit a written request to the Department for review and, if deemed necessary, approval.
7. The permittee shall develop and implement a program for maintenance and repair of the collection system. The permittee shall submit a report annually in November 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.
8. Permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 40 CFR Part 403. The approved pretreatment program is hereby incorporated by reference.

Permittee shall submit to the Department on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year. At a minimum, the report shall include the following:

- (a) An updated list of the Permittee's Industrial Users, including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Permittee shall provide a brief explanation of each deletion. This list shall identify which Industrial Users are subject to categorical pretreatment Standards and specify which Standards are applicable to each Industrial User. The list shall indicate which Industrial Users are subject to local standards that are more stringent than the categorical Pretreatment Standards. The Permittee shall also list the Industrial Users that are subject only to local Requirements;
- (b) A summary of the status of Industrial User compliance over the reporting period;
- (c) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and
- (d) Any other relevant information requested by the Department.

9. Whole Effluent Toxicity (WET) Test shall be conducted as follows:

SUMMARY OF ACUTE WET TESTING FOR THIS PERMIT					
OUTFALL	AEC	LC50%*	FREQUENCY	SAMPLE TYPE	MONTH
001	100%	100%	Once/year	Multiple	Any

\* LC50 = AEC / 0.3.

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

AEC% = outfall design flow cfs / (ZID cfs + outfall design flow cfs)

- (a) Test Schedule and Follow-Up Requirements
  - (1) Perform a MULTIPLE-dilution acute WET test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.
    - (a) For discharges of stormwater, samples shall be collected within three hours from when discharge first occurs.
    - (b) Samples submitted for analysis of stormwater discharges shall be collected as a grab.

D. SPECIAL CONDITIONS (cont'd)

- (c) For discharges of non-stormwater, samples shall be collected only when precipitation has not occurred for a period of forty-eight hours prior to sample collection. In no event shall sample collection occur simultaneously with the occurrence of precipitation excepting for stormwater samples.
  - (d) A twenty-four hour composite sample shall be submitted for analysis of non-stormwater discharges.
  - (e) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.
  - (f) Samples submitted for analysis of upstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
  - (g) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.
  - (h) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analyses performed upon any other effluent concentration.
  - (i) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.
  - (j) Where flow-weighted composite sample is required for analysis, the samples shall be composited at the laboratory where the test is to be performed.
  - (k) Where in stream testing is required downstream from the discharge, sample collection shall occur immediately below the established Zone of Initial Dilution in conjunction with or immediately following a release or discharge.
  - (l) Samples submitted for analysis of downstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
  - (m) All instream samples, including downstream samples, shall be tested for toxicity at the 100% concentration in addition to any other assigned AEC for in-stream samples.
- (2) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.
  - (3) If the effluent fails the test, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met:
    - (a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
    - (b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
  - (4) Failure of at least two multiple-dilution tests during any period of accelerated monitoring violates the permit narrative requirement for aquatic life protection.
  - (5) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
  - (6) Additionally, the following shall apply upon failure of the third MULTIPLE DILUTION test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
  - (7) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
  - (8) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
  - (9) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.
  - (10) Submit a concise summary in tabular format of all WET test results with the annual report.

D. SPECIAL CONDITIONS (cont'd)

(b) PASS/FAIL procedure and effluent limitations:

- (1) To pass a multiple-dilution test:
  - (a) For facilities with a computed percent effluent at the edge of the zone of initial dilution, Allowable Effluent Concentration (AEC) OF 30% OR LESS, the AEC must be less than three-tenths (0.3) of the LC<sub>50</sub> concentration for the most sensitive of the test organisms; **OR**,
  - (b) For facilities with an AEC greater than 30%, the LC50 concentration must be greater than 100%; **AND**,
  - (c) All effluent concentrations equal to or less than the AEC must be nontoxic. Mortality observed in all effluent concentrations equal to or less than the AEC shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS or other federal guidelines as appropriate or required. Failure of one multiple-dilution test may be considered an effluent limit violation.

(c) Test Conditions

- (1) Test Type: Acute Static non-renewal
- (2) All tests, including repeat tests for previous failures, shall include both test species listed below.
- (3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.
- (4) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.
- (5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.
- (6) Multiple-dilution tests will be run with:
  - (a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
  - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
  - (c) Reconstituted water.
- (7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
- (8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

### SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless more stringent methods are specified by the DNR, the procedures shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,

#### Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$ )
Test acceptability criterion:	90% or greater survival in controls

#### Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$ )
Test Acceptability criterion:	90% or greater survival in controls

E. SEWER EXTENSION CONSTRUCTION PERMIT AUTHORITY

The department has approved the construction permit program to regulate and approve construction of sanitary sewers that are tributary to this wastewater treatment plant.

1. This approval may be modified or revoked by the department prior to the sewage collection, transportation, or treatment facilities reach their design limitations, if the facility falls into chronic noncompliance with the permit, or if the permittee fails to follow the terms and conditions of the submitted and approved program.
2. This permit may be reopened and modified or alternatively revoked and reissued to incorporate new or modified conditions to the sewer construction permit authority, if information indicates changes are necessary to assure compliance with Missouri's Clean Water Law and associated regulations.
3. When conditions #1 or #2 occur, the permittee will be notified prior to any modification of this permit condition.
4. The Permittee, as part of their Sewer Extension Program, shall submit an annual report by the twenty-eighth (28) day of January, of each year, to the Missouri Department of Natural Resources' Northeast Regional Office. The report shall include, but is not limited to, the following:
  - a. A list of the name of each individual project and their respective:
    - i. Length of sewer and force main
    - ii. Capacity of the lift stations constructed under the sewer extension (if applicable);
    - iii. Inspections made of the final construction and the findings of each;
    - iv. Results of leakage and deflection test;
    - v. Population or number of lots to be served by this extension-Design population equivalent;
    - vi. Type of wastewater (i.e., domestic or industrial); and
    - vii. Written letter from a professional engineer (signed, dated and sealed with engineer license), licensed in the State of Missouri, certifying that the project has been completed in accordance with its approved plans and specifications.
  - b. A summary of total flow at the treatment facility and a discussion regarding possible implications on operations and maintenance
5. In order to terminate the Sewer Extension Program, the permittee shall notify the department by submitting a Letter of Termination, indicating that the permittee no longer desires to continue a Sewer Extension Authority Program.
6. Unless this program is terminated prior to renewal of this operating permit, the permittee shall submit a letter with the operating permit renewal application requesting continuation of the program. Failure to apply for renewal may result in termination of this program and enforcement actions to compel compliance with this condition and the Missouri Clean Water Law.

**Missouri Department of Natural Resources**  
**FACT SHEET**  
**FOR THE PURPOSE OF MODIFICATION OF**  
**MO-0097837**  
**COLUMBIA REGIONAL WASTEWATER TREATMENT PLANT**

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 that is 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:

Major

**Part I – Facility Information**

Facility Type: POTW  
Facility SIC Code(s): 4952

Facility Description:

The plant consists of a raw wastewater pumping station, two mechanical bar screens, two primary basins, two aeration basins, two final clarifiers, an aeration blower facility, two peak flow clarifiers, four constructed wetland units, a peak flow holding tank, two gravity thickeners, two thickening centrifuges, three primary anaerobic digesters, a secondary digester, sludge holding lagoon, a biosolids dewatering facility, sludge holding tank and pump station. The wetland treatment consists of 130 acres with four (4) treatment units. Effluent is piped from the mechanical portion of the WWTF to the four (4) units. Effluent is then pumped into Missouri Department of Conservation's Eagle Bluffs Conservation Area (EBCA) (not part of treatment). Note that the Missouri Department of Conservation has a written agreement with the City of Columbia to supply water to the wetlands in Eagle Bluffs. Essentially, Eagle Bluffs wetlands provide a reuse of the effluent.

The facility is permitted for 20.6 MGD.

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

- Yes; see Modification Derivation below.

**MODIFICATION DERIVATION:** the permittee installed three monitoring wells, labeled SW-1R, SW-2R, and SW-3R in the permit and have properly abandoned four existing wells, labeled SW-1 & SW-2 & SW-3 & SW-4 in the previous permit. The new wells have replaced the old wells for the purposes of monitoring the on-site sludge application area. The previous permit contained an SOC requiring the installation of wells for the monitoring of the on-site sludge application area. In accordance with this SOC, the permittee submitted proper documentation, including a site characterization report and certification that the new wells have been constructed in accordance with the Missouri Well Construction rules. Therefore, the following SOC has been removed from the permit. All steps have been completed and this schedule is no longer relevant to the current permit.

Removed:

“F. SCHEDULE OF COMPLIANCE (For Nitrates in Sludge Application Area Monitoring Wells)

The permittee shall take action to come into compliance with Part A – Final Effluent Limitations as soon as possible but not to exceed two (2) years from the effective date of this operating permit. In order to meet the effluent limitations contained therein, the permittee shall complete the following actions:

1. Within one (1) year of the effective date of this permit, the permittee shall submit a site characterization report for review and approval to the Department’s Northeast Regional Office and the Central Office Water Protection Program. The report should include steps being taken to come into compliance with said Final Effluent Limits for the On-site Sludge Application Area Monitoring Wells contained in Table A of this operating permit. This site characterization report must include details on the proper location and installation of proposed new monitoring wells. This site characterization report must indicate groundwater flow direction, elevation, and soil sampling and sufficient evidence of yielding sufficient flow for sampling. A plan of work must be submitted with the report for the installation of proposed monitoring wells.
2. Within two (2) years of the effective date of this permit, the permittee shall submit application for permit modification to include or remove groundwater monitoring wells. The modification must demonstrate the monitoring wells are registered with the state and comply to well construction rules. The modification must be submitted to the Department’s Central Office’s Water Protection Program. The modification will need to be public noticed.”

In addition to the SOC above being completed and removed from the permit, the permittee has removed Outfall #002 from operation. The permittee has indicated that Outfall #002 has been plugged with concrete. Therefore, Outfall #002 has been removed from the permit. The permittee is no longer authorized to discharge from this location. Discharge from this outfall shall be considered an unauthorized bypass pursuant to 40 CFR 122.41(m) and shall be reported, pursuant to 40 CFR 122.41(m).

Finally, all interim effluent limitations have been removed from the permit. The final effluent limitations are already in effect, making the interim effluent limitations no longer relevant.

There have been no other changes to the permit at this time. All other conditions of the permit will be re-evaluated during the next permit renewal.

Please note that there are no new or expanded conditions resulting from this modification. The community will not be incurring any costs as a result of this modification. Therefore, a Finding of Affordability was not conducted for this permit modification.

Application Date: 12/09/2012

Expiration Date: 07/28/2010

Last Inspection: 02/06/2010

In Compliance

Non Compliance

**OUTFALL(S) TABLE:**

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	31.9	Secondary	Industrial, Domestic	2.8
002		Unauthorized Bypass	No longer authorized	
003	Variable	-	Stormwater	
004	Variable	-	Stormwater	
Groundwater Monitoring Wells		-	On-site sludge application area and surrounding the treatment wetlands	

Outfall #001 – POTW – SIC #4952

Sludge Lagoon

Activated sludge/anaerobic sludge digester/portions of dry sludge are land applied or hauled to Missouri Biosolids /sludge storage basin/wetland treatment

Design flow is 20.6 MGD.

Actual flow is 15.8 MGD (2009 average).

Outfall #002– Discharge from this outfall shall be considered an unauthorized bypass pursuant to 40 CFR 122.41(m) and shall be reported, pursuant to 40 CFR 122.41(m).

Outfall #003 - POTW - SIC #4952

Stormwater discharge from wastewater plant grounds.

Outfall #004 - POTW - SIC #4952

Stormwater discharge from wastewater plant grounds.

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

Much is known about the groundwater and surface water quality of the Eagle Bluff Conservation Area and the area known as McBaine Bottoms. The USGS in cooperation with the City of Columbia and Missouri Department of Conservation has tested surface water quality and groundwater quality from 1999-2007 and published this information in two recent reports. Smith, BJ and JM Richard (2005) reported surface water quality of the city outfall to Eagle Bluffs, Perche Creek, Eagle Bluff outflow (or drainage value), a levee "blew hole" along Perche Creek, and the Missouri River. Both reports focus mainly on groundwater testing results and the surface water quality testing includes key locations in the entire McBaine Bottoms. The recent Smith, BJ and JM Richard (2008) USGS report indicated changes in some of the chemical constituents found in groundwater monitoring well that were noted after the beginning of the operations of the wastewater treatment wetlands and the Eagle Bluffs Conservation Area. These effects are localized adjacent to the wetland treatment units. To date, these changes have not impacted the City's drinking water well field.

City of Columbia effluent monitoring data of ammonia-N from 2005-07 averaged 12.2 mg/L with a standard deviation of 4.9 mg/L (MEC 2007, Appendix 6). The treatment plant upgrade will include the addition of ammonia nitrification that will reduce ammonia concentrations consistently below acute ammonia criteria. Few violations for Outfall #001 were noted except during heavy waterfowl use discharge from the wetland treatment area exceeded TSS five times in 2007, twice in 2008 and once in January 2009. According to the City of Columbia, each instance was confirmed and documented heavy waterfowl use by Missouri Department of Conservation.

Monitoring wells for the Sludge Injection Fields nitrate had exceedances in 2007, more frequent in 2008, and each month sampled in 2009 (see the *Biosolid, Sludge and Sewage Sludge* subsection below for more information and explanation on the reasons for monitoring well violations and settlement agreement to address these problems).

Comments:

The Missouri River is listed as the first classified stream. However, due to the Missouri Department of Conservation's (MDC) wetland management objectives, Eagle Bluffs Conservation Area maintains effluent within the wetland and discharges to the Missouri River on an infrequent basis. According to MDC, Eagle Bluffs Conservation Area (EBCA) water is routed infrequently to an unclassified slough in order to 1) drain the wetlands following periodic spring flooding from the Missouri River, 2) manage the slough and the wetlands as shallow water mudflats for migrating shorebirds (personal communications with MDC and MEC 2008).

**Part II – Operator Certification Requirements**

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], permittees shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions and regulations. Operators or supervisors of operations at regulated wastewater treatment facilities shall be certified in accordance with [10 CSR 20-9.020(2)] and any other applicable state law or regulation. As per [10 CSR 20-9.010(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

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: Score in Appendix A exceeded 71 points for this facility.

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

Operator’s Name: Steve Huebotter  
 Certification Number: 1292  
 Certification Level: A

**Part III – Receiving Stream Information**

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

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

- All Other Waters [10 CSR 20-7.015(8)]

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

OUTFALL #001

**RECEIVING STREAM(S) TABLE:**

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
Eagle Bluffs Conservation Area	U	-	General Criteria / Conditionally unclassified because wetlands (Class W) in 10 CSR 20-7.031 have no designated uses.	10300102	Ozark, Moreau, Loutre
Missouri River	P	0701	IRR,LWW,AQL,DWS, IND,WBC***		

\* - 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  
 \*\*\* - UAA has not been conducted.

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

RECEIVING STREAM (U)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Eagle Bluffs Conservation Area	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.

OUTFALL #003- STORMWATER

**RECEIVING STREAM(S) TABLE:**

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
Hinkson Creek (P)	P	01007	LWW, AQL, SCR, WBC***	10300102	Ozark, Moreau, Loutre

\* - 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

\*\*\* - UAA has been conducted.

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

RECEIVING STREAM	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Hinkson Creek (P)	NA	NA	NA

**MIXING CONSIDERATIONS:**

Not Applicable

**RECEIVING STREAM MONITORING REQUIREMENTS:**

No receiving water monitoring requirements recommended at this time.

OUTFALL #004- STORMWATER

**RECEIVING STREAM(S) TABLE:**

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
Unnamed Tributary to Hinkson Creek (U)	U	-	General Criteria	10300102	Ozark, Moreau, Loutre
Hinkson Creek (P)	P	01007	LWW, AQL, SCR, WBC***		

\* - 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

\*\*\* - UAA has been conducted.

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

RECEIVING STREAM	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Unnamed Tributary to Hinkson Creek (U)	NA	NA	NA

**MIXING CONSIDERATIONS:**

Not Applicable

**RECEIVING STREAM MONITORING REQUIREMENTS:**

No receiving water monitoring requirements recommended at this time.

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

**ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:**

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

Not Applicable

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

**ANTI-BACKSLIDING:**

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

All limits in this Factsheet 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.

- Renewal no degradation proposed and no further review necessary.

**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.

**BIO-SOLIDS, SLUDGE, & SEWAGE SLUDGE:**

Bio-solids are solid materials resulting from wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sludge is any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect. Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works.

Applicable (renewal and modifications to existing operating permits)

This facility has been approved to land apply as per Permit Standard Conditions III and a Department approved bio-solids management plan.

Facility has a 1999 Settlement Agreement with the Attorney General's Office for violations of Clean Water Law for the sludge application area that is no longer used. Application to the site began in 1984 and concluded in 1995 when nitrate concentrations in groundwater consistently exceeded water quality standards for groundwater. The monitoring wells in this area have limitations for nitrates and other pollutants. According to the settlement agreement and the approval of the *Site Characterization Work Plan for Columbia Regional Wastewater Treatment Plant Sludge Injection Fields SC-1 and SC-12*, biosolids should not be utilized until nitrate levels in site monitoring wells decrease below 10 mg/L for a period of one year. Approval to reapply must be obtained from the Water Protection Control Program. Monitoring of the on-site wells is currently planned to continue and permit limitation are required according to the agreement.

Sludge is currently applied to other City-owned land near the WWTP and privately-owned land within a 20-mile radius of the WWTP. Mobile equipment, including tanker trucks, a mobile storage tank, and a liquid injection vehicle are used for application at these sites.

**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

Applicable

This permittee has an approved pretreatment program in accordance with the requirements of [40 CSR Part 403] and [10 CSR 20-6.100] and is expected to implement and enforce its approved 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

NOTE: A RPA was conducted on appropriate parameters. Zinc and Nickel were selected to perform a RPA because they had monitoring only in the current permit. A RPA was conducted to determine if monitoring only will continue. Most of the monitoring data were below detection for both parameters. Monitoring only will continue for these parameters. Other metals had reductions in final limitations as a result of and thus no RPA was appropriate.

Please see **APPENDIX B- 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<sub>5</sub>) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. Please see the United States Environmental Protection Agency's (EPA) website for interpretation of percent removal requirements for National Pollutant Discharge Elimination System Permit Application Requirements for Publicly Owned Treatment Works and Other Treatment Works Treating Domestic Sewage @ [www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm](http://www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm).

Applicable

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

**SANITARY SEWER OVERFLOWS (SSOs), BYPASSES, INFLOW & INFILTRATION (I&I) – PREVENTION/REDUCTION:**

Sanitary Sewer Systems (SSSs) are municipal wastewater collection system that convey domestic, commercial, and industrial wastewater, and limited amounts of infiltrated groundwater and storm water (i.e. I&I), to a POTW. SSSs are not designed to collect large amounts of storm water runoff from precipitation events.

Untreated or partially treated discharges from SSSs are commonly referred to as SSOs. SSOs have a variety of causes including blockages, line breaks, sewer defects that allow excess storm water and ground water to overload the system, lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. A SSOs is defined as an untreated or partially treated sewage release from a SSS. SSOs can occur at any point in an SSS, during dry weather or wet weather. SSOs include overflows that reach waters of the state. SSOs also include overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations. SSSs can back up into buildings, including private residences. When sewage backups are caused by problems in the publicly-owned portion of an SSS, they are considered SSOs.

*Note: The City of Columbia is approved for Sewer Extension Construction Permit Authority. The department intends for this public notice to serve as the only notice for this authority. The department will add this Sewer Extension Construction Permit Authority Special Condition to the draft final operating permit for the expansion. This draft final operating permit was previously public noticed on August 25, 2009.*

Applicable

The permittee is required to develop 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.

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.

Not Applicable

This original SOC for metals has been removed. The permittee has completed all steps of the SOC, therefore it is no longer relevant.

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP):**

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

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

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

**Applicable**

A SWPPP shall be developed and implemented for each site and shall incorporate required practices identified by the Department with jurisdiction, incorporate erosion control practices specific to site conditions, and provide for maintenance and adherence to the plan.

**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:

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

- Where
- C = downstream concentration
  - 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).

**WLA MODELING:**

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

Not Applicable

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

**WATER QUALITY STANDARDS:**

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

**WHOLE EFFLUENT TOXICITY (WET) TEST:**

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

Applicable

In accordance with the Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System. Furthermore, WET testing is a means by which the Department determines that [10 CSR 20-7.031(3)(D, F, & G)] are being met by the permitted facility. In addition to justification for the WET testing, WET tests are required under [10 CSR 20-6.010(8)(A)4] to be performed by specialists who are properly trained in conducting the test according to the methods prescribed by the Federal Government as referenced in [40 CFR Part 136]. WET test will be required by all facilities meeting the following criteria:

Facility is a designated Major.

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

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

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

Applicable

Missouri River (1<sup>st</sup> classified water body) is listed on the 2002 Missouri 303(d) List for PCB/Chlorane in fish tissue. A TMDL was approved by EPA in 2006.

The facility is not considered to be a source of the above listed pollutant(s) or considered to contribute to the impairment of the reference waterbody.

**Part V – Effluent Limits Determination**

***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 supercedes the terms and conditions, including effluent limitations, of this operating permit.

***Outfall #001 – Treatment Plant – Final Limitations***

**EFFLUENT LIMITATIONS TABLE:**

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1			*	NO	
BOD <sub>5</sub>	MG/L	1		45	30	NO	
TSS	MG/L	1		45	30	NO	
PH	SU	1	6.0-9.0		6.0-9.0	NO	
TEMPERATURE	°C	1	*		*	NO	
AMMONIA AS N	MG/L	2/3/5	*		*	NEW	
ESCHERICHIA COLI	***	1	Please see Escherichia Coli (E. coli) in the Derivation and Discussion Section below.				
OIL & GREASE (MG/L)	MG/L	1	15		10	NO	
ARSENIC, TOTAL RECOVERABLE	µg/L	2/3	32.9		16.4	YES	160
COPPER, TOTAL RECOVERABLE	µg/L	2/3	29.4		14.7	YES	464
ZINC, TOTAL RECOVERABLE	µg/L	2/3/9	*		*	NO	
NICKEL, TOTAL RECOVERABLE	µg/L	2/3/9	*		*	NO	
CADMIUM, TOTAL RECOVERABLE	µg/L	2/3	0.9		0.5	YES	576
MERCURY, TOTAL RECOVERABLE	µg/L	2/3	0.8		0.4	YES	19
LEAD, TOTAL RECOVERABLE	µg/L	2/3	13.8		10.1	YES	1520
CHROMIUM (III), TOTAL RECOVERABLE	µg/L	2/3	313.7		156.4	YES	496 (TOTAL CHROMIUM)
CHROMIUM (VI), TOTAL RECOVERABLE	µg/L	2/3	15.0		7.3	YES	496 (TOTAL CHROMIUM)
SILVER, TOTAL RECOVERABLE	µg/L	2/3/9	20.1		14.2	YES	104
CYANIDE, AMENDABLE TO CHLORINATION	µg/L	2/3	8.2		4.0	YES	176
WHOLE EFFLUENT TOXICITY (WET) TEST	% Survival	11	Please see WET Test in the Derivation and Discussion Section below.				
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

Outfall #003 and 004 – stormwater

**EFFLUENT LIMITATIONS TABLE:**

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	No	
BIOCHEMICAL OXYGEN DEMAND	MG/L	9	*		*	No	
TSS	MG/L	9	*		*	No	
SETTEABLE SOLIDS	ML/L/HR	2/9	1.5		1.0	NEW	
PH	SU	1	**		**	YES	6.0-9.0
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

\* - Monitoring requirement only.

\*\* - The discharge must comply with the 6-5 - 9.0 pH S.U. found within the water quality standards at 10 CSR 20-7.031.

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

\*\*\*\* - Parameter not previously established in previous state operating permit.

**Basis for Limitations Codes:**

- |  |                                    |
|--|------------------------------------|
| 1. State or Federal Regulation/Law       | 7. Antidegradation Policy          |
| 2. Water Quality Standard (includes RPA) | 8. Water Quality Model             |
| 3. Water Quality Based Effluent Limits   | 9. Best Professional Judgment      |
| 4. Lagoon Policy                         | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy                        | 11. WET Test Policy                |
| 6. Dissolved Oxygen Policy               | 12. Antidegradation Review         |

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

Note: *Final limitations are equivalent to the draft final operating permit for the expansion. We acknowledge that the water quality criteria have changed for some metals since the calculation of limitations; however, because limitations for the expansion were created prior to the revision of the water quality standards regulations, they will not be changed.*

- **Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- **Biochemical Oxygen Demand (BOD<sub>5</sub>).** 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average. Please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
- **Total Suspended Solids (TSS).** Effluent limitations from the previous state operating permit have been reassessed and verified that they are still protective of the receiving stream's Water Quality. Therefore, 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.** The weekly average of 45 mg/L and monthly average of 30 mg/L are applicable federal requirements for secondary treatment. Total Suspended Solids (TSS) are expected to be periodically high due to heavy waterfowl use. During these periods, limits for TSS will be weekly average of 100 mg/L and monthly average of 70 mg/L. Instances of heavy water fowl usage shall be documented by the city and confirmed by the Missouri Department of Conservation.

This allowance began in the 1996 revision of the NPDES operating permit. In a letter received from the Missouri Department of Conservation and the Columbia Public Works Department, the apparent cause of elevated total suspended solids concentrations that were discharging from the wetland treatment cells for the period December 26-31, 1995, was evaluated. The Department of Conservation agreed that winter roosting and feeding of water fowl during this period was the cause of a temporary elevation above the average monthly of 30 mg/L. The subsequent inclusion of the allowance of 100 mg/L weekly average and monthly average of 70 mg/L was based solely on the discharge monitoring data averages and the presence of waterfowl during that period which was confirmed by the Department of Conservation. The relaxing of effluent regulations was allowed because 1) the wetlands are providing essential habitat for migratory waterfowl and enjoyment for the citizens of Columbia, 2) the elevated total suspended solids is temporary and largely dependent on the quantity of waterfowl and quality of the vegetation during any given year.

**Note:** Because of recent exceedences of the permitted TSS limitation due to periodic heavy waterfowl use and if the city wants to pursue the increased TSS limitation, the Department requests that the City of Columbia perform a more detailed evaluation of TSS. The Department will consider higher effluent limitations if the City can demonstrate that the mechanical plant meets secondary treatment limitations during this permit cycle. Once the City completes the demonstration, the Department may consider the inclusion of internal limitations for TSS prior to the wetland treatment cells.

- **pH.** pH shall be maintained in the range from six to nine (6 – 9) standard units [10 CSR 20-7.015(8)(B)2.]. Please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.
- **Temperature.** Monitoring requirement due to the toxicity of Ammonia varies by temperature. **Monitoring only.**
- **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. Monitoring only.

Season	Temp (°C)	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

Monitoring only is applied without a schedule of compliance because Columbia has a planned expansion and a draft final operating permit with effluent limitations for ammonia. Ammonia limitations will be applied in the draft final operating permit for the expansion to be issued approximately 2 years from the issuance of this renewal.

City of Columbia effluent monitoring data of ammonia-N from 2005-07 averaged 12.2 mg/L with a standard deviation of 4.9 mg/L. The treatment plant upgrade will include the addition of ammonia nitrification that will reduce ammonia concentrations consistently below acute ammonia criteria.

- **Escherichia coli (E. coli).** The proposed E. Coli rule was published in the Missouri Register on November 2, 2009 and was adopted by the Missouri Clean Water Commission on March 3, 2010. In the rule, discharges located within two miles upstream of stream segments or lakes designated for whole body contact recreational or secondary contact recreational in Tables H and G of 10 CSR 20-7.031 shall not exceed the water quality E. Coli counts established in paragraph (4)(C)2. of 10 CSR 20-7.031. Since this facility is over two miles from a waterbody designated for whole body contact, so no E. Coli limits are proposed at this time.
- **Fecal Coliform.** Not applicable due to discharge being greater than two miles from the classified stream or Missouri River.
- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Cyanide, Amenable to Chlorination.** Protection of Aquatic Life CCC = 5 µg/L, CMC = 22 µg/L, Background CN = 0 µg/L

Chronic WLA:  $C_e = ((31.9 + 0.0)5 - (0.0 * 0.0))/31.9$   
 $C_e = 5 \mu\text{g/L}$

Acute WLA:  $C_e = ((31.9 + 0.0)22 - (0.0 * 0.0))/31.9$   
 $C_e = 22.0 \mu\text{g/L}$

$LTA_c = 5 \mu\text{g/L} (0.527) = 2.6 \mu\text{g/L}$

$LTA_a = 22.0 \mu\text{g/L} (0.321) = 7.1 \mu\text{g/L}$  [CV = 0.6, 99<sup>th</sup> Percentile]

MDL = **2.6 µg/L** (3.11) = 8.2 µg/L [CV = 0.6, 99<sup>th</sup> Percentile]

AML = **2.6 µg/L** (1.55) = 4.0 µg/L [CV = 0.6, 95<sup>th</sup> Percentile, n = 4]

The effluent limitation above is below the minimum quantification level (ML) of the most common and practical EPA approved methods. The Department has determined that current acceptable ML for Cyanide, Amendable to Chlorination to be 16 µg/L when using the Cyanide by Automated Colorimetric Method #335.3 from the U.S.EPA National Exposure Research Laboratory. Therefore, the operating permit will contain a Note indicating such.

**Metals**

Note: *Interim limitations for metals are the same as those in the previous operating permit. These limitations appear to be developed based upon mixing with the Missouri River. This mixing is not allowed in the current regulations, as the discharge is to Eagle Bluffs, an unclassified wetland that receives no mixing allowance by regulation. The limitations in the previous permit did not have average monthly limitations. In accordance with 40 CFR 122.45(d) continuous dischargers must have maximum daily and average monthly limitations (except a POTW must have average weekly and average monthly). We applied the maximum daily limitation to the monthly average limitation. The City requested additional time to comply with the new limitations that have the no mixing requirement; therefore, we have applied a schedule of compliance for the following final limitations:*

Effluent limitations for total recoverable metals were developed using methods and procedures outlined in EPA/505/2-90-001 and “The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion” (EPA 823-B-96-007). General warm-water fishery criteria apply and water hardness = 264 mg/L.

Due to the absence of contemporaneous effluent and instream data for total recoverable metals, dissolved metals, hardness, and total suspended solids with which to calculate metals translators, partitioning between the dissolved and absorbed phases was assumed to be minimal (Section 5.7.3, EPA/505/2-90-001). Freshwater criteria conversion factors for dissolved metals were used as the metals translator as recommended in guidance (Section 1.3, 1.5.3, and Table 1, EPA 823-B-96-007). If concurrent site-specific data for total recoverable metals, dissolved metals, hardness, and total suspended solids are provided to the Department, partitioning evaluations may be considered and site-specific translators developed.

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Cadmium	0.903	0.868
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Copper	0.960	0.960
Lead	0.650	0.650
Nickel	0.998	0.997
Silver	0.850	N.A.
Zinc	0.978	0.986

Conversion factors for Cd, Chromium, Copper, nickel, silver, zinc, and Pb are hardness dependent. Values calculated using equation found in Section 1.3 of EPA 823-B-96-007 and hardness = 264 mg/L.

**Water Quality-Based Effluent Limits for Metal POCs current discharge for the Columbia Regional WWTP.**

Outfall #001			
Unclassified	wetland	Allowable discharge is equal to $C_e = ((Q_e + Q_s)C_{wq} - (Q_s * C_s)) / Q_e$	WLAa= $C_e$ using the chronic WQS
Facility Name	Columbia Regional	$C_{wq}$ = downstream concentration, the Water Quality Standard (WQS)	WLAc= $C_e$ using the acute WQS
Permit Number	<b>MO-0097837</b>	$Q_s$ = Stream 7Q10 flow ( $ft^3/s$ )	LTAa = WLA acute * LTAa multiplier
Stream name	<b>Eagle Bluff CA</b>	$Q_e$ = Effluent design flow ( $ft^3/s$ )	LTAc = WLA chronic * LTAc multiplier
<b>Qs=</b>	<b>0.00</b>	$C_s$ = upstream concentration	MDL ug/L = the more protective LTA (LTAa or LTAc) * AML multiplier
<b>Cs=</b>	<b>0.00</b>	$C_e$ = effluent concentration	AML ug/L = the more protective LTA (LTAa or LTAc) * MDL multiplier
<b>Qe=</b>	<b>31.900 All units are in ug/L</b>		

	Aquatic Life		Receiving waterbody Concentration (Cs)	WLAa	WLAc	LTAa	LTAc	MDL	AML
	Acute (Cwq)	Chronic (Cwq)							
Arsenic		20	0.0	0.00	20.00	0.0	10.5	32.9	16.4
Cadmium	13.5	0.6	0.0	13.50	0.60	6.1	0.4	0.9	0.5
Chromium III	3994.0	191	0.0	3994.00	191.00	1282.4	100.7	313.7	156.4
Chromium VI	15.3	10.4	0.0	15.30	10.40	4.9	5.5	15.3	7.6
Copper	34.9	17.9	0.0	34.90	17.90	11.2	9.4	29.4	14.7
Lead	280.2	10.9	0.0	280.20	10.90	173.0	8.5	13.8	10.1
Nickel	1067.0	118.7	0.0	1067.00	118.70	342.6	62.6	195.0	97.2
Zinc	273.0	247	0.0	273.00	247.00	87.7	130.3	273.0	136.1
Mercury	2.4	0.5	0.0	2.40	0.50	0.8	0.3	0.8	0.4
Silver	20.1		0	20.10	0.00	11.7	0.0	20.1	14.2

**Assumptions and Basis:**

n=4  
 cv=0.6  
 For LTA, MDL the 99th Percentile was used.  
 For AML, the 95th Percentile was used.  
 LTA<sub>a</sub> multiplier = 0.321                      Lead CV=0.2  
 LTA<sub>c</sub> multiplier = 0.527                      Silver CV=0.25  
 MDL multiplier = 3.11                      Cadmium CV=0.22  
 AML multiplier = 1.55

**WQ Criteria:**

Aquatic life chronic and acute standards were converted to total recoverable.  
 Hardness of 264 mg/L was used to calculate criteria for metals that are hardness dependent.  
 Hardness data was obtained from December 2007 Factsheet submittal from MEC Water Resources.

**Mixing Zone Determination:**

Mixing Zone (MZ): Not allowed. [10 CSR 20-7.031(4)(A)4.B.(l)(a)].  
Zone of Initial Dilution (ZID): Not allowed. [10 CSR 20-7.031(4)(A)4.B.(l)(b)].  
 Because mixing is not allowed stream flow is assumed to be zero.

**Explanation of Limits:**

The lesser of the LTA<sub>a</sub> or LTA<sub>c</sub> was used to determine MDL and AML (shown in bold letters above on table).  
 The presence of zeros in the WLA and LTA columns indicates that no water quality criteria available.

**Note: Long-term average, average monthly and maximum daily limit multipliers that were different from those default multipliers (CV = 0.6) provided the above under the assumptions and basis are provided with the discussion of each pollutant of concern below.**

- **Cadmium, Total Recoverable.** Protection of Acute Criteria = 13.5 µg/L. Chronic Criteria = 0.6 µg/L. Background = 0 µg/L. Acute criteria apply for receiving waterbody, but chronic criteria apply at the Missouri River.

<b>STDEV</b>	0.52
<b>MEAN</b>	1.36
<b>CV</b>	0.38

LTA<sub>a</sub> multiplier = (0.455)                      [CV = 0.4, 99<sup>th</sup> Percentile]  
 LTA<sub>c</sub> multiplier = (0.657)                      [CV = 0.4, 99<sup>th</sup> Percentile]  
 MDL multiplier = (2.32)                      [CV = 0.4, 99<sup>th</sup> Percentile]  
 AML multiplier = (1.34)                      [CV = 0.4, 95<sup>th</sup> Percentile, n = 4]

- **Chromium III, Total Recoverable.** Protection of Aquatic Life Acute Criteria = 3994 µg/L. Chronic Criteria = 191 µg/L. Background = 0 µg/L. Acute criteria apply for receiving waterbody, but chronic criteria apply at the Missouri River.
- **Chromium VI, Total Dissolved.** Protection of Aquatic Life Acute Criteria = 15.3 µg/L. Chronic Criteria = 10.4 µg/L. Background = 0 µg/L. Acute criteria apply for receiving waterbody, but chronic criteria apply at the Missouri River. AML = 7.3 µg/L, MDL = 15.0 µg/L *Previous permit was total chromium. Chromium VI is the toxic component of total chromium. The Missouri total chromium water quality criteria was replaced by chromium III and VI in the 11/30/05 Missouri Water Quality Standards revision.*
- **Copper, Total Recoverable.** Protection of Aquatic Life Acute Criteria = 34.9 µg/L. Chronic Criteria = 17.9 µg/L. Background = 0 µg/L. Acute criteria apply for receiving waterbody, but chronic criteria apply at the Missouri River.
- **Lead, Total Recoverable.** Protection of Aquatic Life Acute Criteria = 280.2 µg/L. Chronic Criteria = 10.9 µg/L. Background = 0 µg/L. Acute criteria apply for receiving waterbody, but chronic criteria apply at the Missouri River.

<b>STDEV</b>	0.29
<b>MEAN</b>	1.31
<b>CV</b>	0.22

LTA<sub>a</sub> multiplier = (0.618)                      [CV = 0.2, 99<sup>th</sup> Percentile]  
 LTA<sub>c</sub> multiplier = (0.780)                      [CV = 0.2, 99<sup>th</sup> Percentile]  
 MDL multiplier = (1.62)                      [CV = 0.2, 99<sup>th</sup> Percentile]  
 AML multiplier = (1.19)                      [CV = 0.2, 95<sup>th</sup> Percentile, n = 4]

- **Nickel, Total Recoverable.** Protection of Aquatic Life Acute Criteria = 1067 µg/L. Chronic Criteria = 118.7 µg/L. Background = 0 µg/L. Acute criteria apply for receiving waterbody, but chronic criteria apply at the Missouri River. **Monitoring only requirement will continue as indicated in previous operating permit because no Reasonable Potential to Exceed (RPTE) was demonstrated.**

- **Silver, Total Recoverable.** Protection of Aquatic Life Acute Criteria = 20.1 µg/L. Background = 0 µg/L. Acute criteria apply for receiving waterbody, but chronic criteria apply at the Missouri River.

<b>STDEV</b>	0.33
<b>MEAN</b>	1.32
<b>CV</b>	0.25

LTA<sub>a</sub> multiplier = 0.581 [CV = 0.25, 99<sup>th</sup> Percentile]  
 LTAc multiplier = 0.754 [CV = 0.25, 99<sup>th</sup> Percentile]  
 MDL multiplier = 1.72 [CV = 0.25, 99<sup>th</sup> Percentile]  
 AML multiplier = 1.22 [CV = 0.25, 95<sup>th</sup> Percentile, n = 4]

- **Zinc, Total Recoverable.** Protection of Aquatic Life Acute Criteria = 273 µg/L. Chronic Criteria = 247 µg/L. Background = 0 µg/L. Acute criteria apply for receiving waterbody, but chronic criteria apply at the Missouri River. **Monitoring only requirement will continue as indicated in previous operating permit because no RPTE was demonstrated.**
- **Mercury, Total Recoverable.** Protection of Aquatic Life Acute Criteria = 2.4 µg/L. Chronic Criteria = 0.5 µg/L. Background = 0 µg/L. Acute criteria apply for receiving waterbody, but chronic criteria apply at the Missouri River.
- **Arsenic, Total Recoverable.** No acute criterion is available for arsenic. Protection of Aquatic Life Chronic Criteria = 20.0 µg/L. Background = 0 µg/L. Acute criteria apply for receiving waterbody, but chronic criteria apply at the Missouri River.
- **WET Test.** WET Testing schedules and intervals are established in accordance with the Department’s Permit Manual; Section 5.2 *Effluent Limits / WET Testing for Compliance Bio-monitoring*. It is recommended that WET testing be conducted during the period of lowest stream flow.

- Acute
- No less than **ONCE/YEAR**:
  - Facility is designated as a Major facility or has a design flow ≥ 1.0 MGD.
  - Facility has Water Quality-based effluent limitations for toxic substances (other than NH<sub>3</sub>).

Acute Allowable Effluent Concentrations (AECs) for facilities that discharge to unclassified [10 CSR 20-7.031(4)(A)4.B.(IV)(b)] are 100%, 50%, 25%, 12.5%, & 6.25%.

- **Minimum Sampling and Reporting Frequency Requirements.** Sampling and reporting frequency requirements have been retained from previous state operating permit.

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
FLOW	ONCE/DAY	ONCE/MONTH
BOD <sub>5</sub> (MG/L)	ONCE/WEEKDAY*	ONCE/MONTH
TSS (MG/L)	ONCE/WEEKDAY*	ONCE/MONTH
PH (S.U.)	ONCE/WEEKDAY*	ONCE/MONTH
TEMPERATURE (°C)	ONCE/WEEKDAY*	ONCE/MONTH
OIL AND GREASE (MG/L)	ONCE/MONTH	ONCE/MONTH
ESHERICHIA COLIFORM (E. COLI)	NA	NA
AMMONIA AS N (MG/L)	ONCE/QUARTER	ONCE/QUARTER
CYANIDE, AMENABLE TO CHLORINATION (µG/L)	ONCE/QUARTER	ONCE/QUARTER
CADMIUM, TOTAL RECOVERABLE (µG/L)	ONCE/QUARTER	ONCE/QUARTER
CHROMIUM III, TOTAL RECOVERABLE (µG/L)	ONCE/QUARTER	ONCE/QUARTER
CHROMIUM VI, TOTAL DISSOLVED (µG/L)	ONCE/QUARTER	ONCE/QUARTER
COPPER, TOTAL RECOVERABLE (µG/L)	ONCE/QUARTER	ONCE/QUARTER
LEAD, TOTAL RECOVERABLE (µG/L)	ONCE/QUARTER	ONCE/QUARTER
NICKEL, TOTAL RECOVERABLE (µG/L)	ONCE/QUARTER	ONCE/QUARTER
SILVER, TOTAL RECOVERABLE (µG/L)	ONCE/QUARTER	ONCE/QUARTER
ZINC, TOTAL RECOVERABLE (µG/L)	ONCE/QUARTER	ONCE/QUARTER
MERCURY, TOTAL RECOVERABLE (µG/L)	ONCE/QUARTER	ONCE/QUARTER
ARSENIC, TOTAL RECOVERABLE (µG/L)	ONCE/QUARTER	ONCE/QUARTER
HARDNESS (MG/L)	ONCE/QUARTER	ONCE/QUARTER

\* Once per weekday means: Monday, Tuesday, Wednesday, Thursday, and Friday

**OUTFALL #003 AND #004 –STORMWATER - DERIVATION AND DISCUSSION OF LIMITS:**

Note: These outfalls will be retained for this renewal period. The applicant has indicated that during the construction of the expansion of this facility, these outfalls will be eliminated.

- **Flow.** In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- **Biochemical Oxygen Demand (BOD<sub>5</sub>).** Monitoring only. Effluent limitations from the previous state operating permit have been reassessed and verified that they are still protective of the receiving stream’s Water Quality. Therefore, effluent limitations have been retained from previous state operating permit.
- **Total Suspended Solids (TSS).** Monitoring only. Effluent limitations from the previous state operating permit have been reassessed and verified that they are still protective of the receiving stream’s Water Quality. Therefore, effluent limitations have been retained from previous state operating permit.
- **Settleable Solids (SS).** Due to stormwater runoff a maximum daily limit of 1.5 mL/L/hr and an average monthly limit of 1.0 mL/L/hr will be required.
- **pH.** pH shall be maintained in the range from six to nine (6.5 – 9.0) standard units [10 CSR 20-7.031].
- **Minimum Sampling and Reporting Frequency Requirements.** Sampling and reporting frequency requirements have been retained from previous state operating permit.

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
FLOW	ONCE/QUARTER	ONCE/QUARTER
BOD <sub>5</sub> (MG/L)	ONCE/QUARTER	ONCE/QUARTER
TSS (MG/L)	ONCE/QUARTER	ONCE/QUARTER
PH (S.U.)	ONCE/QUARTER	ONCE/QUARTER

**GROUNDWATER MONITORING AT WETLAND CELLS**

Limitations for the Wetland Cells Area monitoring wells will remain unchanged for this renewal.

- **Minimum Sampling and Reporting Frequency Requirements.** Sampling and reporting frequency requirements have been retained from previous state operating permit.

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
Water Level	ONCE/QUARTER	ONCE/YEAR
Conductivity (µmhos/cm)	ONCE/QUARTER	ONCE/YEAR
Nitrate Nitrogen as N (MG/L)	ONCE/QUARTER	ONCE/YEAR
Total Nitrogen (MG/L)	ONCE/QUARTER	ONCE/YEAR
pH – Units	ONCE/QUARTER	ONCE/YEAR
Copper, Total Recoverable (µG/L)	ONCE/QUARTER	ONCE/YEAR
Zinc, Total Recoverable (µG/L)	ONCE/QUARTER	ONCE/YEAR
Nickel, Total Recoverable (µG/L)	ONCE/QUARTER	ONCE/YEAR
Cadmium, Total Recoverable (µG/L)	ONCE/QUARTER	ONCE/YEAR
Mercury, Total Recoverable (µG/L)	ONCE/QUARTER	ONCE/YEAR
Lead, Total Recoverable (µG/L)	ONCE/QUARTER	ONCE/YEAR
Silver, Total Recoverable (µG/L)	ONCE/QUARTER	ONCE/YEAR
Manganese, Total Recoverable (µG/L)	ONCE/QUARTER	ONCE/YEAR

**GROUNDWATER MONITORING AT SLUDGE APPLICATION AREA**

Facility has a 1999 Settlement Agreement with the Attorney General’s Office for violations of Clean Water Law for the sludge application area. Application to the site began in 1984 and concluded in 1995 when nitrate concentrations in groundwater consistently exceeded water quality standards for groundwater. The monitoring wells in this area have limitations for nitrates and other pollutants. According to the settlement agreement and the approval of the *Site Characterization Work Plan for Columbia Regional Wastewater Treatment Plant Sludge Injection Fields SC-1 and SC-12*, biosolids should not be utilized until nitrate levels in site monitoring wells decrease below 10 mg/L for a period of one year. Approval to reapply must be obtained from the Water Protection Control Program. Monitoring of the on-site wells is currently planned to continue.

Limitations for the Sludge Application Area monitoring wells will remain unchanged for this renewal. The settlement agreement indicated that they would continue monitoring these wells. The agreement on page 3 further states that “City agrees that...until such time that monitoring well show compliance with permit limitations and water quality standards for 12 consecutive months.” Exceedence of water quality standards for nitrates are still happening. The City does not currently use the sludge application area to apply biosolids. Sludge is currently applied to other City-owned land near the WWTP and privately-owned land within a 20-mile radius of the WWTP. Mobile equipment, including tanker trucks, a mobile storage tank, and a liquid injection vehicle are used for application at these sites.

- **Minimum Sampling and Reporting Frequency Requirements.** Sampling and reporting frequency requirements have been retained from previous state operating permit.

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
Water Level	ONCE/MONTH	ONCE/YEAR
Total Suspended Solids (MG/L)	ONCE/MONTH	ONCE/YEAR
Total Dissolved Solids (MG/L)	ONCE/MONTH	ONCE/YEAR
Nitrate Nitrogen as N (MG/L)	ONCE/MONTH	ONCE/YEAR
Ammonia Nitrogen (MG/L)	ONCE/MONTH	ONCE/YEAR
pH – Units	ONCE/MONTH	ONCE/YEAR
Copper, Total Recoverable (µG/L)	ONCE/YEAR	ONCE/YEAR
Zinc, Total Recoverable (µG/L)	ONCE/YEAR	ONCE/YEAR
Nickel, Total Recoverable (µG/L)	ONCE/YEAR	ONCE/YEAR
Cadmium, Total Recoverable (µG/L)	ONCE/YEAR	ONCE/YEAR
Mercury, Total Recoverable (µG/L)	ONCE/YEAR	ONCE/YEAR
Lead, Total Recoverable (µG/L)	ONCE/YEAR	ONCE/YEAR
Silver, Total Recoverable (µG/L)	ONCE/YEAR	ONCE/YEAR
Manganese, Total Recoverable (µG/L)	ONCE/YEAR	ONCE/YEAR
Cyanide, Amendable to Chlorination(µG/L)	ONCE/YEAR	ONCE/YEAR
Molybdenum, Total Recoverable (µG/L)	ONCE/YEAR	ONCE/YEAR
Selenium, Total Recoverable (µG/L)	ONCE/YEAR	ONCE/YEAR
Aluminum, Total Recoverable (µG/L)	ONCE/YEAR	ONCE/YEAR

**Part VI – Finding of Affordability**

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

Not Applicable; The Department is not required to determine findings of affordability because the permit contains no new conditions or requirements that convey a new cost to the facility. The permittee has already completed the modifications to the facility. The permit was revised to reflect the correct information for the facility. The community will not incur any costs as a result of this modification.

## **Part VII – Administrative Requirements**

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

### **PUBLIC NOTICE:**

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

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

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

The Public Notice period for this operating permit was from May 20, 2010 to June 20, 2010. Responses to the Public Notice of this operating permit warrant the modification of the terms and conditions of this permit. The sludge application area and wetland cell monitoring well that were previously listed in the permit now have coordinates. The City of Columbia requested modification of the permit to change the sludge application area monitoring well locations. We added a condition requiring

**DATE OF FACT SHEET:** AUGUST 5, 2010

### **COMPLETED BY:**

**TODD BLANC, ENVIRONMENTAL SPECIALIST**  
**WASTEWATER ENGINEERING UNIT**  
**PERMITTING AND ENGINEERING SECTION**  
**WATER PROTECTION PROGRAM**  
**PHONE: (573) 751-5827**  
**EMAIL: [TODD.BLANC@DNR.MO.GOV](mailto:TODD.BLANC@DNR.MO.GOV)**

The Public Notice period for this modification of the operating permit was from April 26, 2013 to May 28, 2013. There were no comments received during the Public Notice Period.

**DATE OF REVISED FACT SHEET:** APRIL 1, 2013

### **COMPLETED BY:**

**LOGAN COLE, ENVIRONMENTAL SPECIALIST**  
**DOMESTIC WASTEWATER UNIT**  
**OPERATING PERMITS SECTION**  
**WATER PROTECTION PROGRAM**  
**PHONE: (573) 751-5827**  
**EMAIL: [LOGAN.COLE@DNR.MO.GOV](mailto:LOGAN.COLE@DNR.MO.GOV)**

**Appendices**

**APPENDIX A - CLASSIFICATION WORKSHEET:**

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Maximum Population Equivalent (P.E.) served (Max 10 pts.)	1 pt./10,000 PE or major fraction thereof.	10
Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)	1 pt. / MGD or major fraction thereof.	10
<b>EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY:</b>		
Missouri or Mississippi River	0	
All other stream discharges except to losing streams and stream reaches supporting whole body contact	1	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	
<b>PRELIMINARY TREATMENT - Headworks</b>		
Screening and/or comminution	3	3
Grit removal	3	3
Plant pumping of main flow (lift station at the headworks)	3	3
<b>PRIMARY TREATMENT</b>		
Primary clarifiers	5	5
Combined sedimentation/digestion	5	5
Chemical addition (except chlorine, enzymes)	4	
<b>REQUIRED LABORATORY CONTROL – performed by plant personnel (highest level only)</b>		
Lab work conducted outside of plant	0	
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	
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	10
<b>ALTERNATIVE FATE OF EFFLUENT</b>		
Direct reuse or recycle of effluent	6	
Land Disposal – low rate	3	
High rate	5	5
Overland flow	4	
<b>Total from page ONE (1)</b>	----	55

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

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
<b>VARIATION IN RAW WASTE (highest level only) (DMR exceedances and Design Flow exceedances)</b>		
Variation do not exceed those normally or typically expected	0	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	
<b>SECONDARY TREATMENT</b>		
Trickling filter and other fixed film media with secondary clarifiers	10	
Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches)	15	15
Stabilization ponds without aeration	5	
Aerated lagoon	8	
Advanced Waste Treatment Polishing Pond	2	
Chemical/physical – without secondary	15	
Chemical/physical – following secondary	10	
Biological or chemical/biological	12	
Carbon regeneration	4	
<b>DISINFECTION</b>		
Chlorination or comparable	5	
Dechlorination	2	
On-site generation of disinfectant (except UV light)	5	
UV light	4	
<b>SOLIDS HANDLING - SLUDGE</b>		
Solids Handling Thickening	5	5
Anaerobic digestion	10	10
Aerobic digestion	6	
Evaporative sludge drying	2	
Mechanical dewatering	8	8
Solids reduction (incineration, wet oxidation)	12	
Land application	6	6
Total from page <b>TWO (2)</b>	----	44
Total from page <b>ONE (1)</b>	---	55
Grand Total	---	99

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

**APPENDIX B – RPA RESULTS:**

Note: MEC conducted a Reasonable Potential Analysis for nickel and zinc in the March 2009 revision of the Antidegradation Report. Number of monthly samples for the multiplier determination is based upon the permitted once/quarter sampling frequency, therefore n=4 will be applied. The following table summarizes the results:

METAL	TOTAL RECOVERABLE MAX. CONCENTRATION (UG/L)	SAMPLE NUMBER & COEFFICIENT OF VARIATION	MULTIPLYING FACTOR	RECEIVING WATER CONCENTRATION* (UG/L)	CHRONIC CRITERIA** (MISSOURI RIVER)	REASONABLE POTENTIAL TO EXCEED (RPTE)?
<b>Nickel, Total Recoverable</b>	10.0	24, 0.6	2.2	22.0	118.7	No
<b>Zinc, Total Recoverable</b>	60.2	24, 0.6	2.2	132.4	247.0	No

\* At the confluence of the Missouri River and unclassified slough from Eagle Bluffs CA. The receiving water concentration for acute and chronic is the same. The chronic criteria are the most stringent criteria and therefore are shown.

\*\* Hardness = 264 mg/L--based on 25<sup>th</sup> percentile of hardness monitoring data.

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.

No Fee Received

AP14183 C10001  
no funds need a/b/c/d



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

**FOR AGENCY USE ONLY**

CHECK NUMBER

DATE RECEIVED

FEE SUBMITTED

Northeast Regional Office  
RECEIVED

12/19/12

0 8B

**PART A – BASIC APPLICATION INFORMATION**

1. This application is for:

- An operating permit and antidegradation review public notice.
- A construction permit following an appropriate operating permit and antidegradation review public notice.
- A construction permit, a concurrent operating permit and antidegradation review public notice.
- A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required).
- An operating permit for a new or unpermitted facility. Construction Permit # \_\_\_\_\_
- An operating permit renewal: Permit #MO- \_\_\_\_\_ Expiration Date \_\_\_\_\_
- An operating permit modification: Permit #MO- 0097837 Reason: Monitoring well additions/deletions required by Section F. of permit

SEP 26 2012

- 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  N/A

**2. FACILITY**

NAME Columbia Regional Wastewater Treatment Plant		TELEPHONE NUMBER WITH AREA CODE 573-445-9427	
ADDRESS (PHYSICAL) 4900 W. Gillespie Bridge Road	CITY Columbia	STATE MO	ZIP 65203
2.1 LEGAL DESCRIPTION (Plant Site):		County Boone	
2.2 UTM Coordinates Easting (X): <u>551070</u> Northing (Y): <u>4308099</u> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)			

**3. OWNER**

NAME City of Columbia	TITLE	TELEPHONE NUMBER WITH AREA CODE 573-874-7250	
ADDRESS PO Box 6015	CITY Columbia	STATE MO	ZIP 65205

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.

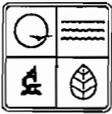
NAME Same as Owner		CITY	
ADDRESS	CERTIFICATE NUMBER (IF APPLICABLE)	STATE	ZIP

**5. OPERATOR**

NAME Steve Huebotter	TITLE Plant Superintendent	TELEPHONE NUMBER WITH AREA CODE 573-445-9427
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**6. FACILITY CONTACT**

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

no funds need  
 9/26/12

SEP 26 2012

FACILITY NAME Columbia Regional Wastewater Treatment Plant

PERMIT NO. MO-0097837  
 US MAIL COUNTY Boone

**APPLICATION OVERVIEW**

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

**BASIC APPLICATION INFORMATION**

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

**SUPPLEMENTAL APPLICATION INFORMATION**

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

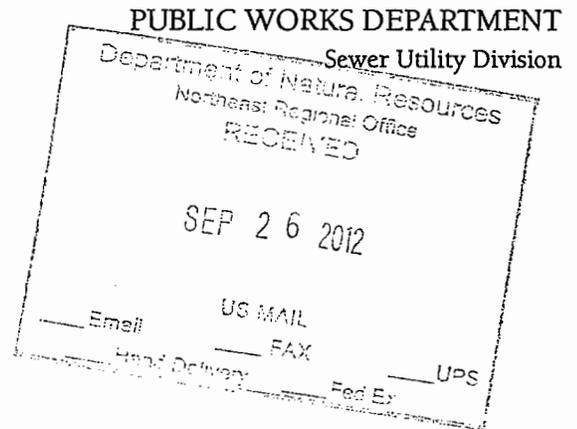
**ALL APPLICANTS MUST COMPLETE PARTS A, B and C**



# CITY OF COLUMBIA, MISSOURI

September 24, 2012

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



RE: City of Columbia WWTP, Permit No. MO-0097387 Application for Permit Modification Schedule of Compliance – Nitrates in Sludge Application Area Monitoring Wells

Dear Sirs:

Section F on the City's current State Operating Permit includes a Schedule of Compliance for Nitrates in the sludge application monitoring wells. This schedule required the City to submit a site characterization report for review and approval, as well as, a plan of work for installation of proposed monitoring wells. This report and plan of work have been previously provided and approved by the Northeast Regional Office. A copy of the approval letter is attached. The construction of the new wells has been completed and the existing wells have been properly abandoned. The schedule of compliance also requires the City to submit an application for permit modification to include or remove groundwater monitoring wells. The application must demonstrate the monitoring wells are registered with the State and comply with well construction rules. This required application for permit modification is enclosed for review by the Department. Also enclosed are copies of the Monitoring Well Certification Records for the new wells. These have been submitted to the Missouri Department of Natural Resources, Division of Geology and Land Survey, Wellhead Protection Section. Once the certification letter with the certification numbers for these wells is received, a copy will be forwarded to your office to verify the wells are registered with the State and comply with well construction rules.

In addition to the modification related to the monitoring wells, Outfall #002 listed in this permit has been plugged with concrete and is no longer in operation and it is requested this Outfall also be removed from the City's permit.

The City's current permit requires the modification for the monitoring wells be public noticed and is understandable. I request MDNR to limit comments to those related to the monitoring wells or the elimination of Outfall #002 or, at least, not consider any comments not related to these two items. I trust this application contains all the information necessary to modify the City's permit so the new monitoring wells are included, the old monitoring wells removed and

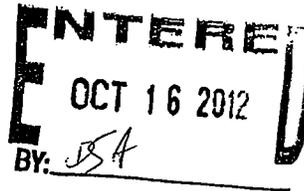
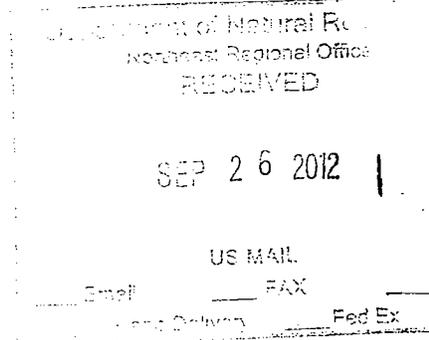
Outfall #002 removed. Should you have any questions or need additional information please contact David A. Sorrell, P.E., Sewer Utility Manager at (573) 445-9427.

Sincerely,  
DEPARTMENT OF PUBLIC WORKS

*John D. Glascock*

John D. Glascock, P.E.  
Director

c: MDNR Northeast Regional Office  
Mary Ellen Lea, Operations Manager  
Steve Hunt, P.E., Manager of Environmental Services  
David A. Sorrell, P.E., Sewer Utility Manager  
Craig Cuvellier, WWTP Laboratory Supervisor





Jeremiah W. (Jay) Nixon, Governor

Sara Parker Pauley, Director

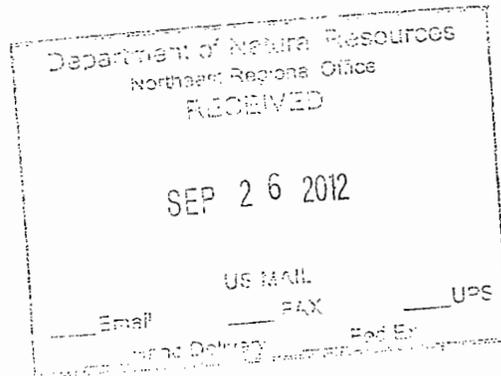
## DEPARTMENT OF NATURAL RESOURCES

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

5.110 Columbia Regional WWTP  
Boone County  
#MO-0097837

May 18, 2012

The Honorable Bob McDavid  
Mayor, City of Columbia  
P.O. Box 6015  
Columbia, MO 65205



Dear Mayor McDavid:

On October 3, 2011, the Missouri Department of Natural Resources' Northeast Regional Office received a Site Characterization Report and Monitoring Well Work Plan (report) for the Columbia Regional Wastewater Treatment Plant's Sludge Injection Fields SC-1 through SC-12. This report was required by Missouri State Operating Permit #MO-0097837, which was issued on September 24, 2010. The report was forwarded on to the department's Division of Geology and Land Survey for comment. A response was received on December 12, 2011, and forwarded on to Mr. David Sorrell, Sewer Utility Manager for the Columbia Public Works Department. On April 2, 2012, we received a response to the comments (dated March 30, 2012). These were again forwarded on to the department's Division of Geology and Land Survey for comment. A response was received on April 30, 2012. These comments are attached.

Please be aware that the report, as amended by the March 30, 2012, response to comments, is hereby approved.

When planning to abandon/construct the new groundwater monitoring wells, please review the Frequently Asked Questions document located at <http://dnr.mo.gov/pubs/pub2193.pdf>. After you have reviewed this document, please coordinate with Mr. Chris Thiltgen with the Division of Geology and Land Survey's Wellhead Protection Section at 573-368-2167 or P.O. Box 250, Rolla, MO 65402-0250. Once the old wells are abandoned and the new wells are constructed, the city is to submit an application Form B2 to modify Missouri State Operating Permit #MO-0097837 accordingly. Form B2 (Application for Construction or Operating Permit for Facilities which receive basically domestic waste and have a design flow more than 100,000 gallons per day) is located at <http://dnr.mo.gov/forms/780-1805-f.pdf>.

Columbia Regional WWTP  
May 18, 2012  
Page 2

If you have any questions, please contact Mr. Scott Adams, or me, at 660-385-8000 in the Northeast Regional Office, 1709 Prospect Drive, Macon, Missouri 63552.

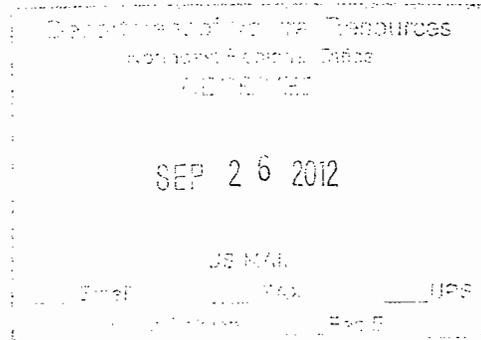
Sincerely,

NORTHEAST REGIONAL OFFICE



Irene Crawford  
Regional Director

IC/saa



Enclosure: Division of Geology and Land Survey report

- c: Mr. David Sorrell, P.E. Sewer Utility Manager, City of Columbia
- Mr. John Glascock, P.E., Director of Public Works, City of Columbia
- Mr. Chris Thiltgen, Wellhead Protection Section, MDNR



**Missouri Department Of Natural Resources**

Division of Geology and Land Survey  
P.O. Box 250  
Rolla, Missouri 65402  
Phone - 573.368.2181 Fax - 573.368.2111  
E-mail - gspgoc@dnr.mo.gov

DATE 4/26/2012  
 Department of Natural Resources  
 Northeast Regional Office  
 Identification Number M02312  
 RECEIVED  
 SEP 26 2012  
 US MAIL  
 Email FAX UPS  
 Fed Ex

**Miscellaneous Report**

TO **Scott Adams, E.I. NERO**  
FROM **Sherri Stoner, R.G. Environmental Assistance Unit, GSP**  
SUBJECT **City of Columbia, WWTP, Response to MDNR Comments**

Location **Quadrangle HUNTSDALE**  
**E1/2, NE1/4, SE1/4** Section **30** Township **48 N** Range **13 W** County **BOONE**  
Latitude **38 Deg 55 Min 2 Sec North** Longitude **92 Deg 25 Min 11 Sec West**  
Additional Location Information **Sec 30 NE1/4, NE1/4, SE1/4 & Sec 29 W1/2, NW1/4, SW1/4, NW1/4**

Requested by

Previous Reports  Not applicable  
0912 12 12/7/2011

The Geological Survey Program (GSP), Environmental Geology Section has reviewed the Response to MDNR Comments on the Site Characterization Report and Monitoring Well Work Plan for the City of Columbia Wastewater Treatment Plant, dated March 30, 2012. The GSP offers the following comments for your consideration.

Response to MDNR Comment 1. Comment noted.

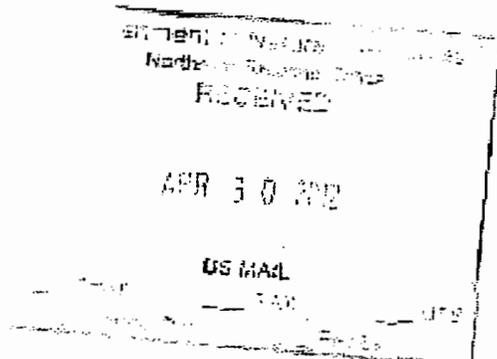
Response to MDNR Comment 2. Comment noted.

Response to MDNR Comment 3. Comment noted. However, having background groundwater quality data via an upgradient groundwater monitoring well may be advantageous to have, so that water quality mobilizing onto the site is known.

Response to MDNR Comment 4. Comment noted.

If you have any further questions, do not hesitate to contact Sherri Stoner at 573-368-2129.

cc: WPP



4-26-2012



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
GEOLOGICAL SURVEY PROGRAM  
**MONITORING WELL  
CERTIFICATION RECORD** 20 2012

<b>OFFICE USE ONLY</b>		DATE RECEIVED
REFERENCE NO.	CHECK NO.	
C.R. NO.	REVENUE NO.	
STATE WELL NUMBER	APPROVED BY	
ENTERED	Ph1	Ph2 Ph3
ROUTE		

**INFORMATION SUPPLIED BY PRIMARY CONTRACTOR OR DRILLING CONTRACTOR**

**NOTE: THIS FORM IS NOT TO BE USED FOR NESTED WELLS**

OWNER NAME City of Columbia, Missouri	CONTACT NAME Mr. Craig Cuvellier		VARIANCE GRANTED BY DNR
OWNER ADDRESS 701 E. Broadway	CITY Columbia	STATE MO	ZIP CODE 65203
SITE NAME City of Columbia MO - WWTP	WELL NUMBER SW-3R	COUNTY Boone	
SITE ADDRESS 4900 W. Gillespie Bridge Rd.	CITY Columbia	STATIC WATER LEVEL 14.0	

<b>SURFACE COMPLETION</b> TYPE <input checked="" type="checkbox"/> ABOVE GROUND <input type="checkbox"/> FLUSH MOUNT <input checked="" type="checkbox"/> LOCKING CAP <input checked="" type="checkbox"/> WEEP HOLE LENGTH AND DIAMETER OF SURFACE COMPLETION LENGTH <u>2.5</u> FT. DIAMETER <u>8</u> IN. DIAMETER AND DEPTH OF THE HOLE SURFACE COMPLETION WAS PLACED DIAMETER <u>16</u> IN. LENGTH <u>3</u> FT. SURFACE COMPLETION GROUT <input checked="" type="checkbox"/> CONCRETE <input type="checkbox"/> OTHER _____ LOCATION OF WELL (D/M/S FORMAT ONLY) LAT. <u>38</u> . <u>55</u> . <u>44.32</u> . LONG. <u>92</u> . <u>25</u> . <u>05.04</u> . SMALLEST _____ LARGEST _____ SECTION _____ TOWNSHIP _____ NORTH RANGE _____ EAST WEST _____ MONITORING FOR: (CHECK ALL THAT APPLY) <input type="checkbox"/> RADIONUCLIDES <input type="checkbox"/> PETROLEUM PRODUCTS ONLY <input type="checkbox"/> EXPLOSIVES <input checked="" type="checkbox"/> METALS <input checked="" type="checkbox"/> VOC <input checked="" type="checkbox"/> SVOCs <input checked="" type="checkbox"/> PESTICIDES/HERBICIDES PROPOSED USE OF WELL <input type="checkbox"/> GAS MIGRATION WELL <input checked="" type="checkbox"/> OBSERVATION <input type="checkbox"/> EXTRACTION WELL <input type="checkbox"/> OPEN HOLE <input type="checkbox"/> PIEZOMETERS <input type="checkbox"/> INJECTION WELL <input type="checkbox"/> DIRECT PUSH DEPTH TO TOP OF PRIMARY FILTER PACK <u>12</u> FT. LENGTH OF PRIMARY FILTER PACK <u>7</u> FT. LENGTH OF ANNUAL SEAL <u>4</u> FT. <input type="checkbox"/> SLURRY <input checked="" type="checkbox"/> CHIPS <input type="checkbox"/> PELLETS <input type="checkbox"/> GRANULAR <input type="checkbox"/> CEMENT/SLURRY IF CEMENT/BENTONITE MIX: BAGS OF CEMENT USED _____ % OF BENTONITE USED _____ WATER USED/BAG <u>5</u> GAL SECONDARY FILTER PACK LENGTH <u>2</u> FT. ELEVATION _____ FT.		<b>SURFACE COMPLETION</b> <input checked="" type="checkbox"/> STEEL <input type="checkbox"/> ALUMINUM <input type="checkbox"/> PLASTIC <b>RISER</b> RISER PIPE DIAMETER <u>4</u> IN. RISER PIPE LENGTH <u>16.5</u> FT. DIAMETER OF DRILL HOLE <u>13</u> IN. WEIGHT OR SDR# <u>40</u> <b>MATERIAL</b> <input type="checkbox"/> STEEL <input checked="" type="checkbox"/> THERMOPLASTIC (PVC) <input type="checkbox"/> OTHER _____ <b>BENTONITE SEAL</b> LENGTH <u>3</u> <input checked="" type="checkbox"/> CHIPS <input type="checkbox"/> PELLETS <input type="checkbox"/> GRANULAR <input type="checkbox"/> SLURRY <input type="checkbox"/> SATURATED ZONE <input type="checkbox"/> HYDRATED <b>SCREEN</b> SCREEN DIAMETER <u>4</u> IN. SCREEN LENGTH <u>5</u> FT. DIAMETER OF DRILL HOLE <u>13</u> IN. DEPTH TO TOP <u>14</u> FT. <b>SCREEN MATERIAL</b> <input type="checkbox"/> STEEL <input type="checkbox"/> THERMOPLASTIC (PVC) <input checked="" type="checkbox"/> OTHER <u>304 SS</u>	<table border="1"> <thead> <tr> <th colspan="2">DEPTH</th> <th rowspan="2">FORMATION DESCRIPTION</th> </tr> <tr> <th>TO</th> <th>FROM</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>9"</td> <td>Topsoil</td> </tr> <tr> <td>9"</td> <td>4.8ft</td> <td>Cl SILT</td> </tr> <tr> <td>4.8</td> <td>8</td> <td>Si SAND, Moist</td> </tr> <tr> <td>8</td> <td>18</td> <td>Fi SAND w/ Si, Mst</td> </tr> <tr> <td>18</td> <td>19</td> <td>Fi SAND, Wet</td> </tr> <tr> <td colspan="2">TOTAL DEPTH:</td> <td><b>19</b></td> </tr> </tbody> </table>	DEPTH		FORMATION DESCRIPTION	TO	FROM	0	9"	Topsoil	9"	4.8ft	Cl SILT	4.8	8	Si SAND, Moist	8	18	Fi SAND w/ Si, Mst	18	19	Fi SAND, Wet	TOTAL DEPTH:		<b>19</b>
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FOR CASED WELLS, SUBMIT ADDITIONAL AS BUILT DIAGRAMS SHOWING WELL CONSTRUCTION DETAILS INCLUDING TYPE & SIZE OF ALL CASING, HOLE DIAMETER & GROUT USED.

SIGNATURE (PRIMARY CONTRACTOR)	PERMIT NUMBER 003503-M	DATE WELL DRILLING WAS COMPLETED 09/11/2012
I HEREBY CERTIFY THAT THE MONITORING WELL HEREIN DESCRIBED WAS CONSTRUCTED IN ACCORDANCE WITH MISSOURI DEPARTMENT OF NATURAL RESOURCES REQUIREMENTS FOR THE CONSTRUCTION OF MONITORING WELLS.		<input type="checkbox"/> PUMP INSTALLED
SIGNATURE (WELL DRILLER)	PERMIT NUMBER 003907-M	SIGNATURE (OF APPRENTICE)
		APPRENTICE PERMIT NUMBER



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 GEOLOGICAL SURVEY PROGRAM  
**MONITORING WELL  
 CERTIFICATION RECORD**

<b>OFFICE USE ONLY</b>		DATE RECEIVED
REFERENCE NO.	CHECK NO.	
C.R. NO.	REVENUE NO.	
STATE WELL NUMBER	APPROVED BY	
ENTERED	ROUTE	
Ph1 Ph2 Ph3		

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OWNER ADDRESS 701 E. Broadway	CITY Columbia	STATE MO
	ZIP CODE 65203	NUMBER N/A
SITE NAME City of Columbia MO - WWTP	WELL NUMBER SW-1R	COUNTY Boone
SITE ADDRESS 4900 W. Gillespie Bridge Rd.	CITY Columbia	STATIC WATER LEVEL 18.0

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FOR CASED WELLS, SUBMIT ADDITIONAL AS BUILT DIAGRAMS SHOWING WELL CONSTRUCTION DETAILS INCLUDING TYPE & SIZE OF ALL CASING, HOLE DIAMETER & GROUT USED.

SIGNATURE (PRIMARY CONTRACTOR)	PERMIT NUMBER 003503-M	DATE WELL DRILLING WAS COMPLETED 09/10/2012
I HEREBY CERTIFY THAT THE MONITORING WELL HEREIN DESCRIBED WAS CONSTRUCTED IN ACCORDANCE WITH MISSOURI DEPARTMENT OF NATURAL RESOURCES REQUIREMENTS FOR THE CONSTRUCTION OF MONITORING WELLS.		<input type="checkbox"/> PUMP INSTALLED
SIGNATURE (WELL DRILLER)	PERMIT NUMBER 003907-M	SIGNATURE (OF APPRENTICE)
		APPRENTICE PERMIT NUMBER



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 GEOLOGICAL SURVEY PROGRAM  
**MONITORING WELL  
 CERTIFICATION RECORD**

20 2012

<b>OFFICE USE ONLY</b>		DATE RECEIVED
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C.R. NO.	REVENUE NO.	
STATE WELL NUMBER	ENTERED	APPROVED BY
Ph1 Ph2 Ph3	ROUTE	

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SITE ADDRESS 4900 W. Gillespie Bridge Rd.		CITY Columbia	STATIC WATER LEVEL 18.0	

<b>SURFACE COMPLETION</b>		DIAMETER AND DEPTH OF THE HOLE SURFACE COMPLETION WAS PLACED		SURFACE COMPLETION GROUT	
TYPE	LENGTH AND DIAMETER OF SURFACE COMPLETION	DIAMETER	LENGTH	<input checked="" type="checkbox"/> CONCRETE	<input type="checkbox"/> OTHER
<input checked="" type="checkbox"/> ABOVE GROUND	LENGTH <u>2.5</u> FT.	<u>16</u> IN.	<u>3</u> FT.		
<input type="checkbox"/> FLUSH MOUNT	DIAMETER <u>8</u> IN.				
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ELEVATION _____ FT.					
<b>ANNULAR SEAL</b>					
LENGTH <u>4</u> FT.					
<input type="checkbox"/> SLURRY <input checked="" type="checkbox"/> CHIPS <input type="checkbox"/> PELLETS <input type="checkbox"/> GRANULAR <input type="checkbox"/> CEMENT/SLURRY IF CEMENT/BENTONITE MIX: BAGS OF CEMENT USED _____ % OF BENTONITE USED _____ WATER USED/BAG <u>5</u> GAL.					
<b>SURFACE COMPLETION</b>					
<input checked="" type="checkbox"/> STEEL <input type="checkbox"/> ALUMINUM <input type="checkbox"/> PLASTIC					
<b>RISER</b>					
RISER PIPE DIAMETER <u>4</u> IN.					
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<input type="checkbox"/> STEEL <input checked="" type="checkbox"/> THERMOPLASTIC (PVC)					
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<b>BENTONITE SEAL</b>					
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<input checked="" type="checkbox"/> CHIPS <input type="checkbox"/> PELLETS <input type="checkbox"/> GRANULAR					
<input type="checkbox"/> SLURRY					
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<b>SCREEN</b>					
SCREEN DIAMETER <u>4</u> IN.					
SCREEN LENGTH <u>5</u> FT.					
DIAMETER OF DRILL HOLE <u>13</u> IN.					
DEPTH TO TOP <u>14</u> FT.					
<b>SCREEN MATERIAL</b>					
<input type="checkbox"/> STEEL <input type="checkbox"/> THERMOPLASTIC (PVC)					
<input checked="" type="checkbox"/> OTHER <u>304 SS</u>					

LOCATION OF WELL (D/M/S FORMAT ONLY)		
LAT. <u>38</u> . <u>56</u> . <u>33.46</u> .		
LONG. <u>92</u> . <u>25</u> . <u>13.31</u> .		
SMALLEST _____	LARGEST _____	
SECTION _____	TOWNSHIP _____	NORTH _____
RANGE _____	<input type="checkbox"/> EAST	<input type="checkbox"/> WEST
MONITORING FOR: (CHECK ALL THAT APPLY)		
<input type="checkbox"/> RADIONUCLIDES	<input type="checkbox"/> PETROLEUM PRODUCTS ONLY	
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<input checked="" type="checkbox"/> SVOCs	<input checked="" type="checkbox"/> PESTICIDES/HERBICIDES	
PROPOSED USE OF WELL		
<input type="checkbox"/> GAS MIGRATION WELL	<input checked="" type="checkbox"/> OBSERVATION	
<input type="checkbox"/> EXTRACTION WELL	<input type="checkbox"/> OPEN HOLE	
<input type="checkbox"/> PIEZOMETERS	<input type="checkbox"/> INJECTION WELL	
<input type="checkbox"/> DIRECT PUSH		
DEPTH		FORMATION DESCRIPTION
TO	FROM	
0	9"	Topsoil
9"	10.5ft	Cl SILT
10.5	13	Si CLAY, Moist
13	18	Sa CLAY, Moist
18	19	Fi SAND, Moist
TOTAL DEPTH:		19

FOR CASED WELLS, SUBMIT ADDITIONAL AS BUILT DIAGRAMS SHOWING WELL CONSTRUCTION DETAILS INCLUDING TYPE & SIZE OF ALL CASING, HOLE DIAMETER & GROUT USED.

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SIGNATURE (WELL DRILLER)	PERMIT NUMBER 003907-M	SIGNATURE (OF APPRENTICE)
		APPRENTICE PERMIT NUMBER

FACILITY NAME <b>Columbia Regional Wastewater Treatment Plant</b>		PERMIT NO. <b>MO-0097837</b>	OUTFALL NO. <b>001</b>	
<b>PART A – BASIC APPLICATION INFORMATION</b>				
<b>7. ADDITIONAL FACILITY INFORMATION</b>				
7.1 BRIEF DESCRIPTION OF FACILITIES Activated sludge, anaerobic sludge digester, sludge is being land applied, sludge storage basin, wetland treatment SEE ATTACHMENT A (Section 7.2) and ATTACHMENT B (Section 7.3)				
7.2 TOPOGRAPHIC MAP. ATTACH TO THIS APPLICATION A TOPOGRAPHIC MAP OF THE AREA EXTENDING AT LEAST ONE MILE BEYOND FACILITY PROPERTY BOUNDARIES. THIS MAP MUST SHOW THE OUTLINE OF THE FACILITY AND THE FOLLOWING INFORMATION. (YOU MAY SUBMIT MORE THAN ONE MAP IF ONE MAP DOES NOT SHOW THE ENTIRE AREA.) a. The area surrounding the treatment plant, including all unit processes. b. The location of the downstream landowner(s). (See Item 10.) c. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable. d. The actual point of discharge. e. Wells, springs, other surface water bodies and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant. f. Any areas where the sewage sludge produced by the treatment works is stored, treated or disposed. g. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act, or RCRA, by truck, rail or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored or disposed.				
7.3 PROCESS FLOW DIAGRAM OR SCHEMATIC. PROVIDE A DIAGRAM SHOWING THE PROCESSES OF THE TREATMENT PLANT. ALSO, PROVIDE A WATER BALANCE SHOWING ALL TREATMENT UNITS, INCLUDING DISINFECTION (E.G. CHLORINATION AND DECHLORINATION). THE WATER BALANCE MUST SHOW DAILY AVERAGE FLOW RATES AT INFLUENT AND DISCHARGE POINTS AND APPROXIMATE DAILY FLOW RATES BETWEEN TREATMENT UNITS. INCLUDE A BRIEF NARRATIVE DESCRIPTION OF THE DIAGRAM.				
7.4 FACILITY SIC CODE <b>4952</b>	DISCHARGE SIC CODE: <b>4952</b>	FACILITY NAICS CODE: <b>221320</b>	DISCHARGE NAICS CODE: <b>221320</b>	
7.5 NUMBER OF SEPARATE DISCHARGE POINTS <b>001 - Treated Effluent</b>		<b>003 &amp; 004 - Stormwater</b>		
7.6 NUMBER OF PEOPLE PRESENTLY CONNECTED OR POPULATION EQUIVALENT <b>116,300</b>			DESIGN POPULATION EQUIVALENT <b>175,875</b>	
NUMBER OF UNITS PRESENTLY CONNECTED HOMES _____ APARTMENTS _____ TRAILERS _____ OTHER <b>46,374 Service Accounts</b>				
TOTAL DESIGN FLOW (ALL OUTFALLS) <b>20.6 MGD</b>		ACTUAL FLOW <b>15.8 MGD (2009 Average)</b>		
7.7 DOES ANY BYPASSING OCCUR ANYWHERE IN THE COLLECTION SYSTEM OR AT THE TREATMENT FACILITY? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If Yes, attach an explanation.)				
7.8 LENGTH OF THE SANITARY SEWER COLLECTION SYSTEM IN MILES <b>675</b>				
7.9 IS INDUSTRIAL WASTE DISCHARGED TO THE FACILITY IDENTIFIED IN ITEM 2? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
7.10 WILL THE DISCHARGE BE CONTINUOUS THROUGH THE YEAR? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
A. DISCHARGE WILL OCCUR DURING THE FOLLOWING MONTHS <b>January through December</b>		B. HOW MANY DAYS OF THE WEEK WILL THE DISCHARGE OCCUR? <b>7</b>		
7.11 IS WASTEWATER LAND APPLIED? (If Yes, Attach Form I) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		7.12 DOES THIS FACILITY DISCHARGE TO A LOSING STREAM OR SINKHOLE? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
7.13 HAS A WASTE LOAD ALLOCATION STUDY BEEN COMPLETED FOR THIS FACILITY? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
7.14 LIST ALL PERMIT VIOLATIONS, INCLUDING EFFLUENT LIMIT EXCEEDANCES IN THE LAST FIVE YEARS. ATTACH A SEPARATE SHEET IF NECESSARY. IF NONE, WRITE NONE. ATTACHMENT C				
<b>8. LABORATORY CONTROL INFORMATION</b>				
8.1 LABORATORY WORK CONDUCTED BY PLANT PERSONNEL				
Lab work conducted outside of plant.			Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Push-button or visual methods for simple test such as pH, settleable solids.			Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Additional procedures such as Dissolved Oxygen, Chemical Oxygen Demand, Biological Oxygen Demand, titrations, solids, volatile content.			Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.			Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph.			Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

FACILITY NAME <b>Columbia Regional Wastewater Treatment Plant</b>		PERMIT NO. <b>MO-0097837</b>	OUTFALL NO. <b>001</b>	
<b>PART A – BASIC APPLICATION INFORMATION</b>				
<b>9. SLUDGE HANDLING, USE AND DISPOSAL</b>				
9.1 IS THE SLUDGE A HAZARDOUS WASTE AS DEFINED BY 10 CSR 25? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
9.2 SLUDGE PRODUCTION, INCLUDING SLUDGE RECEIVED FROM OTHERS Design Dry Tons/Year <b>3,948</b>		Actual Dry Tons/Year <b>2624 in 2008</b>		
9.3 CAPACITY OF SLUDGE HOLDING STRUCTURES <b>SEE ATTACHMENT D</b>				
9.4 SLUDGE STORAGE PROVIDED <b>SEE ATTACHMENT D</b> Cubic Feet      Days of Storage      Average Percent Solids of Sludge <input type="checkbox"/> No Sludge Storage is Provided				
9.5 TYPE OF STORAGE <input type="checkbox"/> Holding Tank <input checked="" type="checkbox"/> Basin <input type="checkbox"/> Building <input type="checkbox"/> Concrete Pad <input checked="" type="checkbox"/> Other (Describe) <b>Secondary Digester</b>				
9.6 SLUDGE TREATMENT <input checked="" type="checkbox"/> Anaerobic Digester <input type="checkbox"/> Storage Tank <input type="checkbox"/> Lime Stabilization <input type="checkbox"/> Lagoon <input type="checkbox"/> Aerobic Digester <input type="checkbox"/> Air or Heat Drying <input type="checkbox"/> Composting <input type="checkbox"/> Other (Attach Description)				
9.7 SLUDGE USE OR DISPOSAL <input checked="" type="checkbox"/> Land Application <input type="checkbox"/> Contract Hauler <input type="checkbox"/> Hauled to Another Treatment Facility <input type="checkbox"/> Solid Waste Landfill <input type="checkbox"/> Surface Disposal (Sludge Disposal Lagoon, Sludge Held For More Than Two Years) <input type="checkbox"/> Incineration <input type="checkbox"/> Other (Attach Explanation Sheet) _____				
9.8 PERSON RESPONSIBLE FOR HAULING SLUDGE TO DISPOSAL FACILITY				
NAME <b>City of Columbia</b>				
ADDRESS		CITY	STATE	ZIP
CONTACT PERSON		TELEPHONE NUMBER WITH AREA CODE	PERMIT NO <b>MO-</b>	
9.9 SLUDGE USE OR DISPOSAL FACILITY <input checked="" type="checkbox"/> By Applicant <input checked="" type="checkbox"/> By Others (Complete Below)				
NAME <b>Missouri Biosolids LLC</b>				
ADDRESS <b>2927 County Road 253</b>		CITY <b>Columbia</b>	STATE <b>MO</b>	ZIP <b>65202</b>
CONTACT PERSON <b>Joe Shryock</b>		TELEPHONE NUMBER WITH AREA CODE <b>(573) 592-0191</b>	PERMIT NO <b>MO- 0131342</b>	
9.10 DO THE SLUDGE OR BIOSOLIDS DISPOSAL COMPLY WITH FEDERAL SLUDGE REGULATIONS UNDER 40 CFR 503? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (Attach Explanation)				
<b>10. DOWNSTREAM LANDOWNER(S). (ATTACH ADDITIONAL SHEETS AS NECESSARY.)</b>				
NAME <b>Missouri Department of Conservation, Eagle Bluffs Conservation Area</b>				
ADDRESS <b>6700 Route K</b>		CITY <b>Columbia</b>	STATE <b>MO</b>	ZIP <b>65203</b>
<b>11. DRINKING WATER SUPPLY INFORMATION</b>				
11.1 SOURCE OF YOUR DRINKING WATER SUPPLY				
A. PUBLIC SUPPLY (MUNICIPAL OR WATER DISTRICT WATER) (IF PUBLIC, PLEASE GIVE NAME OF PUBLIC SUPPLY) <b>City of Columbia, Water &amp; Light Department</b>				
B. PRIVATE WELL				
C. SURFACE WATER (LAKE, POND OR STREAM)				
11.2 DOES YOUR DRINKING WATER SOURCE SERVE AT LEAST 25 PEOPLE AT LEAST 60 DAYS PER YEAR (NOT NECESSARILY CONSECUTIVE DAYS)? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
11.3 DOES YOUR SPPLY SERVE HOUSING THAT IS OCCUPIED YEAR ROUND BY THE SAME PEOPLE? THIS DOES NOT INCLUDE HOUSING THAT IS OCCUPIED SEASONALLY? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
<b>END OF PART A</b>				

MO 780-1805 (09-08)

<b>MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL</b>			
FACILITY NAME <b>Columbia Regional Wastewater Treatment Plant</b>		PERMIT NO. <b>MO-0097837</b>	OUTFALL NO. <b>001</b>
<b>PART B – ADDITIONAL APPLICATION INFORMATION</b>			
<b>20. INFLOW AND INFILTRATION</b>			
ESTIMATE THE AVERAGE NUMBER OF GALLONS PER DAY THAT FLOW INTO THE TREATMENT WORKS FROM INFLOW AND INFILTRATION. Gallons Per Day <b>1.4 MGD</b>			
BRIEFLY EXPLAIN ANY STEPS UNDERWAY OR PLANNED TO MINIMIZE INFLOW AND INFILTRATION. The City is in the final stages of a Wastewater System Facilities Planning Report and intends to address I&I identified by the collection system evaluation with future projects. CIPP - 15,000 Feet/Year			
<b>20.1 OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)</b>			
ARE ANY OPERATIONAL OR MAINTENANCE ASPECTS (RELATED TO WASTEWATER TREATMENT AND EFFLUENT QUALITY) OF THE TREATMENT WORKS THE RESPONSIBILITY OF A CONTRACTOR? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)			
NAME			
MAILING ADDRESS			
TELEPHONE NUMBER WITH AREA CODE			
RESPONSIBILITIES OF CONTRACTOR			
<b>20.2 SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION. PROVIDE INFORMATION ABOUT ANY UNCOMPLETED IMPLEMENTATION SCHEDULE OR UNCOMPLETED PLANS FOR IMPROVEMENTS THAT WILL AFFECT THE WASTEWATER TREATMENT, EFFLUENT QUALITY OR DESIGN CAPACITY OF THE TREATMENT WORKS. IF THE TREATMENT WORKS HAS SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES OR IS PLANNING SEVERAL IMPROVEMENTS, SUBMIT SEPARATE RESPONSES FOR EACH. (IF NONE, GO TO QUESTION B-20.3.) SEE ATTACHMENT E</b>			
A. List the outfall number that is covered by this implementation schedule Outfall No. <b>001</b>		B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<b>20.3 WASTEWATER DISCHARGES:</b> COMPLETE QUESTIONS 20.4 THROUGH 20.7 ONCE FOR EACH OUTFALL (INCLUDING BYPASS POINTS) THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION ON COMBINED SEWER OVERFLOWS IN THIS SECTION.			
<b>20.4 DESCRIPTION OF OUTFALL Treated effluent to Eagle Bluffs Conservation Area</b>			
OUTFALL NUMBER <b>#001 - POTW</b>			
A. LOCATION <b>Boone County</b> <b>¼ NE ¼ SW ¼</b> Section <b>18</b> Township <b>47N</b> Range <b>13</b> <input type="checkbox"/> E <input checked="" type="checkbox"/> W UTM Coordinates Easting (X) <b>549130</b> Northing (Y): <b>4302043</b> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)			
B. Distance from Shore (If Applicable) <b>N/A</b> _____ ft.		C. Depth Below Surface (If Applicable) <b>N/A</b> _____ ft.	
D. Average Daily Flow Rate <b>15.8</b> mgd			
E. Does this outfall have either an intermittent or periodic discharge? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Provide the following information:			
Number of Days Per Year Discharge Occurs: <b>365</b>		Average Duration of Each Discharge: <b>24 Hours</b>	
Average Flow Per Discharge: <b>N/A</b> mgd		Months in Which Discharge Occurs: <b>January through December</b>	
Is Outfall Equipped with a Diffuser? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
<b>20.5 DESCRIPTION OF RECEIVING WATER</b>			
B. Name of Receiving Water <b>Eagle Bluffs Conservation Area (U)</b>			
B. Name of Watershed (If Known) <b>Perche Creek</b>		U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)	
B. Name of State Management/River Basin (If Known) <b>Missouri River Basin</b>		U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known) <b>10300102-320003</b>	
B. Critical Flow of Receiving Stream (If Applicable) Acute <b>N/A</b> cfs Chronic <b>N/A</b> cfs		B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable) mg/L of CaCO <sub>3</sub> <b>263 (effluent)</b>	

FACILITY NAME <b>Columbia Regional Wastewater Treatment Plant</b>	PERMIT NO. <b>MO-0097837</b>	OUTFALL NO. <b>001</b>
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**PART B – ADDITIONAL APPLICATION INFORMATION (CONTINUED)**

**20.6 DESCRIPTION OF TREATMENT**

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

B. INDICATE THE FOLLOWING REMOVAL RATES (AS APPLICABLE)  
 Design BOD<sub>5</sub> Removal Or Design CBOD<sub>5</sub> Removal      99 %      Design SS Removal      99 %  
 Design P Removal      0 %      Design N Removal      0 %      Other      \_\_\_\_\_ %

C. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe:  
**Disinfection is not Required**

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

Does the treatment plant have post aeration?       Yes       No

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

OUTFALL NUMBER **001**

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	VALUE	UNITS	VALUE	UNITS	NO. OF SAMPLES
pH (Minimum)	7.0	S.U.		S.U.	1,111
pH (Maximum)	9.0	S.U.		S.U.	1,111
FLOW RATE	45.2	MGD	14.6	MGD	1,581
TEMPERATURE (Winter)	21	°C	8.6	°C	1,110
TEMPERATURE (Summer)	29	°C	19.7	°C	1,110

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

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

Conventional and Nonconventional Compounds								
BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD <sub>5</sub>	65	mg/L	9	mg/L	1,109	5210B	2
	CBOD <sub>5</sub>	50	mg/L	5	mg/L	1,110	5210B	2
FECAL COLIFORM		236,000	#/100 mL	26,850	#/100 mL	74	9223B	2
TOTAL SUSPENDED SOLIDS (TSS)		254	mg/L	14	mg/L	1,112	2540D	1
AMMONIA (AS N)		29	mg/L	9	mg/L	945	4500-NH3D	1
CHLORINE (TOTAL RESIDUAL, TRC)		The facility does not disinfect, no chlorination						
DISSOLVED OXYGEN		Monitoring not required						
TOTAL KJELDAHL NITROGEN (TKN)		8.2	mg/L	8.2	mg/L	1	4500-NH3H	1
NITRATE PLUS NITRITE NITROGEN		1.9	mg/L	1.9	mg/L	1	4500-NO3F	0.1
OIL AND GREASE		<5	mg/L	<5	mg/L	1	1664 Rev/99	5
PHOSPHORUS (TOTAL)		1.3	mg/L	1.3	mg/L	1	4500-P B1F	0.05
TOTAL DISSOLVE SOLIDS (TDS)		660	mg/L	660	mg/L	1	2540C	17

\*Maximum Daily Concentrations were anomalous and did not result in weekly average violations

**END OF PART B**

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL			
FACILITY NAME <b>Columbia Regional Wastewater Treatment Plant</b>		PERMIT NO. <b>MO-0097837</b>	OUTFALL NO. <b>003 (Stormwater)</b>
<b>PART B – ADDITIONAL APPLICATION INFORMATION</b>			
<b>20. INFLOW AND INFILTRATION</b>			
ESTIMATE THE AVERAGE NUMBER OF GALLONS PER DAY THAT FLOW INTO THE TREATMENT WORKS FROM INFLOW AND INFILTRATION. Gallons Per Day <b>N/A</b>			
BRIEFLY EXPLAIN ANY STEPS UNDERWAY OR PLANNED TO MINIMIZE INFLOW AND INFILTRATION.			
<b>20.1 OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)</b>			
ARE ANY OPERATIONAL OR MAINTENANCE ASPECTS (RELATED TO WASTEWATER TREATMENT AND EFFLUENT QUALITY) OF THE TREATMENT WORKS THE RESPONSIBILITY OF A CONTRACTOR? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)			
NAME			
MAILING ADDRESS			
TELEPHONE NUMBER WITH AREA CODE			
RESPONSIBILITIES OF CONTRACTOR			
<b>20.2 SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION. PROVIDE INFORMATION ABOUT ANY UNCOMPLETED IMPLEMENTATION SCHEDULE OR UNCOMPLETED PLANS FOR IMPROVEMENTS THAT WILL AFFECT THE WASTEWATER TREATMENT, EFFLUENT QUALITY OR DESIGN CAPACITY OF THE TREATMENT WORKS. IF THE TREATMENT WORKS HAS SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES OR IS PLANNING SEVERAL IMPROVEMENTS, SUBMIT SEPARATE RESPONSES FOR EACH. (IF NONE, GO TO QUESTION B-20.3.)</b>			
A. List the outfall number that is covered by this implementation schedule Outfall No.		B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies. Yes <input type="checkbox"/> No <input type="checkbox"/>	
<b>20.3 WASTEWATER DISCHARGES:</b> COMPLETE QUESTIONS 20.4 THROUGH 20.7 ONCE FOR EACH OUTFALL (INCLUDING BYPASS POINTS) THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION ON COMBINED SEWER OVERFLOWS IN THIS SECTION.			
<b>20.4 DESCRIPTION OF OUTFALL</b> <b>Stormwater discharge - from WWTP grounds</b>			
OUTFALL NUMBER <b>#003 - POTW</b>			
A. LOCATION <b>Boone County</b> $\frac{1}{4}$ <b>NE</b> $\frac{1}{4}$ <b>SW</b> $\frac{1}{4}$ Section <b>29</b> Township <b>48N</b> Range <b>13</b> <input type="checkbox"/> E <input checked="" type="checkbox"/> W UTM Coordinates Easting (X): <b>551107</b> Northing (Y): <b>4307953</b> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)			
B. Distance from Shore (If Applicable) <b>N/A</b> ft.		C. Depth Below Surface (If Applicable) <b>N/A</b> ft.	
D. Average Daily Flow Rate mgd <b>Depends on precipitation</b>			
E. Does this outfall have either an intermittent or periodic discharge? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, Provide the following information: Monitoring requirements established in Plant's SWPPP			
Number of Days Per Year Discharge Occurs: <b>Flow dependent upon precipitation</b>		Average Duration of Each Discharge: <b>24 Hours</b>	
Average Flow Per Discharge: <b>N/A</b> mgd		Months in Which Discharge Occurs:	
Is Outfall Equipped with a Diffuser? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
<b>20.5 DESCRIPTION OF RECEIVING WATER</b>			
B. Name of Receiving Water <b>Hinkson Creek (P)</b>			
B. Name of Watershed (If Known) <b>Hinkson Creek</b>		U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)	
B. Name of State Management/River Basin (If Known) <b>Missouri River Basin</b>		U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known) <b>10310102-120002</b>	
B. Critical Flow of Receiving Stream (If Applicable) Acute <b>N/A</b> cfs Chronic <b>N/A</b> cfs		B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable) mg/L of CaCO <sub>3</sub> <b>N/A</b>	

FACILITY NAME <b>Columbia Regional Wastewater Treatment Plant</b>	PERMIT NO. <b>MO-0097837</b>	OUTFALL NO. <b>003 ( Stormwater)</b>
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**PART B – ADDITIONAL APPLICATION INFORMATION (CONTINUED)**

**20.6 DESCRIPTION OF TREATMENT**

A. WHAT LEVELS OF TREATMENT ARE PROVIDED? Check All That Apply  
 Primary     Secondary     Advanced     Other (Describe)    **Retained stormwater returned to process**

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

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

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

Does the treatment plant have post aeration?     Yes     No    **N/A**

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

OUTFALL NUMBER					
PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	VALUE	UNITS	VALUE	UNITS	NO. OF SAMPLES
pH (Minimum)		S.U.		S.U.	
pH (Maximum)		S.U.		S.U.	
FLOW RATE		MGD		MGD	
TEMPERATURE (Winter)		°C		°C	
TEMPERATURE (Summer)		°C		°C	

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

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	CONC.	UNITS	CONC.	UNITS	NO. OF SAMPLES		
<b>Conventional and Nonconventional Compounds</b>							
BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD <sub>5</sub>	mg/L	mg/L	mg/L	mg/L		
	CBOD <sub>5</sub>	mg/L	mg/L	mg/L	mg/L		
FECAL COLIFORM		#/100 mL		#/100 mL			
TOTAL SUSPENDED SOLIDS (TSS)		mg/L		mg/L			
AMMONIA (AS N)		mg/L		mg/L			
CHLORINE (TOTAL RESIDUAL, TRC)		mg/L		mg/L			
DISSOLVED OXYGEN		mg/L		mg/L			
TOTAL KJELDAHL NITROGEN (TKN)		mg/L		mg/L			
NITRATE PLUS NITRITE NITROGEN		mg/L		mg/L			
OIL AND GREASE		mg/L		mg/L			
PHOSPHORUS (TOTAL)		mg/L		mg/L			
TOTAL DISSOLVE SOLIDS (TDS)		mg/L		mg/L			
OTHER		mg/L		mg/L			

**END OF PART B**

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL			
FACILITY NAME Columbia Regional Wastewater Treatment Plant		PERMIT NO. MO- 0097837	OUTFALL NO. 004 ( Stormwater)
<b>PART B – ADDITIONAL APPLICATION INFORMATION</b>			
<b>20. INFLOW AND INFILTRATION</b>			
ESTIMATE THE AVERAGE NUMBER OF GALLONS PER DAY THAT FLOW INTO THE TREATMENT WORKS FROM INFLOW AND INFILTRATION. Gallons Per Day <u>N/A</u>			
BRIEFLY EXPLAIN ANY STEPS UNDERWAY OR PLANNED TO MINIMIZE INFLOW AND INFILTRATION.			
<b>20.1 OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)</b>			
ARE ANY OPERATIONAL OR MAINTENANCE ASPECTS (RELATED TO WASTEWATER TREATMENT AND EFFLUENT QUALITY) OF THE TREATMENT WORKS THE RESPONSIBILITY OF A CONTRACTOR? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)			
NAME			
MAILING ADDRESS			
TELEPHONE NUMBER WITH AREA CODE			
RESPONSIBILITIES OF CONTRACTOR			
<b>20.2 SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION. PROVIDE INFORMATION ABOUT ANY UNCOMPLETED IMPLEMENTATION SCHEDULE OR UNCOMPLETED PLANS FOR IMPROVEMENTS THAT WILL AFFECT THE WASTEWATER TREATMENT, EFFLUENT QUALITY OR DESIGN CAPACITY OF THE TREATMENT WORKS. IF THE TREATMENT WORKS HAS SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES OR IS PLANNING SEVERAL IMPROVEMENTS, SUBMIT SEPARATE RESPONSES FOR EACH. (IF NONE, GO TO QUESTION B-20.3.)</b>			
A. List the outfall number that is covered by this implementation schedule Outfall No.		B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies. Yes <input type="checkbox"/> No <input type="checkbox"/>	
<b>20.3 WASTEWATER DISCHARGES:</b> COMPLETE QUESTIONS 20.4 THROUGH 20.7 ONCE FOR EACH OUTFALL (INCLUDING BYPASS POINTS) THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION ON COMBINED SEWER OVERFLOWS IN THIS SECTION.			
<b>20.4 DESCRIPTION OF OUTFALL Stormwater discharge from wastewater plant grounds</b>			
OUTFALL NUMBER #004 - POTW			
A. LOCATION <u>Boone County</u> <u>1/4 NE 1/4 SW 1/4</u> Section <u>29</u> Township <u>48N</u> Range <u>13</u> <input type="checkbox"/> E <input checked="" type="checkbox"/> W UTM Coordinates Easting (X): <u>551008</u> Northing (Y): <u>4308212</u> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)			
B. Distance from Shore (If Applicable) <u>N/A</u> _____ ft.		C. Depth Below Surface (If Applicable) <u>N/A</u> _____ ft.	
D. Average Daily Flow Rate _____ mgd Dependent on Precipitation			
E. Does this outfall have either an intermittent or periodic discharge? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, Provide the following information: Monitoring requirements established in Plant's SWPPP			
Number of Days Per Year Discharge Occurs: <u>Flow dependent upon precipitation</u>	Average Duration of Each Discharge: <u>N/A</u>	Average Flow Per Discharge: <u>N/A</u> mgd	Months in Which Discharge Occurs: <u>N/A</u>
Is Outfall Equipped with a Diffuser? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
<b>20.5 DESCRIPTION OF RECEIVING WATER</b>			
B. Name of Receiving Water <u>Unnamed tributary to Hinkson Creek (U)</u>			
B. Name of Watershed (If Known) <u>Hinkson Creek</u>		U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)	
B. Name of State Management/River Basin (If Known) <u>Missouri River Basin</u>		U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known) <u>10310102-120002</u>	
B. Critical Flow of Receiving Stream (If Applicable) Acute <u>N/A</u> cfs Chronic <u>N/A</u> cfs		B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable) mg/L of CaCO <sub>3</sub> <u>N/A</u>	

FACILITY NAME <b>Columbia Regional Wastewater Treatment Plant</b>	PERMIT NO. <b>MO-0097837</b>	OUTFALL NO. <b>004 (Stormwater)</b>
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**PART B – ADDITIONAL APPLICATION INFORMATION (CONTINUED)**

**20.6 DESCRIPTION OF TREATMENT**

A. WHAT LEVELS OF TREATMENT ARE PROVIDED? Check All That Apply      **Stormwater normally retained - Any discharge released as sheet flow across grass area**  
 Primary       Secondary       Advanced       Other (Describe)

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

C. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe:  
If disinfection is by chlorination, is dechlorination used for this outfall?       Yes       No      N/A  
Does the treatment plant have post aeration?       Yes       No      N/A

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

OUTFALL NUMBER					
PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	VALUE	UNITS	VALUE	UNITS	NO. OF SAMPLES
pH (Minimum)		S.U.		S.U.	
pH (Maximum)		S.U.		S.U.	
FLOW RATE		MGD		MGD	
TEMPERATURE (Winter)		°C		°C	
TEMPERATURE (Summer)		°C		°C	

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

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

Conventional and Nonconventional Compounds							
BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD <sub>5</sub>		mg/L		mg/L		
		CBOD <sub>5</sub>		mg/L		mg/L	
FECAL COLIFORM			#/100 mL		#/100 mL		
TOTAL SUSPENDED SOLIDS (TSS)			mg/L		mg/L		
AMMONIA (AS N)			mg/L		mg/L		
CHLORINE (TOTAL RESIDUAL, TRC)			mg/L		mg/L		
DISSOLVED OXYGEN			mg/L		mg/L		
TOTAL KJELDAHL NITROGEN (TKN)			mg/L		mg/L		
NITRATE PLUS NITRITE NITROGEN			mg/L		mg/L		
OIL AND GREASE			mg/L		mg/L		
PHOSPHORUS (TOTAL)			mg/L		mg/L		
TOTAL DISSOLVE SOLIDS (TDS)			mg/L		mg/L		
OTHER			mg/L		mg/L		

**END OF PART B**

**PART C - CERTIFICATION**

**30. CERTIFICATION**

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

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

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

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

David Sorrell Sewer Utility Manager

SIGNATURE



TELEPHONE NUMBER WITH AREA CODE

573-445-9427

DATE SIGNED

9/24/12

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

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

**Appropriate Regional Office**

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

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

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

**END OF PART C.**

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

Do not complete the remainder of this application, unless:

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

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

**INSTRUCTIONS FOR COMPLETING FORM B2**  
**APPLICATION FOR CONSTRUCTION OR OPERATING PERMITS FOR FACILITIES WHICH RECEIVE**  
**BASICALLY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY**  
(Facilities less than or equal to 100,000 gallons per day of domestic waste must use FORM B.)  
(Facilities that receive wastes other than domestic must fill out FORM A and other forms as appropriate.)

**PART A – BASIC APPLICATION INFORMATION**

1. Check which parameter is applicable. **Do not check more than one item.** Construction and operating permit refer to permits issued by the Department of Natural Resources, Water Protection Program, Water Pollution Branch.

Effective Sept. 1, 2008, a facility will be required to use *MISSOURI'S ANTIDegradation Rule and Implementation Procedure*. For more information, this document is available at [www.dnr.mo.gov/env/wpp/docs/aip-cwc-appr-050708.pdf](http://www.dnr.mo.gov/env/wpp/docs/aip-cwc-appr-050708.pdf). This procedure will be applicable to new and expanded wastewater facilities and requires the proposed discharge to a water body to undergo a level of Antidegradation Review that documents the use of a water body's available assimilative capacity is justified.

- 1.1 Self – explanatory.

- 1.2 An operating permit and antidegradation review public notice requires a Water Quality/Antidegradation Review Sheet to be submitted with the application (No fee required).

**CONSTRUCTION PERMIT FEES** (Include fee with application.)

\$750 for a sewage treatment facility with a design flow of less than 500,000 gallons per day.

\$2,200 for sewage treatment facility with a design flow of 500,000 gallons per day or more.

**DOMESTIC OPERATING PERMIT FEES** (Annual operating permit fees are based on flow.)

Annual fee/Design flow

\$3,000..... 30,000 gpd to 1 mgd

Annual fee/Design flow

\$3,500..... >1 million gallons per day

New domestic wastewater treatment facilities must submit the annual fee with the original application.

**If the application is for a site-specific permit re-issuance, send no fees.** You will be invoiced separately by the department on the anniversary date of the original permit. Permit fees must be current for the department to reissue the operating permit. Late fees of two percent per month are charged and added to outstanding annual fees.

**PUBLIC SEWER SYSTEM OPERATING PERMIT FEES** (City, Public Sewer District, Public Water District, or other publicly owned treatment works). Annual fee is based on number of service connections. The table of fees is in 10 CSR 20-6.011 and is available at [www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf](http://www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf). New Public Sewer System facilities should not submit any fee as the department will invoice the permittee.

**OPERATING PERMIT MODIFICATIONS**, including transfers, are subject to the following fees:

a. Municipals - \$200 each.

b. All others – 25 percent of annual fee.

Note: Facility name or address changes where owner, operator and continuing authority remain the same are not considered transfers.

2. Name of Facility – Include the name by which this facility is locally known. Example: Southwest Sewage Treatment Plant, Country Club Mobile Home Park, etc. Provide the street address or location of the facility. If the facility lacks a street name or route number, provide the names of the closest intersection, highway, country road, etc.

- 2.1 Self – explanatory.

- 2.2 Global Positioning System, or GPS, is a satellite-based navigation system. The department prefers that a GPS receiver is used and the displayed coordinates submitted. If access to a GPS receiver is not available, use a mapping system to approximate the coordinates; the department's mapping system is available at [www.dnr.mo.gov/internetmapviewer/](http://www.dnr.mo.gov/internetmapviewer/).

3. Owner – Provide the legal name and address of the owner.

- 3.1 Prior to submitting a permit to public notice, the Department of Natural Resources shall provide the permit applicant 10 days to review the draft permit for nonsubstantive drafting errors. In the interest of expediting permit issuance, permit applicants may waive the opportunity to review draft permits prior to public notice. Check Yes to review the draft permit prior to public notice. Check No to waive the process and expedite the permit.

4. Continuing Authority – Provide the permanent organization, which will serve as the continuing authority for the operation, maintenance and modernization of the facility. The regulatory requirement regarding continuing authority is available at [www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf](http://www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf) or contact the appropriate Department of Natural Resources Regional Office.

5. Operator – Provide the name, certificate number and telephone number of the operator of the facility.

6. Provide the name, title and work telephone number of a person who is thoroughly familiar with the operation of the facility and with the facts reported in this application and who can be contacted by the department, if necessary.

- 7.1 Provide a brief description of the wastewater treatment facilities.

- 7.2 A topographic map is available on the Web at [www.dnr.mo.gov/internetmapviewer/](http://www.dnr.mo.gov/internetmapviewer/) or from the Department of Natural Resources' Division of Geology and Land Survey in Rolla, Missouri at 573-368-2125.

- 7.3 Self – explanatory.

- 7.4 For Standard Industrial Codes, visit [www.osha.gov/pls/imis/sicsearch.html](http://www.osha.gov/pls/imis/sicsearch.html) and for the North American Industry Classification System, visit [www.census.gov/naics](http://www.census.gov/naics) or contact the appropriate Department of Natural Resources Regional Office.

- 7.5 – 8.1 Self – explanatory.

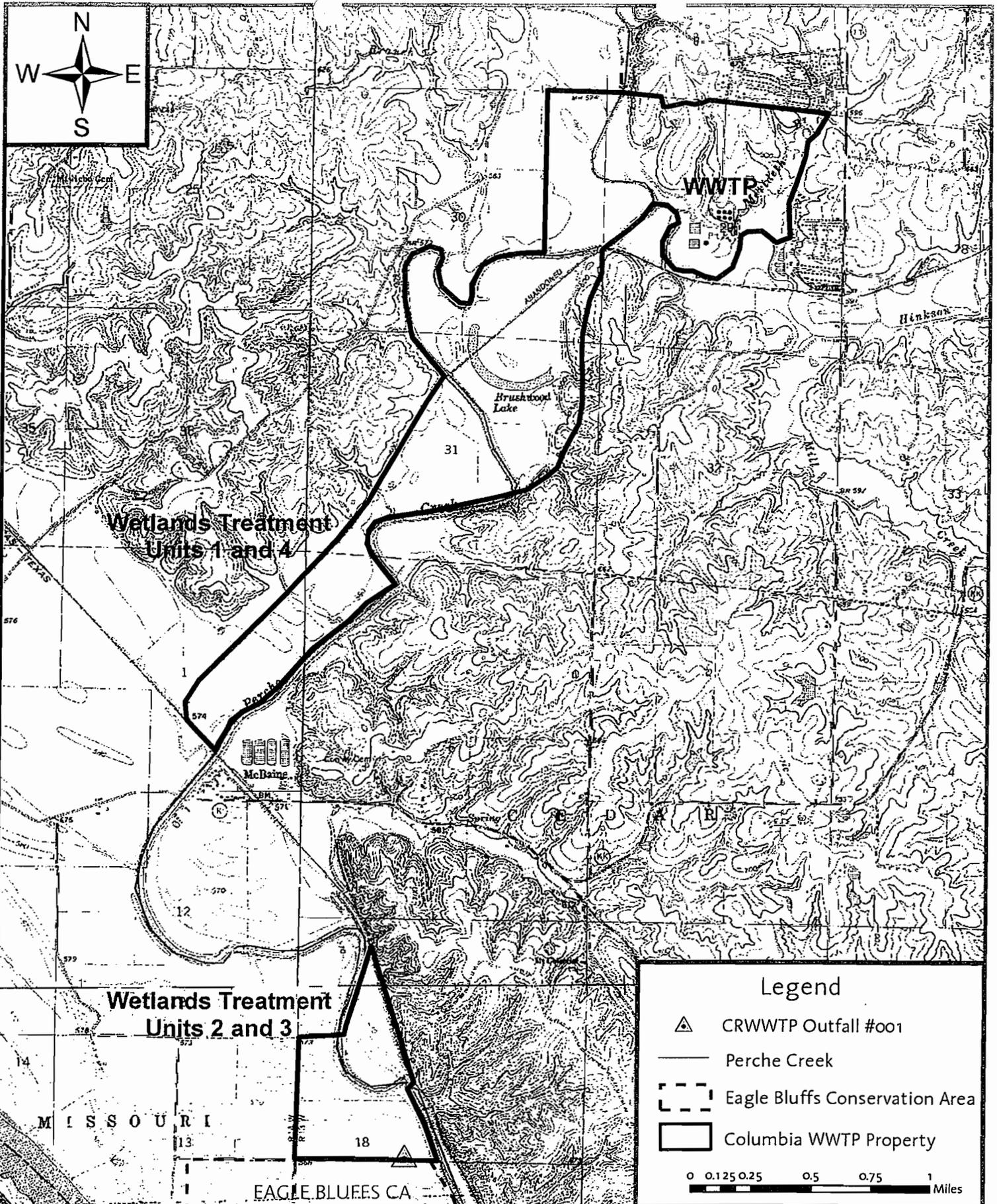
- 9.1 A copy of 10 CSR 25 is available at [www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp#10-25](http://www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp#10-25).

- 9.2 – 9.9 Self – explanatory.

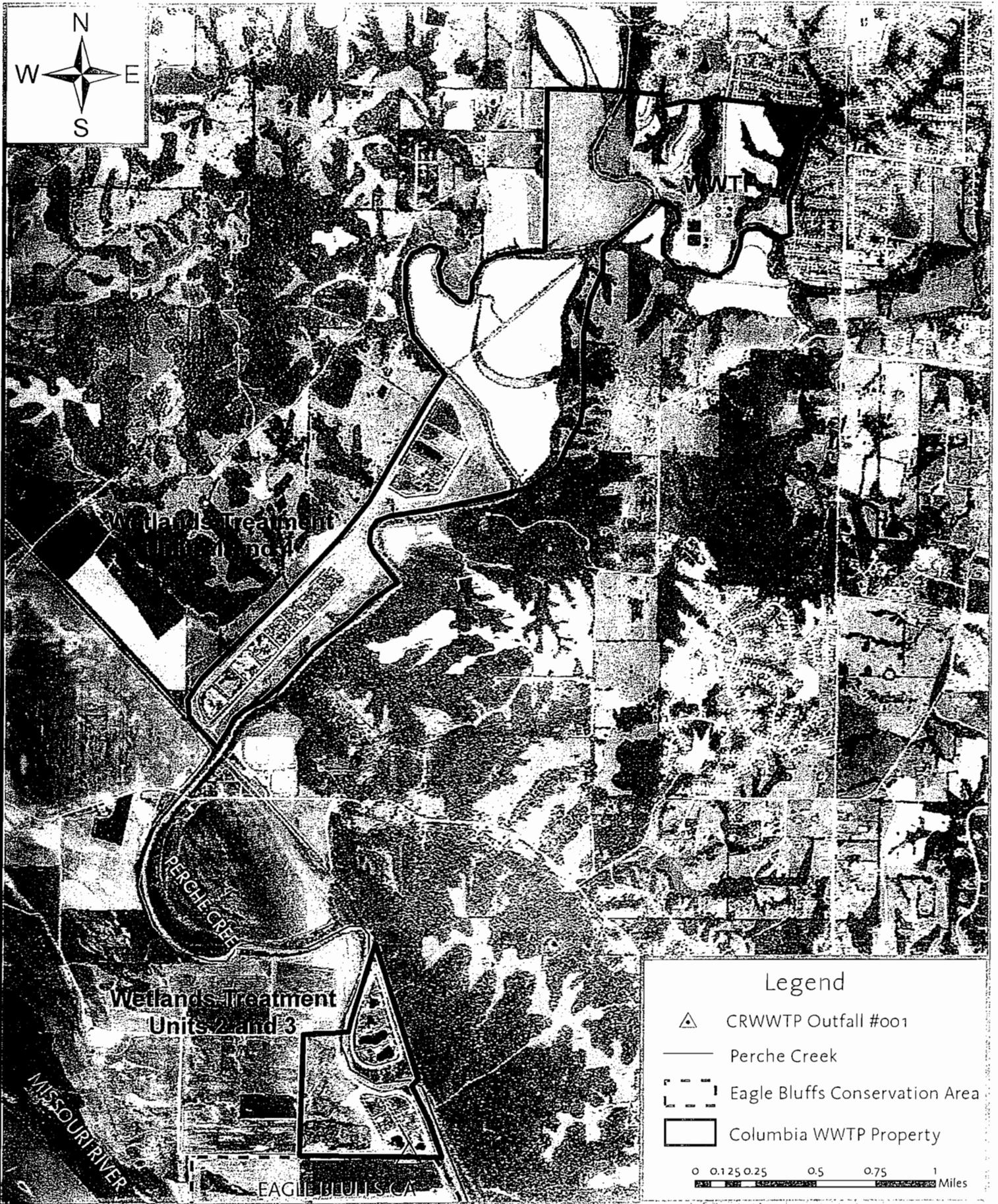
**ATTACHMENT A**

**FORM B2  
APPLICATION FOR OPERATING PERMIT RENEWAL  
MO-0097837**

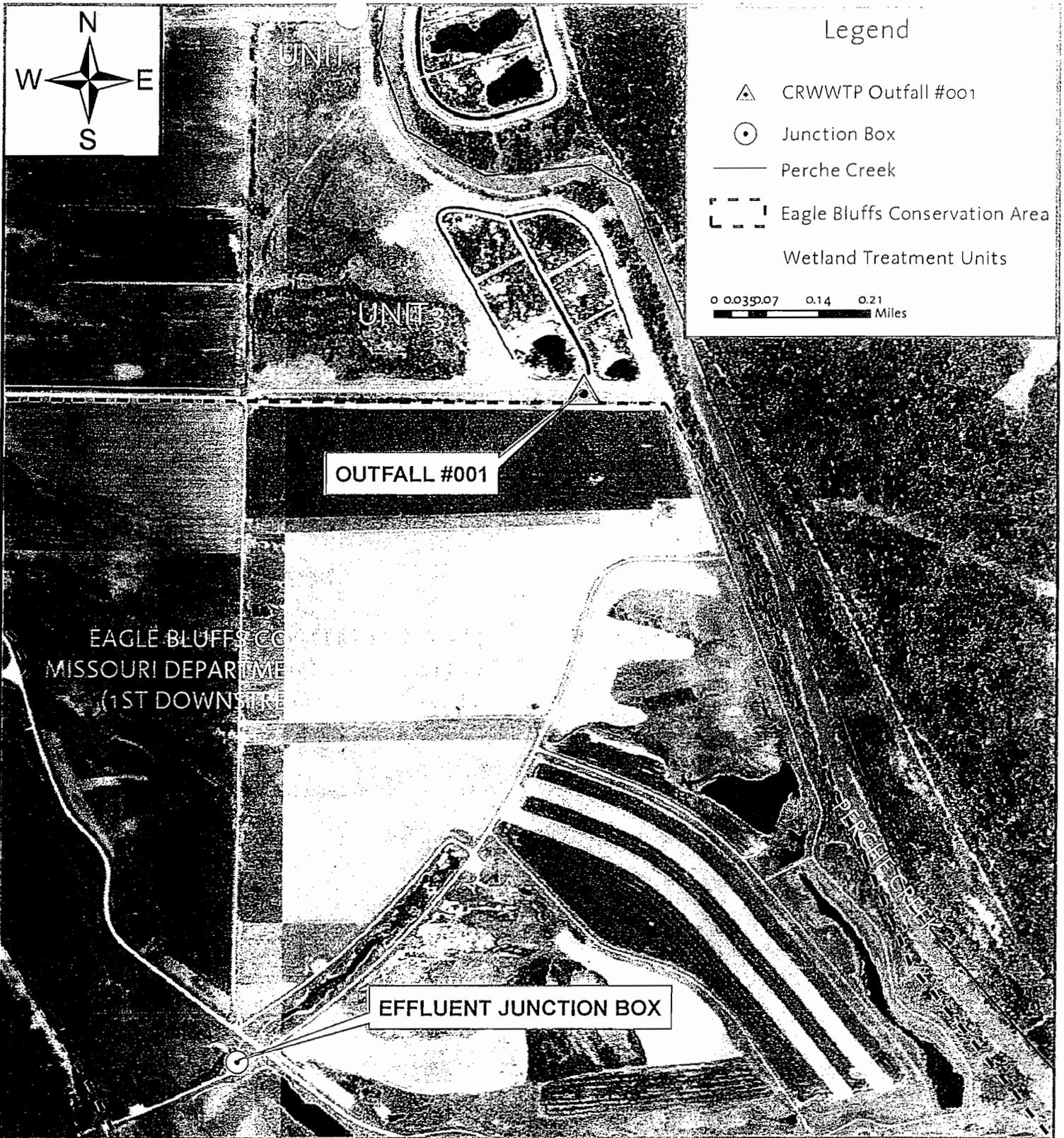
**7.2 TOPOGRAPHIC AND AERIAL MAPS**



Map 1: City of Columbia Regional Wastewater Treatment Plant and Wetland Treatment Properties

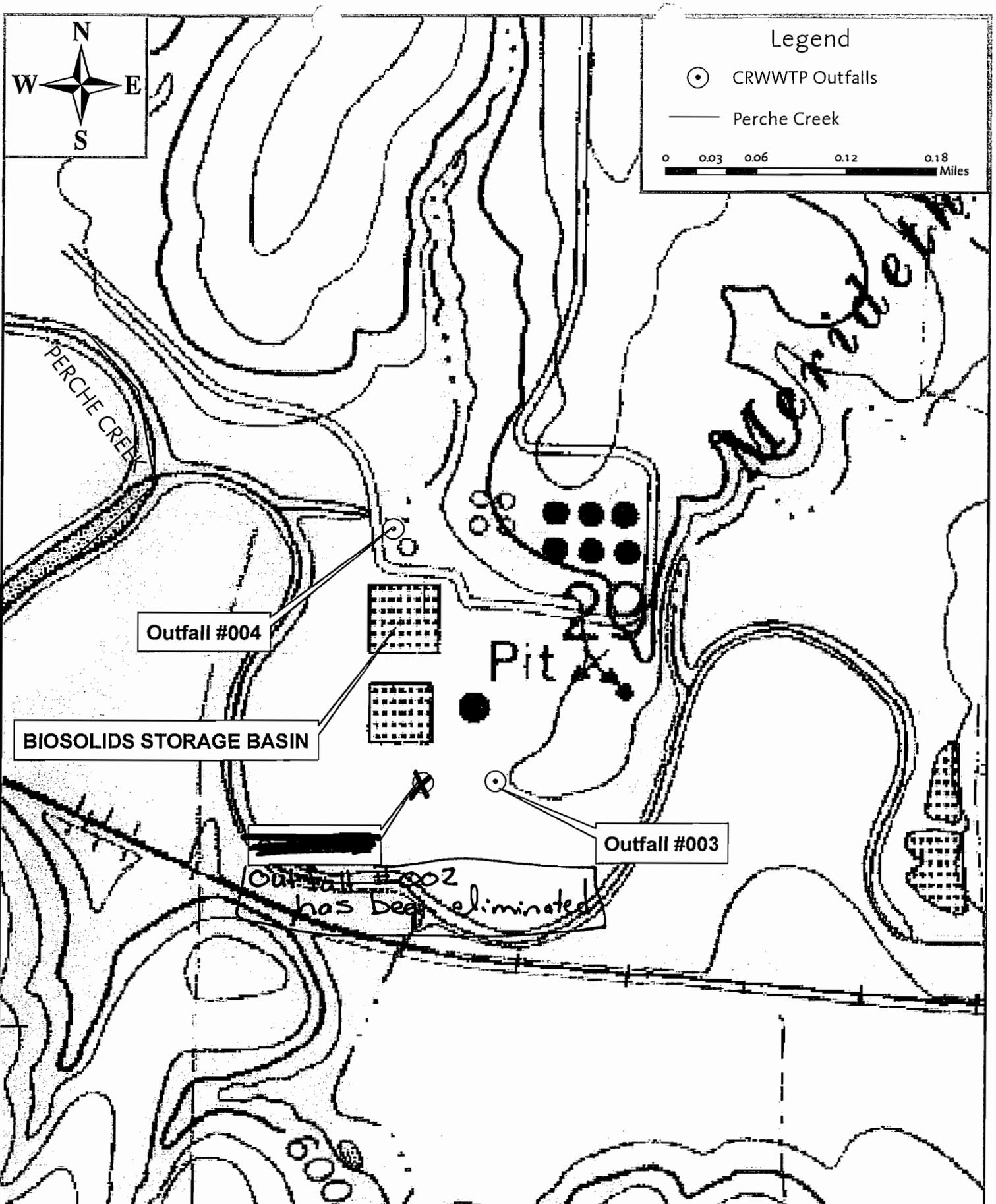


Map 2: City of Columbia Regional Wastewater Treatment Plant and Wetland Treatment Properties



Map 3: City of Columbia Regional Wastewater Treatment Plant  
 Outfall #001- POTW - SIC #4952

Legal Description: Sec. 18, T47N, R13W, Boone County.  
 Receiving Stream: Eagle Bluffs Conservation Area (U)  
 First Classified Stream & ID: Missouri (P) (00704)  
 USGS Basin and Subwatershed: 10300102-32008



Map 4: City of Columbia Regional Wastewater Treatment Plant  
~~Outfall #002~~, Outfall #003 and Outfall #004

(#002 Has been eliminated)

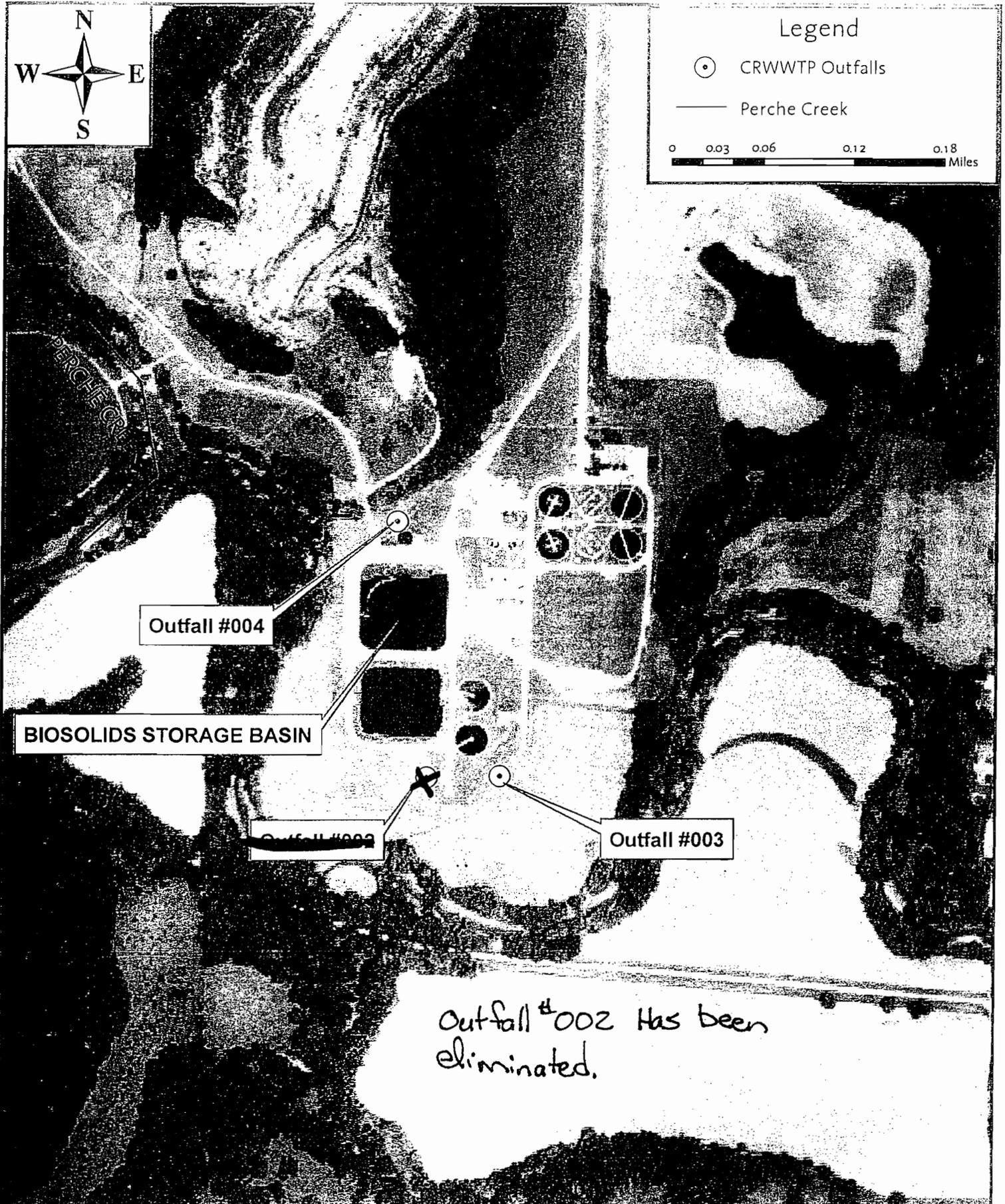


### Legend

⊙ CRWWTP Outfalls

— Perche Creek

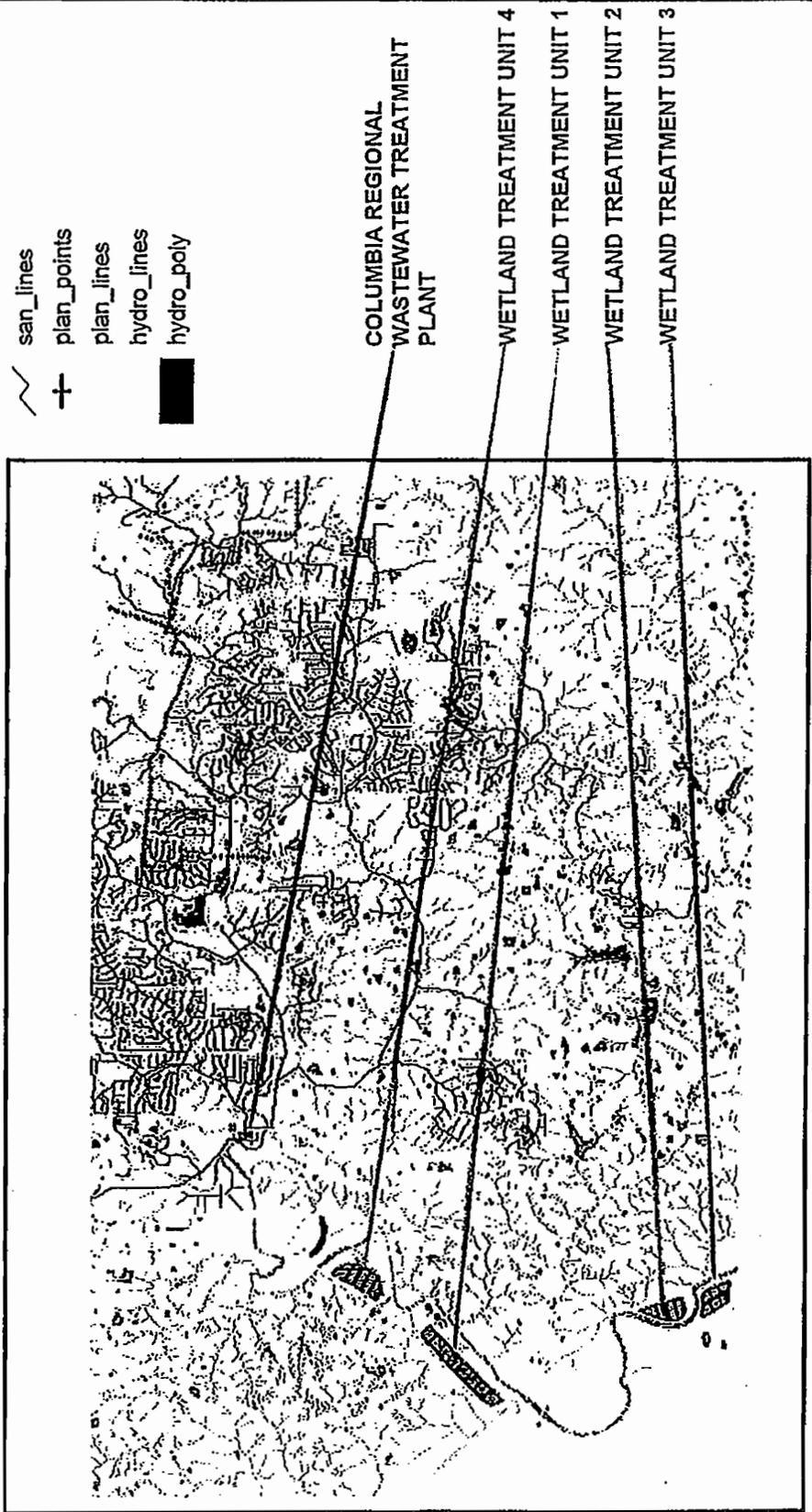
0 0.03 0.06 0.12 0.18 Miles



Map 5: City of Columbia Regional Wastewater Treatment Plant  
~~Outfall #002~~, Outfall #003 and Outfall #004

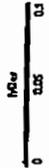
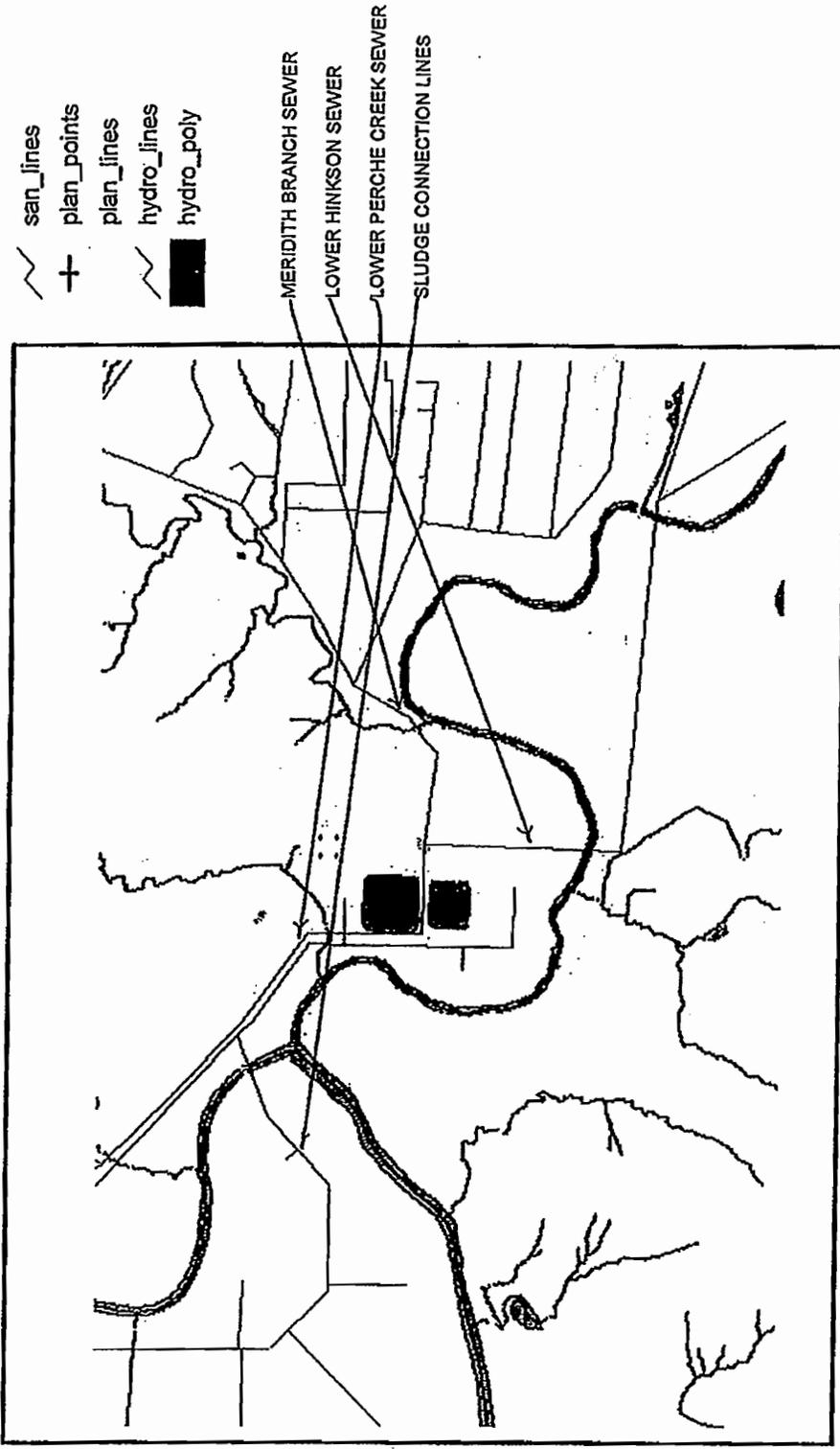
ESRI ArcExplorer 2.0

Map 6: City of Columbia Regional Wastewater Treatment Plant  
Sanitary Sewer Collection Lines

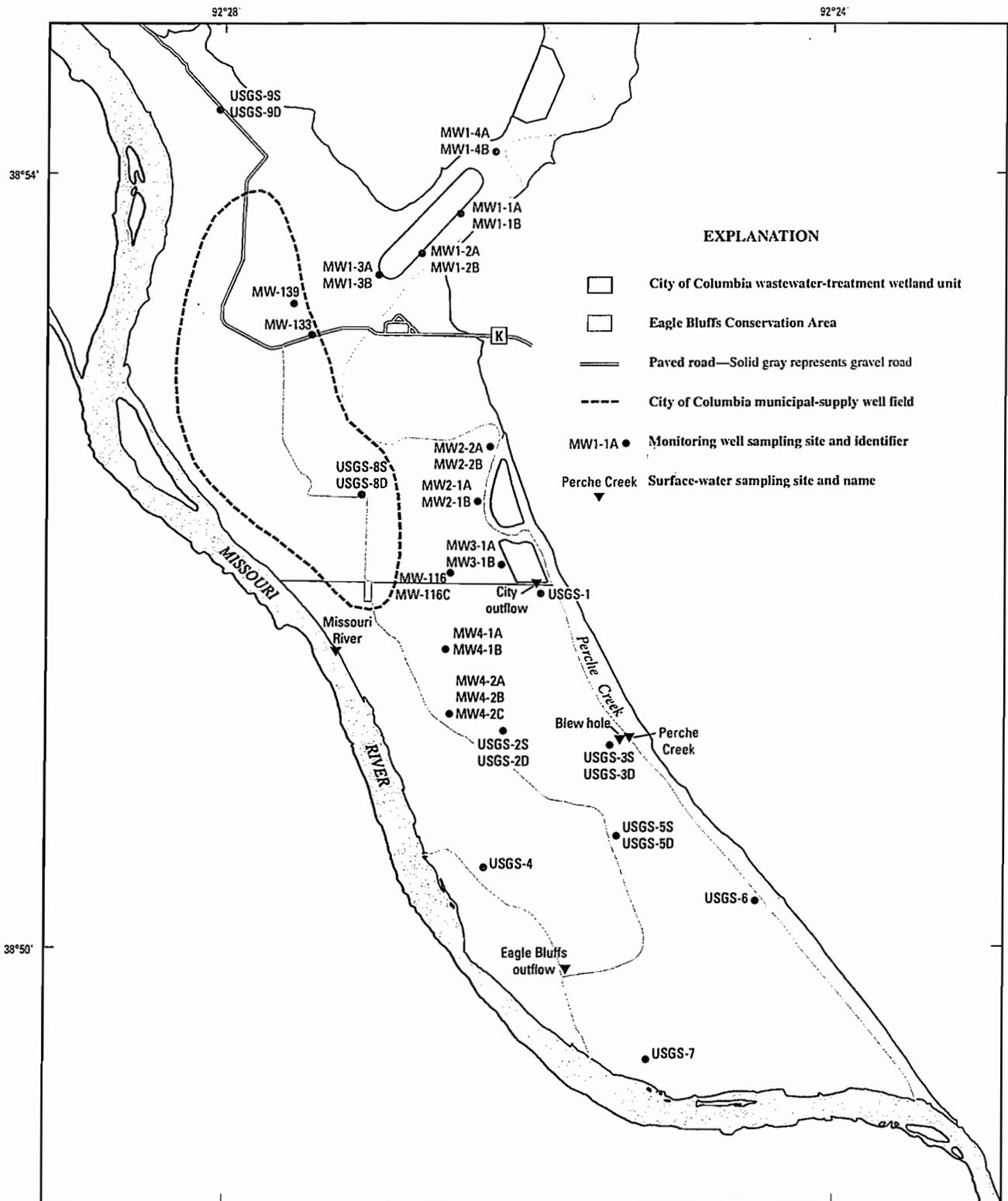


ESRI ArcExplorer 2.0

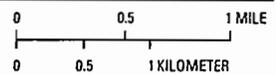
Map 7: City of Columbia Regional Wastewater Treatment Plant  
Sanitary Sewer Collection Lines



May 2009



Base from U.S. Geological Survey digital data, 1:24,000, 1993  
 Universal Transverse Mercator projection  
 Zone 15



**Map 8: Location of City of Columbia Municipal-Drinking Water Supply Field**

**ATTACHMENT B**

**FORM B2  
APPLICATION FOR OPERATING PERMIT RENEWAL  
MO-0097837**

**7.3 PROCESS FLOW DIAGRAM**

## PROCESS FLOW

The plant consists of an influent pump station, two mechanical bar screens, two primary basins, two aeration basins, two final basins, two I/I basins, an I/I holding lagoon, two gravity thickeners, two thickening centrifuges, three primary anaerobic digesters, a secondary digester, sludge holding lagoon, sludge holding tank and pump station, land application fields and wetland treatment units. Wetlands effluent is pumped to the Eagle Bluffs Conservation Area.

Flow comes to the plant influent manhole through the 24 inch Meredith Branch interceptor, the 72 inch Lower Perche Creek interceptor and the 60 inch Lower Hinkson Creek interceptor. A 72 inch line carries the wastewater to the two mechanically cleaned bar screens at the wastewater pump station. The pump station houses six 5,500 gpm vertical non-clog centrifugal pumps with variable frequency drives, which are used to pump screened wastewater to the liquid treatment processes or to one of the I/I (infiltration/inflow) clarifiers.

The liquid treatment process consists of two parallel trains, each with a primary clarifier, aeration basin and final basin. The primary splitter box divides the flow between the two process trains. A junction box between the primary and aeration basins and a junction box between the aeration basins and final basins provide a means to divert flow around any basin, which allows the basin to be taken out of service for maintenance.

The circular aeration basins have four slow speed stationary mechanical aerators. Wastewater enters the center of the basin. Two effluent boxes at the perimeter of the basin collect the mixed liquor and send it to the final basins.

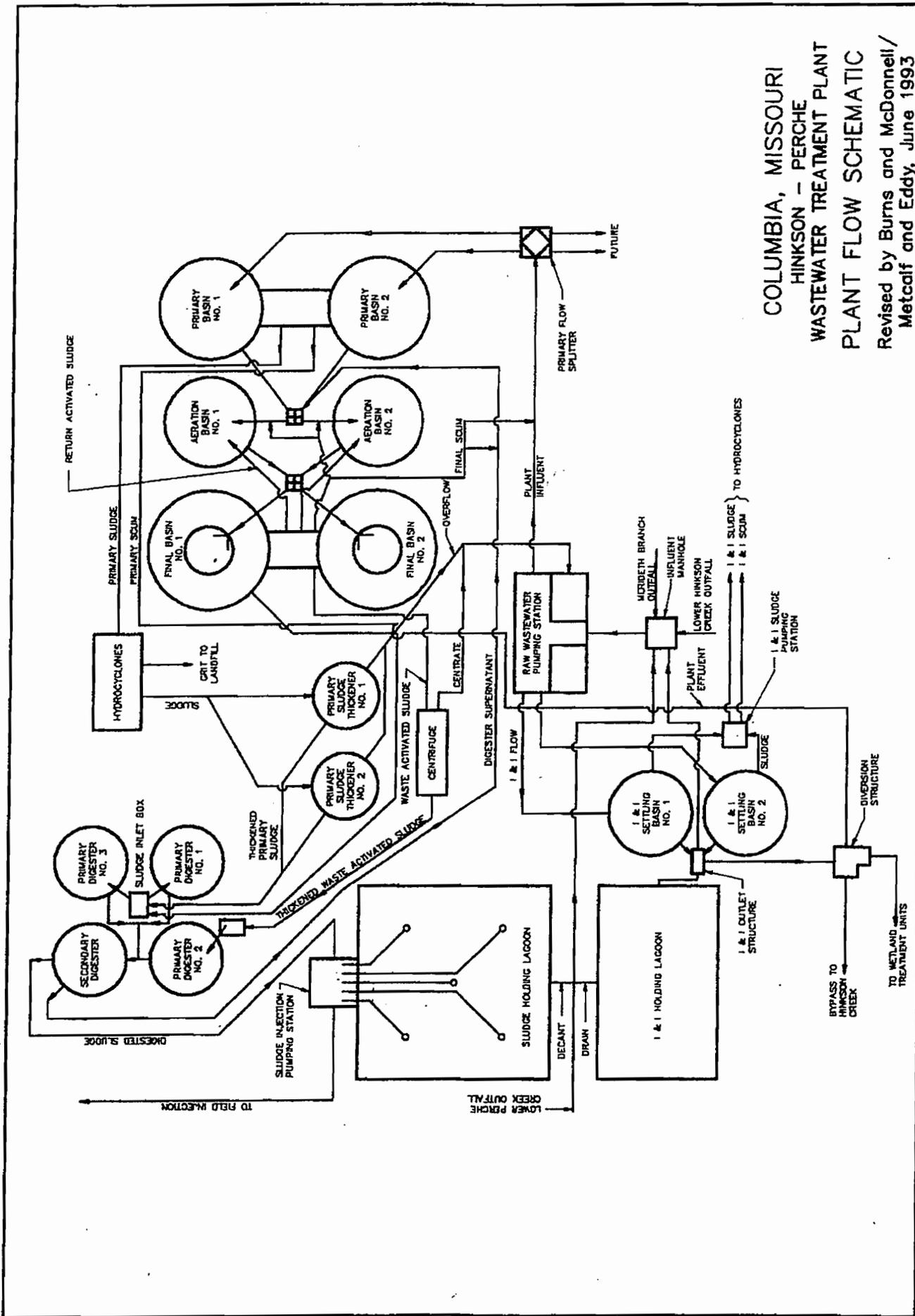
Each final basin has a 60 foot diameter flocculation well. Air lift pumps are used to return activated sludge from the final basins to the aeration basins through 30 inch diameter return lines. The final basin effluent is sent to the wetlands unit through the diversion structure at the south end of the treatment plant site.

Flow in excess of what the liquid treatment facilities can effectively treat is diverted to one of the I/I clarifiers. Clarifier effluent is sent to the I/I holding lagoon until such time that the flow can be returned to the plant for treatment. If the holding lagoon is filled, overflow from the I/I holding lagoon or the I/I clarifier effluent can be directed to the diversion structure that leads to the wetlands. When not in service, the contents of the I/I clarifiers are drained back to the influent pump station.

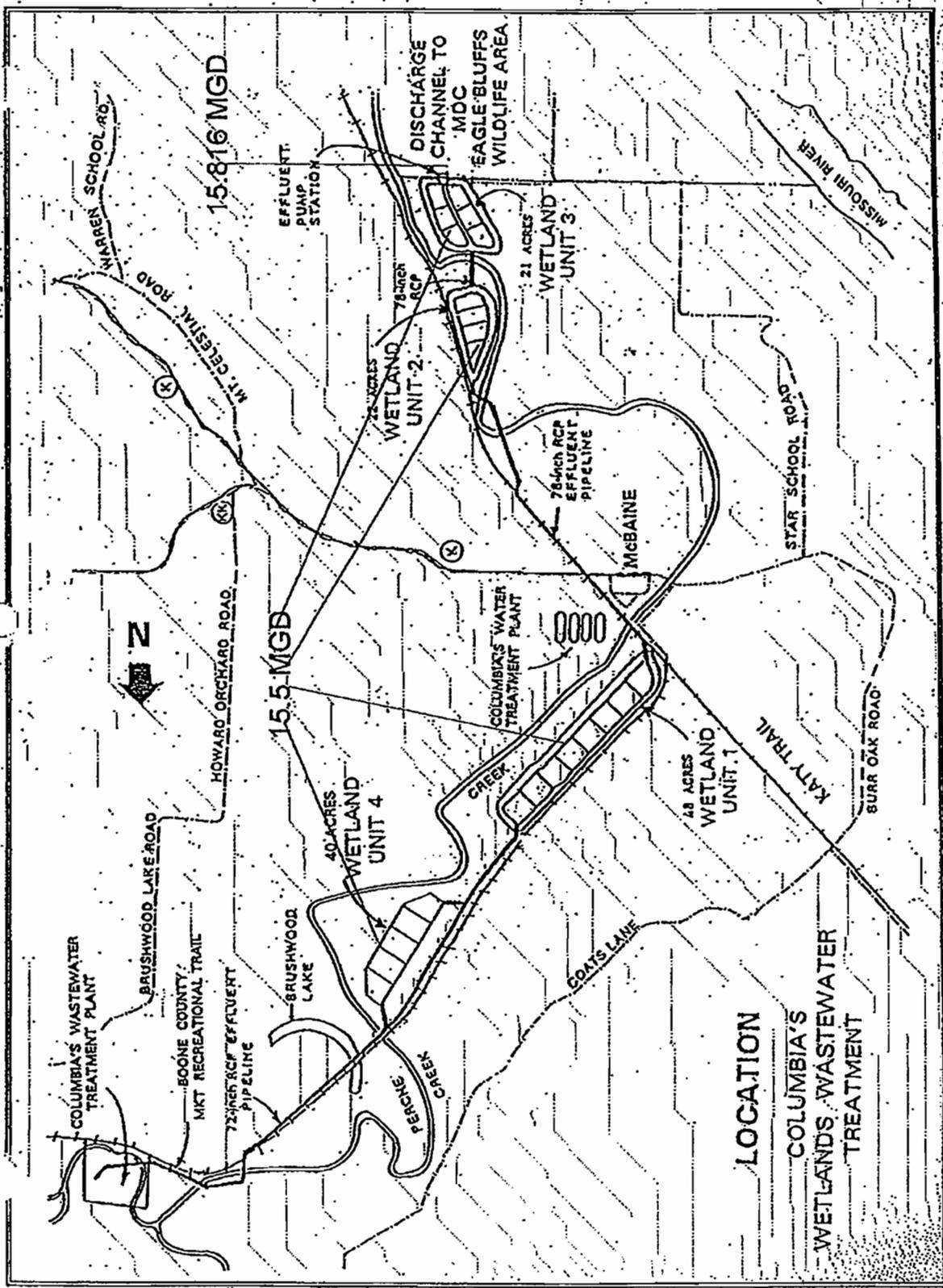
The City has four operational wetland treatment units with a total effective treatment area of 130 acres. Effluent from the mechanical plant, including from the I/I treatment system, is sent to the wetlands for treatment before being pumped to the Eagle Bluffs Conservation Area.

The wetland treatment units are used to further improve quality by further reducing the BOD, TSS and fecal coliform levels in the mechanical plant effluent. Flow can be diverted around each treatment unit using a bypass channel for Units 1, 2 and 3 and for Unit 4.

The effluent pump station houses four 13,900 gpm (20 mgd) constant speed vertical turbine mixed flow pumps. A composite sampler collects effluent samples. Effluent is discharged to the Eagle Bluffs Conservation Area.



**COLUMBIA, MISSOURI**  
**HINKSON - PERCHE**  
**WASTEWATER TREATMENT PLANT**  
**PLANT FLOW SCHEMATIC**  
 Revised by Burns and McDonnell/  
 Metcalf and Eddy, June 1993



**ADD THE FOLLOWING THREE GROUND WATER MONITORING WELLS TO FACILITY DESCRIPTION TO REPLACE THE EXISTING WELLS IN FOUR LOCATIONS THAT HAVE BEEN REMOVED.**

Ground water samples will be collected from monitoring wells located around the sludge application area.

SW-1R

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550521.2 Y-4308175.4  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-2R

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550232.4 Y-4310569.7  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-3R

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550441.5 Y-4308994.5  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

**REMOVE THE FOLLOWING FOUR LOCATIONS OF GROUND WATER MONITORING WELLS TO FACILITY DESCRIPTION. THERE WERE A TOTAL OF 18 WELLS IN THESE FOUR LOCATIONS.**

SW-1

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550460.4 Y-4308075.4  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-2

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550044.4 Y-4307980.2  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-3

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550539.7 Y-4308476.6  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)

USGS Basin & Subwatershed: (10300102-110008)

SW-4

Legal Description:

Sec. 29, T48N, R13W, Boone County

UTM Coordinates:

X-551005.9 Y-4307881.6

Receiving Stream:

Tributary to Hinkson Creek (PI) (1007)

First Classified Stream & ID:

Hinkson Creek (PI) (1007)

USGS Basin & Subwatershed:

(10300102-120002)



SW-3R

SW-1R

SW-2R

City of Columbia  
Wastewater Treatment  
Plant

**Legend**

- [---] Columbia Corp Limits
- Monitoring Wells



City of Columbia, Missouri  
Department of Public Works

### New Monitoring Wells

Scale: 1"=400'

Drawn: J.K.M.

Date: 8/31/12

**ATTACHMENT C**

**FORM B2  
APPLICATION FOR OPERATING PERMIT RENEWAL  
MO-0097837**

**7.14 LIST OF PERMIT VIOLATIONS**

Permit No. MO 009 7837

COLUMBIA REGIONAL WASTEWATER TREATMENT PLANT

Violations of Permit Limits for Calendar Year: 2007

WWTP Effluent Limits.

Month	M/W Average	PARAMETER	REPORTED	NPDES LIMIT	UNITS	TSS Note 1
January	M	TSS	35	70	mg/L	X
December	M	TSS	52	70	mg/L	X
January	W	TSS	80	100	mg/L	X
September	W	TSS	53	100	mg/L	X
December	W	TSS	<u>111</u>	100	mg/L	X

Note 1 - Total Suspended Solids (TSS) may be exceeded periodically due to heavy use by waterfowl. The effluent limits for TSS during these periods shall be a weekly average of 100 mg/L and monthly average of 70 mg/L. Each instance of heavy waterfowl usage shall be documented by the City and confirmed by the Missouri Department of Conservation.

Ground water monitoring wells in sludge injection fields.

DATE	WELL	PARAMETER	REPORTED	NPDES LIMIT	UNITS
No violations in January 2007					
No violations in February 2007					
No violations in March 2007					
No violations in April 2007					
5/9/2007	3A	NO <sub>3</sub> - N	35.34	10.00	mg/L
6/12/2007	3A	NO <sub>3</sub> - N	41.26	10.00	mg/L
7/17/2007	1A	NO <sub>3</sub> - N	10.22	10.00	mg/L
8/22/2007	3B	NO <sub>3</sub> - N	16.65	10.00	mg/L
9/14/2007	3B	NO <sub>3</sub> - N	18.20	10.00	mg/L
10/11/2007	3B	NO <sub>3</sub> - N	17.40	10.00	mg/L
11/6/2007	3B	NO <sub>3</sub> - N	18.70	10.00	mg/L
12/4/2007	3B	NO <sub>3</sub> - N	14.10	10.00	mg/L

## Violations of Permit Limits for Calendar Year: 2008

## WWTP Effluent Limits.

Month	M/W Average	PARAMETER	REPORTED	NPDES LIMIT	UNITS	TSS Note 1
No monthly average violations January through December 2008						
December	M	TSS	69	70	mg/L	X
December	W	TSS	120	100	mg/L	X

Note 1 - Total Suspended Solids (TSS) may be exceeded periodically due to heavy use by waterfowl. The effluent limits for TSS during these periods shall be a weekly average of 100 mg/L and monthly average of 70 mg/L. Each instance of heavy waterfowl usage shall be documented by the City and confirmed by the Missouri Department of Conservation.

## Ground water monitoring wells in sludge injection fields.

DATE	WELL	PARAMETER	REPORTED	NPDES LIMIT	UNITS
1/29/2008	3B	NO <sub>3</sub> - N	11.54	10.00	mg/L
2/26/2008	1A	NO <sub>3</sub> - N	15.10	10.00	mg/L
3/13/2008	1A	NO <sub>3</sub> - N	13.40	10.00	mg/L
4/22/2008	3A	NO <sub>3</sub> - N	38.90	10.00	mg/L
	3B	NO <sub>3</sub> - N	20.07	10.00	mg/L
5/21/2008	1A	NO <sub>3</sub> - N	10.04	10.00	mg/L
	3A	NO <sub>3</sub> - N	34.50	10.00	mg/L
	3B	NO <sub>3</sub> - N	13.61	10.00	mg/L
6/4/2008	1A	NO <sub>3</sub> - N	11.34	10.00	mg/L
	3A	NO <sub>3</sub> - N	33.95	10.00	mg/L
	3B	NO <sub>3</sub> - N	12.35	10.00	mg/L
7/17/2008	1A	NO <sub>3</sub> - N	11.17	10.00	mg/L
	3A	NO <sub>3</sub> - N	29.52	10.00	mg/L
	3B	NO <sub>3</sub> - N	10.16	10.00	mg/L
8/12/2008	1A	NO <sub>3</sub> - N	11.40	10.00	mg/L
	3A	NO <sub>3</sub> - N	31.90	10.00	mg/L
	3B	NO <sub>3</sub> - N	14.50	10.00	mg/L
9/10/2008	3A	NO <sub>3</sub> - N	28.50	10.00	mg/L
	3B	NO <sub>3</sub> - N	16.80	10.00	mg/L
10/21/2008	3A	NO <sub>3</sub> - N	22.40	10.00	mg/L

Violations of Permit Limits for Calendar Year: 2009

WWTP Effluent Limits.

Month	M/W Average	PARAMETER	REPORTED	NPDES LIMIT	TSS UNITS	Note 1
No monthly or weekly average violations in January						
No monthly or weekly average violations in February						
No monthly or weekly average violations in March						
No monthly or weekly average violations in April						
No monthly or weekly average violations in May						
No monthly or weekly average violations in June						
No monthly or weekly average violations in July						
No monthly or weekly average violations in August						
No monthly or weekly average violations in September						
No monthly or weekly average violations in October						
No monthly or weekly average violations in November						

Ground water monitoring wells in sludge injection fields.

DATE	WELL	PARAMETER	REPORTED	NPDES LIMIT	UNITS
1/21/2009	3B	NO <sub>3</sub> - N	20.40	10.00	mg/L
2/18/2009	3B	NO <sub>3</sub> - N	18.90	10.00	mg/L
3/18/2009	1A	Cadmium	5.22	5.00	ug/L
3/18/2009	3B	NO <sub>3</sub> - N	13.30	10.00	mg/L
4/23/2009	3A	NO <sub>3</sub> - N	16.80	10.00	mg/L
4/23/2009	3B	NO <sub>3</sub> - N	12.00	10.00	mg/L
4/23/2009	3AA	NO <sub>3</sub> - N	10.40	10.00	mg/L
5/27/2009	3A	NO <sub>3</sub> - N	13.20	10.00	mg/L
5/27/2009	3B	NO <sub>3</sub> - N	13.30	10.00	mg/L
6/23/2009	3A	NO <sub>3</sub> - N	11.00	10.00	mg/L
6/23/2009	3B	NO <sub>3</sub> - N	12.00	10.00	mg/L
7/21/2009	3B	NO <sub>3</sub> - N	14.10	10.00	mg/L
8/27/2009	3B	NO <sub>3</sub> - N	17.30	10.00	mg/L
9/6/2009	3B	NO <sub>3</sub> - N	14.30	10.00	mg/L

No violations in October  
 No violations in November  
 No violations in December

**COLUMBIA REGIONAL WASTEWATER TREATMENT PLANT**  
**Permit No. MO 009 7837**  
**Violations of Permit Limits for Calendar Year: 2010**

**CRWWTP Effluent Limits.**

Month	Parameter	Reported Value		NPDES Limits		TSS UNITS
		Monthly	Weekly	Monthly	Weekly	
January	TSS	105	170	30	45	mg/L
February	TSS	90	144	30	45	mg/L
March	No Violations					
April	TSS	46	111	30	45	mg/L
May	No Violations					
June	No Violations					
July	No Violations					
August	No Violations					
September	No Violations					
October	No Violations					
November	No Violations					
December	TSS	143	206	30	45	mg/L

**Note 1** - Total Suspended Solids (TSS) may be exceeded periodically due to heavy use by waterfowl. The effluent limits for TSS during these periods shall be a weekly average of 100 mg/L and monthly average of 70 mg/L. Each instance of heavy waterfowl usage shall be documented by the City and confirmed by the Missouri Department of Conservation.

**Ground water monitoring wells in sludge injection fields.**

DATE	Parameter	Well	Reported Value	NPDES LIMIT	UNITS
January	No Violations				
February	No Violations				
3/17/2010	Selenium	4A	10.6	10.0	µg/L
April	No Violations				
May	No Violations				
June	No Violations				
July	No Violations				
August	No Violations				
September	No Violations				
October	No Violations				
November	No Violations				
December	No Violations				

**COLUMBIA REGIONAL WASTEWATER TREATMENT PLANT**

**Permit No. MO 009 7837**

**Violations of Permit Limits for Calendar Year: 2011**

**Outfall #001 - Main Outfall - POTW**

Month	Parameter	Reported Value		NPDES Limits		TSS UNITS
		Monthly	Weekly	Monthly	Weekly	
January	TSS	90	178	30	45	mg/L
February	TSS	44	82	30	45	mg/L
March	No Violations					
April	TSS	32	47	30	45	mg/L
May	No Violations					
June	No Violations					
July	No Violations					
August	No Violations					
September	TSS		50			
October	No Violations					
November	No Violations					
December	TSS	48	63	30	45	mg/L

**Note 1** - Total Suspended Solids (TSS) may be exceeded periodically due to heavy use by waterfowl. The effluent limits for TSS during these periods shall be a weekly average of 100 mg/L and monthly average of 70 mg/L. Each instance of heavy waterfowl usage shall be documented by the City and confirmed by the Missouri Department of Conservation.

**Groundwater Monitoring Wells at On-Site Sludge Application Area**

DATE	Parameter	Well	Reported Value	NPDES LIMIT	UNITS
January	No Violations				
February	No Violations				
3/16/2011	pH	2D	5.8	6.0-9.0	SU
3/16/2011	Selenium	1A	18.2	10	µg/L
3/16/2011	Selenium	1D	10.3	10	µg/L
3/16/2011	Selenium	3A	18.8	10	µg/L
3/16/2011	Selenium	3AA	15.7	10	µg/L
3/16/2011	Selenium	4A	17.0	10	µg/L
April	No Violations				
May	No Violations				
June	No Violations				
July	No Violations				
August	No Violations				
September	No Violations				
October	No Violations				
November	No Violations				
December	No Violations				

**Outfalls #003 & 004 - Stormwater**

Quarter	Parameter	Outfall #	Reported Value	NPDES LIMIT	UNITS
First Quarter	No Violations				
Second Quarter	No Violations				
Third Quarter	No Violations				
Fourth Quarter	Sett-Solids	003	8.0	1.0	ml/L/hr
	Sett-Solids	004	37	1.0	ml/L/hr

**ATTACHMENT D**

**FORM B2  
APPLICATION FOR OPERATING PERMIT RENEWAL  
MO-0097837**

**PART A (9.4) – SLUDGE STORAGE PROVIDED**

## Columbia Regional WWTP Sludge Storage Description

### Secondary Digester and Sludge Injection Tank Storage

Onsite Digested Sludge Storage Volume: 602,900 gallons/80,600 cubic feet

Days of digested sludge storage at average design conditions: 3.6

Digested Sludge average percent solids: 2.5%

### Sludge Holding Lagoon

Onsite Sludge Storage Volume: 6.8 million gallons

Days of storage at average design conditions: 200

Sludge average percent solids: 6%

**ATTACHMENT E**

**FORM B2  
APPLICATION FOR OPERATING PERMIT RENEWAL  
MO-0097837**

**PART B (20.2) – SCHEDULED IMPROVEMENTS**

Columbia Regional WWTP  
Monitoring Well Installation

The Columbia Regional WWTP current MSOP # MO-0097837, Section F is a Schedule of Compliance (For Nitrates in Sludge Application Area Monitoring Wells). A copy of page 15 of the permits with the requirements of the schedule of compliance is included on the next sheet.

This compliance schedule required a site characterization report and plan of work be submitted to install new groundwater monitoring wells in the sludge application area. This report and plan of work were previously submitted and approved by the Missouri Department of Natural Resources Northeast Regional Office. A copy of the approval letter is attached.

The compliance schedule also requires an application for permit modification be submitted to include or remove monitoring wells. This modification must demonstrate the monitoring wells are registered with the state and comply to well construction rules. The new monitoring wells have been installed and the old wells have been abandoned. Attached is a map showing the location of the new wells; a facility description of the new wells to be added and the old wells to be removed and; copies of the Monitoring Well Certification Records submitted to the Missouri Department of Natural Resources, , Division of Geology and Land Survey, Wellhead Protection Section. Once the certification letter with the certification numbers for these wells is received, a copy will be forwarded to you office.

#### E. SEWER EXTENSION CONSTRUCTION PERMIT AUTHORITY

The department has approved the construction permit program to regulate and approve construction of sanitary sewers that are tributary to this wastewater treatment plant.

1. This approval may be modified or revoked by the department prior to the sewage collection, transportation, or treatment facilities reach their design limitations, if the facility falls into chronic noncompliance with the permit, or if the permittee fails to follow the terms and conditions of the submitted and approved program.
2. This permit may be reopened and modified or alternatively revoked and reissued to incorporate new or modified conditions to the sewer construction permit authority, if information indicates changes are necessary to assure compliance with Missouri's Clean Water Law and associated regulations.
3. When conditions #1 or #2 occur, the permittee will be notified prior to any modification of this permit condition.
4. The Permittee, as part of their Sewer Extension Program, shall submit an annual report by the twenty-eighth (28) day of January, of each year, to the Missouri Department of Natural Resources' Northeast Regional Office. The report shall include, but is not limited to, the following:
  - a. A list of the name of each individual project and their respective:
    - i. Length of sewer and force main
    - ii. Capacity of the lift stations constructed under the sewer extension (if applicable);
    - iii. Inspections made of the final construction and the findings of each;
    - iv. Results of leakage and deflection test;
    - v. Population or number of lots to be served by this extension-Design population equivalent;
    - vi. Type of wastewater (i.e., domestic or industrial); and
    - vii. Written letter from a professional engineer (signed, dated and sealed with engineer license), licensed in the State of Missouri, certifying that the project has been completed in accordance with its approved plans and specifications.
  - b. A summary of total flow at the treatment facility and a discussion regarding possible implications on operations and maintenance
5. In order to terminate the Sewer Extension Program, the permittee shall notify the department by submitting a Letter of Termination, indicating that the permittee no longer desires to continue a Sewer Extension Authority Program.
6. Unless this program is terminated prior to renewal of this operating permit, the permittee shall submit a letter with the operating permit renewal application requesting continuation of the program. Failure to apply for renewal may result in termination of this program and enforcement actions to compel compliance with this condition and the Missouri Clean Water Law.

#### F. SCHEDULE OF COMPLIANCE (For Nitrates in Sludge Application Area Monitoring Wells)

The permittee shall take action to come into compliance with Part A – Final Effluent Limitations as soon as possible but not to exceed two (2) years from the effective date of this operating permit. In order to meet the effluent limitations contained therein, the permittee shall complete the following actions:

1. Within one (1) year of the effective date of this permit, the permittee shall submit a site characterization report for review and approval to the Department's Northeast Regional Office and the Central Office Water Protection Program. The report should include steps being taken to come into compliance with said Final Effluent Limits for the On-site Sludge Application Area Monitoring Wells contained in Table A of this operating permit. This site characterization report must include details on the proper location and installation of proposed new monitoring wells. This site characterization report must indicate groundwater flow direction, elevation, and soil sampling and sufficient evidence of yielding sufficient flow for sampling. A plan of work must be submitted with the report for the installation of proposed monitoring wells.
2. Within two (2) years of the effective date of this permit, the permittee shall submit application for permit modification to include or remove groundwater monitoring wells. The modification must demonstrate the monitoring wells are registered with the state and comply to well construction rules. The modification must be submitted to the Department's Central Office's Water Protection Program. The modification will need to be public noticed.



STATE OF MISSOURI  
DEPARTMENT OF NATURAL RESOURCES

Jeremiah W. (Jay) Nixon, Governor

Sara Parker Pauley, Director

dnr mo gov

5.110 Columbia Regional WWTP  
Boone County  
#MO-0097837

May 18, 2012

The Honorable Bob McDavid  
Mayor, City of Columbia  
P.O. Box 6015  
Columbia, MO 65205

Dear Mayor McDavid:

On October 3, 2011, the Missouri Department of Natural Resources' Northeast Regional Office received a Site Characterization Report and Monitoring Well Work Plan (report) for the Columbia Regional Wastewater Treatment Plant's Sludge Injection Fields SC-1 through SC-12. This report was required by Missouri State Operating Permit #MO-0097837, which was issued on September 24, 2010. The report was forwarded on to the department's Division of Geology and Land Survey for comment. A response was received on December 12, 2011, and forwarded on to Mr. David Sorrell, Sewer Utility Manager for the Columbia Public Works Department. On April 2, 2012, we received a response to the comments (dated March 30, 2012). These were again forwarded on to the department's Division of Geology and Land Survey for comment. A response was received on April 30, 2012. These comments are attached.

Please be aware that the report, as amended by the March 30, 2012, response to comments, is hereby approved.

When planning to abandon/construct the new groundwater monitoring wells, please review the Frequently Asked Questions document located at <http://dnr.mo.gov/pubs/pub2193.pdf>. After you have reviewed this document, please coordinate with Mr. Chris Thiltgen with the Division of Geology and Land Survey's Wellhead Protection Section at 573-368-2167 or P.O. Box 250, Rolla, MO 65402-0250. Once the old wells are abandoned and the new wells are constructed, the city is to submit an application Form B2 to modify Missouri State Operating Permit #MO-0097837 accordingly. Form B2 (Application for Construction or Operating Permit for Facilities which receive basically domestic waste and have a design flow more than 100,000 gallons per day) is located at <http://dnr.mo.gov/forms/780-1805-f.pdf>.

Columbia Regional WWTP  
May 18, 2012  
Page 2

If you have any questions, please contact Mr. Scott Adams, or me, at 660-385-8000 in the Northeast Regional Office, 1709 Prospect Drive, Macon, Missouri 63552.

Sincerely,

NORTHEAST REGIONAL OFFICE



Irene Crawford  
Regional Director

IC/saa

Enclosure: Division of Geology and Land Survey report

c: Mr. David Sorrell, P.E. Sewer Utility Manager, City of Columbia  
Mr. John Glascock, P.E., Director of Public Works, City of Columbia  
Mr. Chris Thiltgen, Wellhead Protection Section, MDNR



**ADD THE FOLLOWING THREE GROUND WATER MONITORING WELLS TO FACILITY DESCRIPTION TO REPLACE THE EXISTING WELLS IN FOUR LOCATIONS THAT HAVE BEEN REMOVED.**

Ground water samples will be collected from monitoring wells located around the sludge application area.

SW-1R

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550521.2 Y-4308175.4  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-2R

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550232.4 Y-4310569.7  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-3R

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550441.5 Y-4308994.5  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

**REMOVE THE FOLLOWING FOUR LOCATIONS OF GROUND WATER MONITORING WELLS TO FACILITY DESCRIPTION. THERE WERE A TOTAL OF 18 WELLS IN THESE FOUR LOCATIONS.**

SW-1

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550460.4 Y-4308075.4  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-2

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550044.4 Y-4307980.2  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-3

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550539.7 Y-4308476.6  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)

USGS Basin & Subwatershed: (10300102-110008)

SW-4

Legal Description:

Sec. 29, T48N, R13W, Boone County

UTM Coordinates:

X-551005.9 Y-4307881.6

Receiving Stream:

Tributary to Hinkson Creek (PI) (1007)

First Classified Stream & ID:

Hinkson Creek (PI) (1007)

USGS Basin & Subwatershed:

(10300102-120002)



SW-3R

SW-1R

SW-2R

City of Columbia  
Wastewater Treatment  
Plant

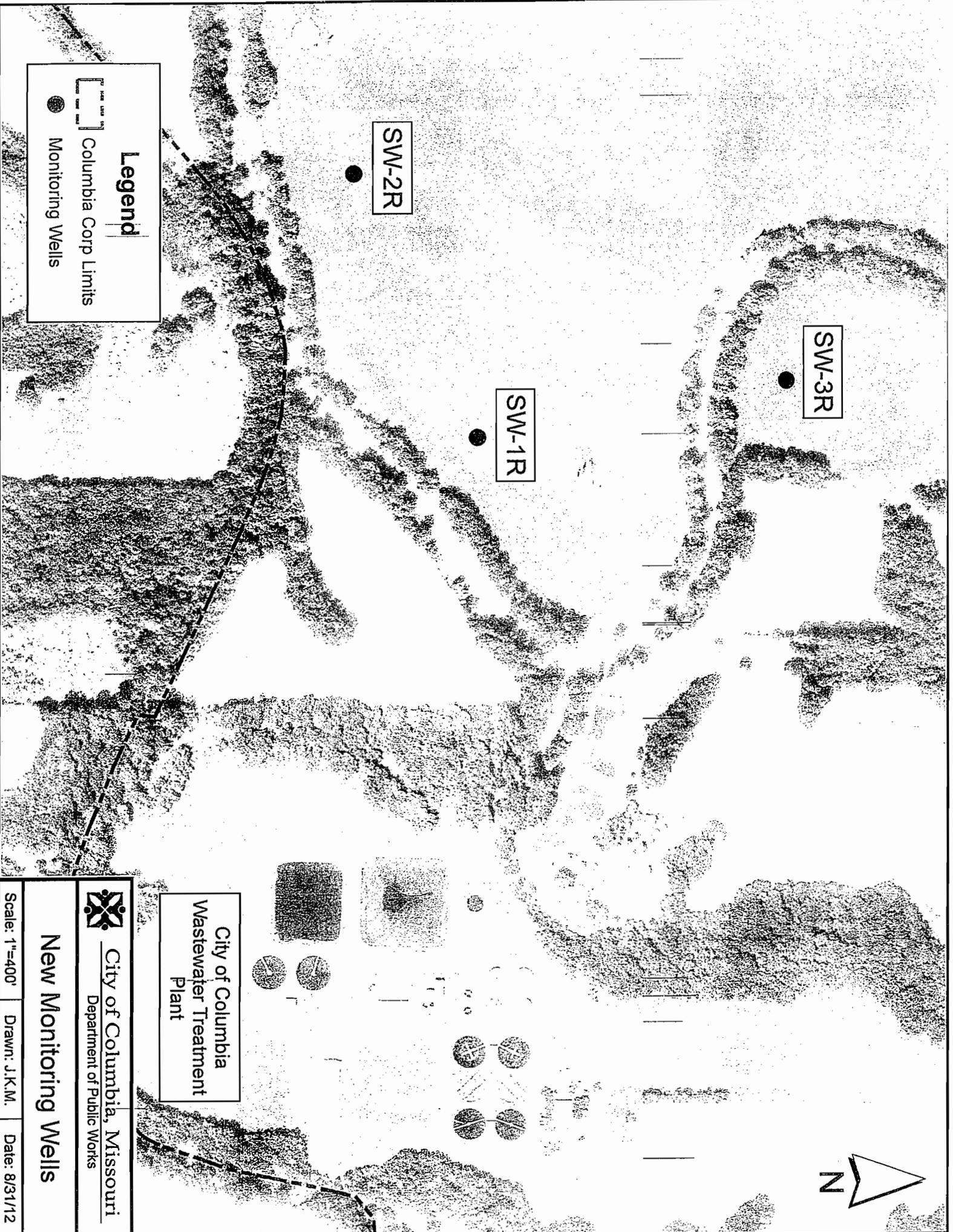
City of Columbia, Missouri  
Department of Public Works

### New Monitoring Wells

Scale: 1"=400' Drawn: J.K.M. Date: 8/31/12

**Legend**

-  Columbia Corp Limits
-  Monitoring Wells





MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 GEOLOGICAL SURVEY PROGRAM  
**MONITORING WELL  
 CERTIFICATION RECORD**

<b>OFFICE USE ONLY</b>		DATE RECEIVED
REFERENCE NO.	C.R. NO.	CHECK NO.
STATE WELL NUMBER	REVENUE NO.	
ENTERED Ph1 Ph2 Ph3	APPROVED BY	ROUTE

**INFORMATION SUPPLIED BY PRIMARY CONTRACTOR OR DRILLING CONTRACTOR**

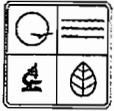
**NOTE: THIS FORM IS NOT TO BE USED FOR NESTED WELLS**

OWNER NAME City of Columbia, Missouri		CONTACT NAME Mr. Craig Cuvellier		VARIANCE GRANTED BY DNR
OWNER ADDRESS 701 E. Broadway	CITY Columbia	STATE MO	ZIP CODE 65203	NUMBER N/A
SITE NAME City of Columbia MO - WWTP			WELL NUMBER SW-3R	COUNTY Boone
SITE ADDRESS 4900 W. Gillespie Bridge Rd.		CITY Columbia	STATIC WATER LEVEL 14.0	

<b>SURFACE COMPLETION</b> TYPE <input checked="" type="checkbox"/> ABOVE GROUND <input type="checkbox"/> FLUSH MOUNT <input checked="" type="checkbox"/> LOCKING CAP <input checked="" type="checkbox"/> WEEP HOLE		LENGTH AND DIAMETER OF SURFACE COMPLETION LENGTH <u>2.5</u> FT. DIAMETER <u>8</u> IN.	DIAMETER AND DEPTH OF THE HOLE SURFACE COMPLETION WAS PLACED DIAMETER <u>16</u> IN. LENGTH <u>3</u> FT.	SURFACE COMPLETION GROUT <input checked="" type="checkbox"/> CONCRETE <input type="checkbox"/> OTHER	LOCATION OF WELL (DM/S FORMAT ONLY) LAT. <u>38</u> . <u>55</u> . <u>44.32</u> - LONG. <u>92</u> . <u>25</u> . <u>05.04</u> - SMALLEST _____ LARGEST _____ SECTION _____ TOWNSHIP _____ NORTH RANGE _____ EAST WEST																		
ANNULAR SEAL LENGTH <u>4</u> FT. <input type="checkbox"/> SLURRY <input checked="" type="checkbox"/> CHIPS <input type="checkbox"/> PELLETS <input type="checkbox"/> GRANULAR <input type="checkbox"/> CEMENT/SLURRY IF CEMENT/BENTONITE MIX: BAGS OF CEMENT USED _____ % OF BENTONITE USED _____ WATER USED/BAG <u>5</u> GAL.		RISER RISER PIPE DIAMETER <u>4</u> IN. RISER PIPE LENGTH <u>16.5</u> FT. DIAMETER OF DRILL HOLE <u>13</u> IN. WEIGHT OR SDR# <u>40</u>		MONITORING FOR: (CHECK ALL THAT APPLY) <input type="checkbox"/> RADIONUCLIDES <input type="checkbox"/> PETROLEUM PRODUCTS ONLY <input type="checkbox"/> EXPLOSIVES <input checked="" type="checkbox"/> METALS <input checked="" type="checkbox"/> VOC <input checked="" type="checkbox"/> SVOCs <input checked="" type="checkbox"/> PESTICIDES/HERBICIDES																			
SECONDARY FILTER PACK LENGTH <u>2</u> FT.		MATERIAL <input type="checkbox"/> STEEL <input checked="" type="checkbox"/> THERMOPLASTIC (PVC) <input type="checkbox"/> OTHER		PROPOSED USE OF WELL <input type="checkbox"/> GAS MIGRATION WELL <input checked="" type="checkbox"/> OBSERVATION <input type="checkbox"/> EXTRACTION WELL <input type="checkbox"/> OPEN HOLE <input type="checkbox"/> PIEZOMETERS <input type="checkbox"/> INJECTION WELL <input type="checkbox"/> DIRECT PUSH																			
DEPTH TO TOP OF PRIMARY FILTER PACK <u>12</u> FT.		BENTONITE SEAL LENGTH <u>3</u> <input checked="" type="checkbox"/> CHIPS <input type="checkbox"/> PELLETS <input type="checkbox"/> GRANULAR <input type="checkbox"/> SLURRY <input type="checkbox"/> SATURATED ZONE <input type="checkbox"/> HYDRATED		DEPTH <table border="1"> <thead> <tr> <th>TO</th> <th>FROM</th> <th>FORMATION DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>9"</td> <td>Topsoil</td> </tr> <tr> <td>9"</td> <td>4.8ft</td> <td>Cl SILT</td> </tr> <tr> <td>4.8</td> <td>8</td> <td>Si SAND, Moist</td> </tr> <tr> <td>8</td> <td>18</td> <td>Fi SAND w/ Si, Mst</td> </tr> <tr> <td>18</td> <td>19</td> <td>Fi SAND, Wet</td> </tr> </tbody> </table>		TO	FROM	FORMATION DESCRIPTION	0	9"	Topsoil	9"	4.8ft	Cl SILT	4.8	8	Si SAND, Moist	8	18	Fi SAND w/ Si, Mst	18	19	Fi SAND, Wet
TO	FROM	FORMATION DESCRIPTION																					
0	9"	Topsoil																					
9"	4.8ft	Cl SILT																					
4.8	8	Si SAND, Moist																					
8	18	Fi SAND w/ Si, Mst																					
18	19	Fi SAND, Wet																					
LENGTH OF PRIMARY FILTER PACK <u>7</u> FT.		SCREEN SCREEN DIAMETER <u>4</u> IN. SCREEN LENGTH <u>5</u> FT. DIAMETER OF DRILL HOLE <u>13</u> IN. DEPTH TO TOP <u>14</u> FT.		SCREEN MATERIAL <input type="checkbox"/> STEEL <input type="checkbox"/> THERMOPLASTIC (PVC) <input checked="" type="checkbox"/> OTHER <u>304 SS</u>																			
				TOTAL DEPTH: <u>19</u>																			

FOR CASED WELLS, SUBMIT ADDITIONAL AS BUILT DIAGRAMS SHOWING WELL CONSTRUCTION DETAILS INCLUDING TYPE & SIZE OF ALL CASING, HOLE DIAMETER & GROUT USED.

SIGNATURE (PRIMARY CONTRACTOR)	PERMIT NUMBER 003503-M	DATE WELL DRILLING WAS COMPLETED 09/11/2012
I HEREBY CERTIFY THAT THE MONITORING WELL HEREIN DESCRIBED WAS CONSTRUCTED IN ACCORDANCE WITH MISSOURI DEPARTMENT OF NATURAL RESOURCES REQUIREMENTS FOR THE CONSTRUCTION OF MONITORING WELLS.		<input type="checkbox"/> PUMP INSTALLED
SIGNATURE (WELL DRILLER)	PERMIT NUMBER 003907-M	SIGNATURE (OF APPRENTICE)
		APPRENTICE PERMIT NUMBER



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 GEOLOGICAL SURVEY PROGRAM  
**MONITORING WELL  
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<b>OFFICE USE ONLY</b>		DATE RECEIVED
REFERENCE NO.	CHECK NO.	
C.R. NO.	REVENUE NO.	
STATE WELL NUMBER	APPROVED BY	
ENTERED	ROUTE	
Ph1 Ph2 Ph3		

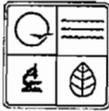
**INFORMATION SUPPLIED BY PRIMARY CONTRACTOR OR DRILLING CONTRACTOR**

NOTE: THIS FORM IS NOT TO BE USED FOR NESTED WELLS

OWNER NAME City of Columbia, Missouri			CONTACT NAME Mr. Craig Cuvellier			VARIANCE GRANTED BY DNR		
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SITE NAME City of Columbia MO - WWTP					WELL NUMBER SW-1R		COUNTY Boone	
SITE ADDRESS 4900 W. Gillespie Bridge Rd.				CITY Columbia		STATIC WATER LEVEL 18.0		

<b>SURFACE COMPLETION</b> TYPE <input checked="" type="checkbox"/> ABOVE GROUND <input type="checkbox"/> FLUSH MOUNT <input checked="" type="checkbox"/> LOCKING CAP <input checked="" type="checkbox"/> WEEP HOLE ELEVATION _____ FT.		LENGTH AND DIAMETER OF SURFACE COMPLETION LENGTH <u>2.5</u> FT. DIAMETER <u>8</u> IN.		DIAMETER AND DEPTH OF THE HOLE SURFACE COMPLETION WAS PLACED DIAMETER <u>16</u> IN. LENGTH <u>3</u> FT.		SURFACE COMPLETION GROUT <input checked="" type="checkbox"/> CONCRETE <input type="checkbox"/> OTHER _____		LOCATION OF WELL (D/M/S FORMAT ONLY) LAT. <u>38</u> . <u>55</u> . <u>15.73</u> - LONG. <u>92</u> . <u>25</u> . <u>01.95</u> -																					
<b>ANNULAR SEAL</b> LENGTH <u>4</u> FT. <input type="checkbox"/> SLURRY <input checked="" type="checkbox"/> CHIPS <input type="checkbox"/> PELLETS <input type="checkbox"/> GRANULAR <input type="checkbox"/> CEMENT/SLURRY IF CEMENT/BENTONITE MIX: BAGS OF CEMENT USED _____ % OF BENTONITE USED _____ WATER USED/BAG <u>5</u> GAL.				<b>RISER</b> RISER PIPE DIAMETER <u>4</u> IN. RISER PIPE LENGTH <u>16.5</u> FT. DIAMETER OF DRILL HOLE <u>13</u> IN. WEIGHT OR SDR# <u>40</u>		SMALLEST _____ LARGEST _____ SECTION _____ TOWNSHIP _____ NORTH RANGE _____ EAST WEST		MONITORING FOR: (CHECK ALL THAT APPLY) <input type="checkbox"/> RADIONUCLIDES <input type="checkbox"/> PETROLEUM PRODUCTS ONLY <input type="checkbox"/> EXPLOSIVES <input checked="" type="checkbox"/> METALS <input checked="" type="checkbox"/> VOC <input checked="" type="checkbox"/> SVOCs <input checked="" type="checkbox"/> PESTICIDES/HERBICIDES																					
<b>SECONDARY FILTER PACK</b> LENGTH <u>2</u> FT.				<b>MATERIAL</b> <input type="checkbox"/> STEEL <input checked="" type="checkbox"/> THERMOPLASTIC (PVC) <input type="checkbox"/> OTHER _____		<b>BENTONITE SEAL</b> LENGTH <u>3</u> <input checked="" type="checkbox"/> CHIPS <input type="checkbox"/> PELLETS <input type="checkbox"/> GRANULAR <input type="checkbox"/> SLURRY <input type="checkbox"/> SATURATED ZONE <input type="checkbox"/> HYDRATED		PROPOSED USE OF WELL <input type="checkbox"/> GAS MIGRATION WELL <input checked="" type="checkbox"/> OBSERVATION <input type="checkbox"/> EXTRACTION WELL <input type="checkbox"/> OPEN HOLE <input type="checkbox"/> PIEZOMETERS <input type="checkbox"/> INJECTION WELL <input type="checkbox"/> DIRECT PUSH		<table border="1"> <thead> <tr> <th colspan="2">DEPTH</th> <th rowspan="2">FORMATION DESCRIPTION</th> </tr> <tr> <th>TO</th> <th>FROM</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>10"</td> <td>Topsoil</td> </tr> <tr> <td>10"</td> <td>14ft</td> <td>Cl SILT</td> </tr> <tr> <td>14</td> <td>18.5</td> <td>Si CLAY, Moist</td> </tr> <tr> <td>18.5</td> <td>19</td> <td>Fi SAND, Wet</td> </tr> <tr> <td colspan="2">TOTAL DEPTH:</td> <td>19</td> </tr> </tbody> </table>		DEPTH		FORMATION DESCRIPTION	TO	FROM	0	10"	Topsoil	10"	14ft	Cl SILT	14	18.5	Si CLAY, Moist	18.5	19	Fi SAND, Wet	TOTAL DEPTH:
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TOTAL DEPTH:		19																											
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<b>LENGTH OF PRIMARY FILTER PACK</b> <u>7</u> FT.		FOR CASED WELLS, SUBMIT ADDITIONAL AS BUILT DIAGRAMS SHOWING WELL CONSTRUCTION DETAILS INCLUDING TYPE & SIZE OF ALL CASING, HOLE DIAMETER & GROUT USED.																											

SIGNATURE (PRIMARY CONTRACTOR)		PERMIT NUMBER 003503-M	DATE WELL DRILLING WAS COMPLETED 09/10/2012
I HEREBY CERTIFY THAT THE MONITORING WELL HEREIN DESCRIBED WAS CONSTRUCTED IN ACCORDANCE WITH MISSOURI DEPARTMENT OF NATURAL RESOURCES REQUIREMENTS FOR THE CONSTRUCTION OF MONITORING WELLS.			<input type="checkbox"/> PUMP INSTALLED
SIGNATURE (WELL DRILLER)	PERMIT NUMBER 003907-M	SIGNATURE (OF APPRENTICE)	APPRENTICE PERMIT NUMBER



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 GEOLOGICAL SURVEY PROGRAM  
**MONITORING WELL  
 CERTIFICATION RECORD**

OFFICE USE ONLY		DATE RECEIVED
REFERENCE NO.	CHECK NO.	
C.R. NO.	REVENUE NO.	
STATE WELL NUMBER	ENTERED	
APPROVED BY	ROUTE	
Ph1	Ph2	Ph3

**INFORMATION SUPPLIED BY PRIMARY CONTRACTOR OR DRILLING CONTRACTOR**

NOTE: THIS FORM IS NOT TO BE USED FOR NESTED WELLS

OWNER NAME City of Columbia, Missouri		CONTACT NAME Mr. Craig Cuvellier		VARIANCE GRANTED BY DNR	
OWNER ADDRESS 701 E. Broadway		CITY Columbia	STATE MO	ZIP CODE 65203	
SITE NAME City of Columbia MO - WWTP			WELL NUMBER SW-2R		COUNTY Boone
SITE ADDRESS 4900 W. Gillespie Bridge Rd.			CITY Columbia		STATIC WATER LEVEL 18.0

<b>SURFACE COMPLETION</b> TYPE <input checked="" type="checkbox"/> ABOVE GROUND <input type="checkbox"/> FLUSH MOUNT <input checked="" type="checkbox"/> LOCKING CAP <input checked="" type="checkbox"/> WEEP HOLE ELEVATION _____ FT.		LENGTH AND DIAMETER OF SURFACE COMPLETION LENGTH <u>2.5</u> FT. DIAMETER <u>8</u> IN.		DIAMETER AND DEPTH OF THE HOLE SURFACE COMPLETION WAS PLACED DIAMETER <u>16</u> IN. LENGTH <u>3</u> FT.		SURFACE COMPLETION GROUT <input checked="" type="checkbox"/> CONCRETE <input type="checkbox"/> OTHER _____		LOCATION OF WELL (D/M/S FORMAT ONLY) LAT. <u>38</u> ° <u>56</u> ' <u>33.46</u> " LONG. <u>92</u> ° <u>25</u> ' <u>13.31</u> "																						
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SIGNATURE (PRIMARY CONTRACTOR)	PERMIT NUMBER 003503-M	DATE WELL DRILLING WAS COMPLETED 09/11/2012
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I HEREBY CERTIFY THAT THE MONITORING WELL HEREIN DESCRIBED WAS CONSTRUCTED IN ACCORDANCE WITH MISSOURI DEPARTMENT OF NATURAL RESOURCES REQUIREMENTS FOR THE CONSTRUCTION OF MONITORING WELLS.  PUMP INSTALLED

SIGNATURE (WELL DRILLER)	PERMIT NUMBER 003907-M	SIGNATURE (OF APPRENTICE)	APPRENTICE PERMIT NUMBER
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MO 780.4415 (07-11)

DISTRIBUTION: WHITE/DIVISION CANARY/CONTACTOR PINK/OWNER  
 RETURN WHITE COPY WITH APPROPRIATE FEE TO: MISSOURI DEPARTMENT OF NATURAL RESOURCES, DIVISION OF GEOLOGY AND LAND SURVEY,  
 WELLHEAD PROTECTION SECTION, PO BOX 250, ROLLA, MO 65402 573-368-2165

Columbia Regional WWTP  
Outfall #002 Removal

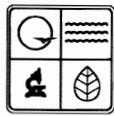
Outfall #002 included in the Columbia Regional WWTP current MSOP # MO-0097837 facility description has been plugged with concrete and removed from service.

Columbia Regional WWTP  
Scheduled Wastewater Treatment Plant Improvements

The Missouri Department of Natural Resources issued the City of Columbia a construction permit in November 2009 for expansion of the existing wastewater treatment plant. The expansion project includes the construction of additional activated sludge facilities to provide biological nutrient removal capabilities, the replacement of some headwork equipment, provision of odor control facilities, increasing biosolids handling capabilities, improvement of methane recovery efficiency and power generation facilities, and provision of process control and monitoring equipment. Please refer to "*C295361-08 City of Columbia, MO – Wastewater Treatment Plant Improvements Phase I, Construction Permit No. CP0000490*" for further improvement details.

RECEIVED MOD. FEE OF T200,  
 Required PRIOR TO  
 ISSUANCE 9/25/12

SEP 25 2012



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

FOR AGENCY USE ONLY	
CHECK NUMBER NO FEE SENT	
DATE RECEIVED 9/25/12	FEE SUBMITTED Ø

(4)  
 (b)

**PART A – BASIC APPLICATION INFORMATION**

1. This application is for:

- An operating permit and antidegradation review public notice.
- A construction permit following an appropriate operating permit and antidegradation review public notice.
- A construction permit, a concurrent operating permit and antidegradation review public notice.
- A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required).
- An operating permit for a new or unpermitted facility. Construction Permit # \_\_\_\_\_
- An operating permit renewal: Permit #MO- \_\_\_\_\_ Expiration Date \_\_\_\_\_
- An operating permit modification: Permit #MO- 0097837 Reason: Monitoring well additions/deletions required by Section F. of permit

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  N/A

**2. FACILITY**

NAME <b>Columbia Regional Wastewater Treatment Plant</b>		TELEPHONE NUMBER WITH AREA CODE <b>573-445-9427</b>	
ADDRESS (PHYSICAL) <b>4900 W. Gillespie Bridge Road</b>	CITY <b>Columbia</b>	STATE <b>MO</b>	ZIP <b>65203</b>
2.1 LEGAL DESCRIPTION (Plant Site): <b>¼, NE ¼, SW ¼, Sec. 29 , T48N , R 13W</b>		County <b>Boone</b>	
2.2 UTM Coordinates Easting (X): <u>551070</u> Northing (Y): <u>4308099</u> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)			

**3. OWNER**

NAME <b>City of Columbia</b>		TITLE		TELEPHONE NUMBER WITH AREA CODE <b>573-874-7250</b>	
ADDRESS <b>PO Box 6015</b>		CITY <b>Columbia</b>		STATE <b>MO</b>	
				ZIP <b>65205</b>	
3.1 Request review of draft permit prior to Public Notice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					

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

NAME <b>Same as Owner</b>			CITY		
ADDRESS		CERTIFICATE NUMBER (IF APPLICABLE)		STATE	
				ZIP	

**5. OPERATOR**

NAME <b>Steve Huebotter</b>		TITLE <b>Plant Superintendent</b>		TELEPHONE NUMBER WITH AREA CODE <b>573-445-9427</b>	
--------------------------------	--	--------------------------------------	--	--	--

**6. FACILITY CONTACT**

NAME <b>David Sorrell</b>		TITLE <b>Sewer Utility Manager</b>			
------------------------------	--	---------------------------------------	--	--	--

MO 780-1805 (09-08)



# CITY OF COLUMBIA, MISSOURI

PUBLIC WORKS DEPARTMENT  
Sewer Utility Division

September 24, 2012

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

RECEIVED  
SEP 25 2012  
WATER PROTECTION PROGRAM

RE: City of Columbia WWTP, Permit No. MO-0097387 Application for Permit  
Modification Schedule of Compliance – Nitrates in Sludge Application Area  
Monitoring Wells

Dear Sirs:

Section F on the City's current State Operating Permit includes a Schedule of Compliance for Nitrates in the sludge application monitoring wells. This schedule required the City to submit a site characterization report for review and approval, as well as, a plan of work for installation of proposed monitoring wells. This report and plan of work have been previously provided and approved by the Northeast Regional Office. A copy of the approval letter is attached. The construction of the new wells has been completed and the existing wells have been properly abandoned. The schedule of compliance also requires the City to submit an application for permit modification to include or remove groundwater monitoring wells. The application must demonstrate the monitoring wells are registered with the State and comply with well construction rules. This required application for permit modification is enclosed for review by the Department. Also enclosed are copies of the Monitoring Well Certification Records for the new wells. These have been submitted to the Missouri Department of Natural Resources, Division of Geology and Land Survey, Wellhead Protection Section. Once the certification letter with the certification numbers for these wells is received, a copy will be forwarded to your office to verify the wells are registered with the State and comply with well construction rules.

In addition to the modification related to the monitoring wells, Outfall #002 listed in this permit has been plugged with concrete and is no longer in operation and it is requested this Outfall also be removed from the City's permit.

The City's current permit requires the modification for the monitoring wells be public noticed and is understandable. I request MDNR to limit comments to those related to the monitoring wells or the elimination of Outfall #002 or, at least, not consider any comments not related to these two items. I trust this application contains all the information necessary to modify the City's permit so the new monitoring wells are included, the old monitoring wells removed and

Outfall #002 removed. Should you have any questions or need additional information please contact David A. Sorrell, P.E., Sewer Utility Manager at (573) 445-9427.

Sincerely,  
DEPARTMENT OF PUBLIC WORKS

A handwritten signature in black ink that reads "John D. Glascock". The signature is written in a cursive style with a large initial "J".

John D. Glascock, P.E.  
Director

c: MDNR Northeast Regional Office  
Mary Ellen Lea, Operations Manager  
Steve Hunt, P.E., Manager of Environmental Services  
David A. Sorrell, P.E., Sewer Utility Manager  
Craig Cuvellier, WWTP Laboratory Supervisor



Jeremiah W. (Jay) Nixon, Governor

Sara Parker Pauley, Director

## DEPARTMENT OF NATURAL RESOURCES

dnr.mo.gov

5.110 Columbia Regional WWTP  
Boone County  
#MO-0097837

RECEIVED

SEP 25 2012

WATER PROTECTION PROGRAM

May 18, 2012

The Honorable Bob McDavid  
Mayor, City of Columbia  
P.O. Box 6015  
Columbia, MO 65205

Dear Mayor McDavid:

On October 3, 2011, the Missouri Department of Natural Resources' Northeast Regional Office received a Site Characterization Report and Monitoring Well Work Plan (report) for the Columbia Regional Wastewater Treatment Plant's Sludge Injection Fields SC-1 through SC-12. This report was required by Missouri State Operating Permit #MO-0097837, which was issued on September 24, 2010. The report was forwarded on to the department's Division of Geology and Land Survey for comment. A response was received on December 12, 2011, and forwarded on to Mr. David Sorrell, Sewer Utility Manager for the Columbia Public Works Department. On April 2, 2012, we received a response to the comments (dated March 30, 2012). These were again forwarded on to the department's Division of Geology and Land Survey for comment. A response was received on April 30, 2012. These comments are attached.

Please be aware that the report, as amended by the March 30, 2012, response to comments, is hereby approved.

When planning to abandon/construct the new groundwater monitoring wells, please review the Frequently Asked Questions document located at <http://dnr.mo.gov/pubs/pub2193.pdf>. After you have reviewed this document, please coordinate with Mr. Chris Thiltgen with the Division of Geology and Land Survey's Wellhead Protection Section at 573-368-2167 or P.O. Box 250, Rolla, MO 65402-0250. Once the old wells are abandoned and the new wells are constructed, the city is to submit an application Form B2 to modify Missouri State Operating Permit #MO-0097837 accordingly. Form B2 (Application for Construction or Operating Permit for Facilities which receive basically domestic waste and have a design flow more than 100,000 gallons per day) is located at <http://dnr.mo.gov/forms/780-1805-f.pdf>.

Columbia Regional WWTP  
May 18, 2012  
Page 2

If you have any questions, please contact Mr. Scott Adams, or me, at 660-385-8000 in the Northeast Regional Office, 1709 Prospect Drive, Macon, Missouri 63552.

Sincerely,

NORTHEAST REGIONAL OFFICE

A handwritten signature in cursive script, appearing to read "Irene Crawford".

Irene Crawford  
Regional Director

IC/saa

Enclosure: Division of Geology and Land Survey report

c: Mr. David Sorrell, P.E. Sewer Utility Manager, City of Columbia  
Mr. John Glascock, P.E., Director of Public Works, City of Columbia  
Mr. Chris Thiltgen, Wellhead Protection Section, MDNR



**Missouri Department Of Natural Resources**

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

DATE  
**4/26/2012**  
Identification Number  
**M02312**

RECEIVED

SEP 25 2012

WATER PROTECTION PROGRAM

**Miscellaneous Report**

TO **Scott Adams, E.I. NERO**  
FROM **Sherri Stoner, R.G. Environmental Assistance Unit, GSP**  
SUBJECT **City of Columbia, WWTP, Response to MDNR Comments**

Location Quadrangle **HUNTSDALE**  
**E1/2, NE1/4, SE1/4** Section **30** Township **48 N** Range **13 W** County **BOONE**  
Latitude **38** Deg **55** Min **2** Sec North Longitude **92** Deg **25** Min **11** Sec West  
Additional Location Information **Sec 30 NE1/4, NE1/4, SE1/4 & Sec 29 W1/2, NW1/4, SW1/4, NW1/4**

Requested by

Previous Reports **Not applicable**  
0912 12/12/2011

The Geological Survey Program (GSP), Environmental Geology Section has reviewed the Response to MDNR Comments on the Site Characterization Report and Monitoring Well Work Plan for the City of Columbia Wastewater Treatment Plant, dated March 30, 2012. The GSP offers the following comments for your consideration.

Response to MDNR Comment 1. Comment noted.

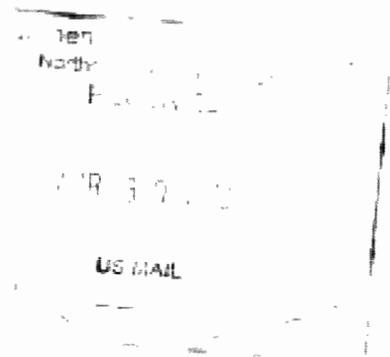
Response to MDNR Comment 2. Comment noted.

Response to MDNR Comment 3. Comment noted. However, having background groundwater quality data via an upgradient groundwater monitoring well may be advantageous to have, so that water quality mobilizing onto the site is known.

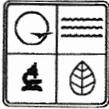
Response to MDNR Comment 4. Comment noted.

If you have any further questions, do not hesitate to contact Sherri Stoner at 573-368-2129.

cc: WPP



4-26-2012



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 GEOLOGICAL SURVEY PROGRAM  
**MONITORING WELL  
 CERTIFICATION RECORD**

<b>OFFICE USE ONLY</b>		DATE RECEIVED
REFERENCE NO.	CHECK NO.	
C.R. NO.	REVENUE NO.	
STATE WELL NUMBER	APPROVED BY	
ENTERED	Ph1	Ph2 Ph3
APPROVED BY		ROUTE

**INFORMATION SUPPLIED BY PRIMARY CONTRACTOR OR DRILLING CONTRACTOR**

NOTE: THIS FORM IS NOT TO BE USED FOR NESTED WELLS

OWNER NAME City of Columbia, Missouri		CONTACT NAME Mr. Craig Cuvellier		VARIANCE GRANTED BY DNR	
OWNER ADDRESS 701 E. Broadway		CITY Columbia	STATE MO	ZIP CODE 65203	NUMBER N/A
SITE NAME City of Columbia MO - WWTP			WELL NUMBER SW-3R	COUNTY Boone	
SITE ADDRESS 4900 W. Gillespie Bridge Rd.			CITY Columbia	STATIC WATER LEVEL 14.0	

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SIGNATURE (PRIMARY CONTRACTOR)	PERMIT NUMBER 003503-M	DATE WELL DRILLING WAS COMPLETED 09/11/2012
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MO 780-1415 (07-11)

DISTRIBUTION: WHITE/DIVISION CANARY/CONTACTOR PINK/OWNER  
 RETURN WHITE COPY WITH APPROPRIATE FEE TO: MISSOURI DEPARTMENT OF NATURAL RESOURCES, DIVISION OF GEOLOGY AND LAND SURVEY,  
 WELLHEAD PROTECTION SECTION, PO BOX 250, ROLLA, MO 65402 573-368-2166



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 GEOLOGICAL SURVEY PROGRAM  
**MONITORING WELL  
 CERTIFICATION RECORD**

<b>OFFICE USE ONLY</b>		DATE RECEIVED
REFERENCE NO.	CHECK NO.	
C.R. NO.		
STATE WELL NUMBER	REVENUE NO.	
ENTERED	APPROVED BY	ROUTE
Ph1 Ph2 Ph3		

**INFORMATION SUPPLIED BY PRIMARY CONTRACTOR OR DRILLING CONTRACTOR**  
 NOTE: THIS FORM IS NOT TO BE USED FOR NESTED WELLS

OWNER NAME City of Columbia, Missouri		CONTACT NAME Mr. Craig Cuvelier		VARIANCE GRANTED BY DNR	
OWNER ADDRESS 701 E. Broadway		CITY Columbia	STATE MO	ZIP CODE 65203	
SITE NAME City of Columbia MO - WWTP			WELL NUMBER SW-1R		COUNTY Boone
SITE ADDRESS 4900 W. Gillespie Bridge Rd.			CITY Columbia		STATIC WATER LEVEL 18.0

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MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 GEOLOGICAL SURVEY PROGRAM  
**MONITORING WELL  
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SITE ADDRESS 4900 W. Gillespie Bridge Rd.			CITY Columbia	STATIC WATER LEVEL 18.0	

**SURFACE COMPLETION**

TYPE	LENGTH AND DIAMETER OF SURFACE COMPLETION	DIAMETER AND DEPTH OF THE HOLE SURFACE COMPLETION WAS PLACED	SURFACE COMPLETION GROUT
<input checked="" type="checkbox"/> ABOVE GROUND	LENGTH <u>2.5</u> FT	DIAMETER <u>16</u> IN.	<input checked="" type="checkbox"/> CONCRETE
<input type="checkbox"/> FLUSH MOUNT	DIAMETER <u>8</u> IN.	LENGTH <u>3</u> FT	<input type="checkbox"/> OTHER _____

LOCKING CAP

WEEP HOLE

ELEVATION \_\_\_\_\_ FT

**ANNULAR SEAL**

LENGTH 4 FT

SLURRY  CHIPS

PELLETS  GRANULAR

CEMENT/SLURRY

IF CEMENT/BENTONITE MIX:

BAGS OF CEMENT USED \_\_\_\_\_

% OF BENTONITE USED \_\_\_\_\_

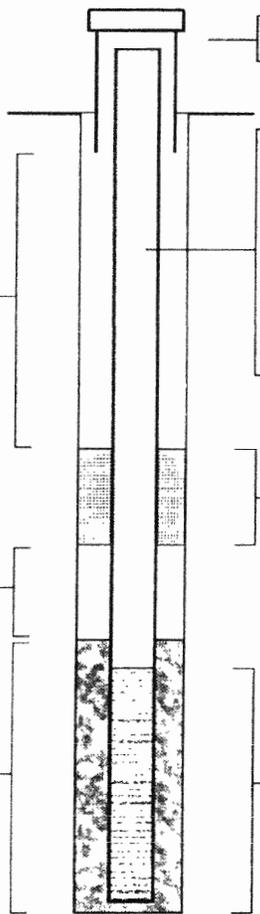
WATER USED/BAG 5 GAL.

**SECONDARY FILTER PACK**

LENGTH 2 FT

DEPTH TO TOP OF PRIMARY FILTER PACK 12 FT

LENGTH OF PRIMARY FILTER PACK 7 FT



**SURFACE COMPLETION**

STEEL  ALUMINUM  PLASTIC

**RISER**

RISER PIPE DIAMETER 4 IN.

RISER PIPE LENGTH 16.5 FT

DIAMETER OF DRILL HOLE 13 IN.

WEIGHT OR SDR# 40

**MATERIAL**

STEEL  THERMOPLASTIC (PVC)

OTHER \_\_\_\_\_

**BENTONITE SEAL**

LENGTH 3

CHIPS  PELLETS  GRANULAR

SLURRY

SATURATED ZONE  HYDRATED

**SCREEN**

SCREEN DIAMETER 4 IN.

SCREEN LENGTH 5 FT

DIAMETER OF DRILL HOLE 13 IN.

DEPTH TO TOP 14 FT

**SCREEN MATERIAL**

STEEL  THERMOPLASTIC (PVC)

OTHER 304 SS

LOCATION OF WELL (D/M/S FORMAT ONLY)

LAT. 38 ° 56 ' 33.46 "

LONG. 92 ° 25 ' 13.31 "

SMALLEST \_\_\_\_\_ LARGEST \_\_\_\_\_

SECTION \_\_\_\_\_ TOWNSHIP \_\_\_\_\_ NORTH

RANGE \_\_\_\_\_  EAST  WEST

MONITORING FOR: (CHECK ALL THAT APPLY)

RADIONUCLIDES  PETROLEUM PRODUCTS ONLY

EXPLOSIVES  METALS  VOC

SVOCs  PESTICIDES/HERBICIDES

PROPOSED USE OF WELL

GAS MIGRATION WELL  OBSERVATION

EXTRACTION WELL  OPEN HOLE

PIEZOMETERS  INJECTION WELL

DIRECT PUSH

DEPTH		FORMATION DESCRIPTION
TO	FROM	
0	9"	Topsoil
9"	10.5ft	Cl SILT
10.5	13	Si CLAY, Moist
13	18	Sa CLAY, Moist
18	19	Fi SAND, Moist
TOTAL DEPTH:		19

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 WELLHEAD PROTECTION SECTION, PO BOX 260, ROLLA, MO 65402 573-368-2165



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

RECEIVED  
 SEP 25 2012  
 WATER PROTECTION PROGRAM

FACILITY NAME  
 Columbia Regional Wastewater Treatment Plant

PERMIT NO. MO-0097837 COUNTY Boone

**APPLICATION OVERVIEW**

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

**BASIC APPLICATION INFORMATION**

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

**SUPPLEMENTAL APPLICATION INFORMATION**

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

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



FACILITY NAME <b>Columbia Regional Wastewater Treatment Plant</b>	PERMIT NO. <b>MO- 0097837</b>	OUTFALL NO. <b>001</b>
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**PART A – BASIC APPLICATION INFORMATION**

**9. SLUDGE HANDLING, USE AND DISPOSAL**

9.1 IS THE SLUDGE A HAZARDOUS WASTE AS DEFINED BY 10 CSR 25?

Yes  No

9.2 SLUDGE PRODUCTION, INCLUDING SLUDGE RECEIVED FROM OTHERS

Design Dry Tons/Year **3,948**

Actual Dry Tons/Year **2624 in 2008**

9.3 CAPACITY OF SLUDGE HOLDING STRUCTURES **SEE ATTACHMENT D**

9.4 SLUDGE STORAGE PROVIDED **SEE ATTACHMENT D**

Cubic Feet Days of Storage Average Percent Solids of Sludge  No Sludge Storage is Provided

9.5 TYPE OF STORAGE

Holding Tank  Basin  Building  Concrete Pad  Other (Describe) **Secondary Digester**

9.6 SLUDGE TREATMENT

Anaerobic Digester  Storage Tank  Lime Stabilization  Lagoon  
 Aerobic Digester  Air or Heat Drying  Composting  Other (Attach Description)

9.7 SLUDGE USE OR DISPOSAL

Land Application  Contract Hauler  Hauled to Another Treatment Facility  Solid Waste Landfill  
 Surface Disposal (Sludge Disposal Lagoon, Sludge Held For More Than Two Years)  Incineration  
 Other (Attach Explanation Sheet) \_\_\_\_\_

9.8 PERSON RESPONSIBLE FOR HAULING SLUDGE TO DISPOSAL FACILITY

NAME  
**City of Columbia**

ADDRESS CITY STATE ZIP

CONTACT PERSON TELEPHONE NUMBER WITH AREA CODE PERMIT NO  
**MO-**

9.9 SLUDGE USE OR DISPOSAL FACILITY

By Applicant  By Others (Complete Below)

NAME  
**Missouri Biosolids LLC**

ADDRESS CITY STATE ZIP  
**2927 County Road 253 Columbia MO 65202**

CONTACT PERSON TELEPHONE NUMBER WITH AREA CODE PERMIT NO  
**Joe Shryock (573) 592-0191 MO- 0131342**

9.10 DO THE SLUDGE OR BIOSOLIDS DISPOSAL COMPLY WITH FEDERAL SLUDGE REGULATIONS UNDER 40 CFR 503?

Yes  No (Attach Explanation)

**10. DOWNSTREAM LANDOWNER(S). (ATTACH ADDITIONAL SHEETS AS NECESSARY.)**

NAME  
**Missouri Department of Conservation, Eagle Bluffs Conservation Area**

ADDRESS CITY STATE ZIP  
**6700 Route K Columbia MO 65203**

**11. DRINKING WATER SUPPLY INFORMATION**

11.1 SOURCE OF YOUR DRINKING WATER SUPPLY

A. PUBLIC SUPPLY (MUNICIPAL OR WATER DISTRICT WATER) (IF PUBLIC, PLEASE GIVE NAME OF PUBLIC SUPPLY)

**City of Columbia, Water & Light Department**

B. PRIVATE WELL

C. SURFACE WATER (LAKE, POND OR STREAM)

11.2 DOES YOUR DRINKING WATER SOURCE SERVE AT LEAST 25 PEOPLE AT LEAST 60 DAYS PER YEAR (NOT NECESSARILY CONSECUTIVE DAYS)?

Yes  No

11.3 DOES YOUR SPPLY SERVE HOUSING THAT IS OCCUPIED YEAR ROUND BY THE SAME PEOPLE? THIS DOES NOT INCLUDE HOUSING THAT IS OCCUPIED SEASONALLY?

Yes  No

**END OF PART A**

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL			
FACILITY NAME <b>Columbia Regional Wastewater Treatment Plant</b>		PERMIT NO. <b>MO- 0097837</b>	OUTFALL NO. <b>001</b>
PART B – ADDITIONAL APPLICATION INFORMATION			
<b>20. INFLOW AND INFILTRATION</b>			
ESTIMATE THE AVERAGE NUMBER OF GALLONS PER DAY THAT FLOW INTO THE TREATMENT WORKS FROM INFLOW AND INFILTRATION. <b>Gallons Per Day 1.4 MGD</b>			
BRIEFLY EXPLAIN ANY STEPS UNDERWAY OR PLANNED TO MINIMIZE INFLOW AND INFILTRATION. <b>The City is in the final stages of a Wastewater System Facilities Planning Report and intends to address I&amp;I identified by the collection system, evaluation with future projects. CIPP - 15,000 Feet/Year</b>			
<b>20.1 OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)</b>			
ARE ANY OPERATIONAL OR MAINTENANCE ASPECTS (RELATED TO WASTEWATER TREATMENT AND EFFLUENT QUALITY) OF THE TREATMENT WORKS THE RESPONSIBILITY OF A CONTRACTOR? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)			
NAME			
MAILING ADDRESS			
TELEPHONE NUMBER WITH AREA CODE			
RESPONSIBILITIES OF CONTRACTOR			
<b>20.2 SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION. PROVIDE INFORMATION ABOUT ANY UNCOMPLETED IMPLEMENTATION SCHEDULE OR UNCOMPLETED PLANS FOR IMPROVEMENTS THAT WILL AFFECT THE WASTEWATER TREATMENT, EFFLUENT QUALITY OR DESIGN CAPACITY OF THE TREATMENT WORKS. IF THE TREATMENT WORKS HAS SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES OR IS PLANNING SEVERAL IMPROVEMENTS, SUBMIT SEPARATE RESPONSES FOR EACH. (IF NONE, GO TO QUESTION B-20.3.) SEE ATTACHMENT E</b>			
A. List the outfall number that is covered by this implementation schedule Outfall No. <b>001</b>		B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<b>20.3 WASTEWATER DISCHARGES:</b> COMPLETE QUESTIONS 20.4 THROUGH 20.7 ONCE FOR EACH OUTFALL (INCLUDING BYPASS POINTS) THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION ON COMBINED SEWER OVERFLOWS IN THIS SECTION.			
<b>20.4 DESCRIPTION OF OUTFALL Treated effluent to Eagle Bluffs Conservation Area</b>			
OUTFALL NUMBER <b>#001 - POTW</b>			
A. LOCATION <b>Boone County</b> <b>¼ NE ¼ SW ¼</b> Section <b>18</b> Township <b>47N</b> Range <b>13</b> <input type="checkbox"/> E <input checked="" type="checkbox"/> W UTM Coordinates Easting (X) <b>549130</b> Northing (Y): <b>4302043</b> For Universal Transverse Mercator (UTM), Zone <b>15 North</b> referenced to North American Datum 1983 (NAD83)			
B. Distance from Shore (If Applicable) <b>N/A</b> _____ ft.	C. Depth Below Surface (If Applicable) <b>N/A</b> _____ ft.	D. Average Daily Flow Rate <b>15.8</b> mgd	
E. Does this outfall have either an intermittent or periodic discharge? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Provide the following information:			
Number of Days Per Year Discharge Occurs: <b>365</b>	Average Duration of Each Discharge: <b>24 Hours</b>	Average Flow Per Discharge: <b>N/A</b> mgd	Months in Which Discharge Occurs: <b>January through December</b>
Is Outfall Equipped with a Diffuser? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
<b>20.5 DESCRIPTION OF RECEIVING WATER</b>			
B. Name of Receiving Water <b>Eagle Bluffs Conservation Area (U)</b>			
B. Name of Watershed (If Known) <b>Perche Creek</b>		U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)	
B. Name of State Management/River Basin (If Known) <b>Missouri River Basin</b>		U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known) <b>10300102-320003</b>	
B. Critical Flow of Receiving Stream (If Applicable) Acute <b>N/A</b> cfs Chronic <b>N/A</b> cfs		B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable) mg/L of CaCO <sub>3</sub> <b>263 (effluent)</b>	

FACILITY NAME <b>Columbia Regional Wastewater Treatment Plant</b>		PERMIT NO. <b>MO-0097837</b>		OUTFALL NO. <b>001</b>				
<b>PART B – ADDITIONAL APPLICATION INFORMATION (CONTINUED)</b>								
20.6 DESCRIPTION OF TREATMENT								
A. WHAT LEVELS OF TREATMENT ARE PROVIDED? Check All That Apply <input checked="" type="checkbox"/> Primary <input checked="" type="checkbox"/> Secondary <input type="checkbox"/> Advanced <input type="checkbox"/> Other (Describe)								
B. INDICATE THE FOLLOWING REMOVAL RATES (AS APPLICABLE) Design BOD <sub>5</sub> Removal Or Design CBOD <sub>5</sub> Removal <u>99</u> %      Design SS Removal <u>99</u> % Design P Removal <u>0</u> %      Design N Removal <u>0</u> %      Other      _____ %								
C. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe: <b>Disinfection is not Required</b>								
If disinfection is by chlorination, is dechlorination used for this outfall? <input type="checkbox"/> Yes <input type="checkbox"/> No								
Does the treatment plant have post aeration? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								
20.7 EFFLUENT TESTING DATA. ALL APPLICANTS THAT DISCHARGE TO WATERS OF THE U.S. MUST PROVIDE EFFLUENT TESTING DATA FOR THE FOLLOWING PARAMETERS. PROVIDE THE INDICATED EFFLUENT DATA <b>FOR EACH OUTFALL THROUGH WHICH EFFLUENT IS DISCHARGED</b> . DO NOT INCLUDE INFORMATION OF COMBINED SEWER OVERFLOWS IN THIS SECTION. ALL INFORMATION REPORTED MUST BE BASED ON DATA COLLECTED THROUGH ANALYSIS CONDUCTED USING 40 CFR PART 136 METHODS. IN ADDITION, THIS DATA MUST COMPLY WITH QA/QC REQUIREMENTS OF 40 CFR PART 136 AND OTHER APPROPRIATE QA/QC REQUIREMENTS FOR STANDARD METHODS FOR ANALYTES NOT ADDRESSED BY 40 CFR PART 136.								
OUTFALL NUMBER <b>001</b>								
PARAMETER		MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE				
		VALUE	UNITS	VALUE	UNITS	NO. OF SAMPLES		
pH (Minimum)		7.0	S.U.		S.U.	1,111		
pH (Maximum)		9.0	S.U.		S.U.	1,111		
FLOW RATE		45.2	MGD	14.6	MGD	1,581		
TEMPERATURE (Winter)		21	°C	8.6	°C	1,110		
TEMPERATURE (Summer)		29	°C	19.7	°C	1,110		
*For pH report a minimum and a maximum daily value.								
POLLUTANT		MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE		ANALYTICAL METHOD	ML/MDL	
		CONC.	UNITS	CONC.	UNITS			NO. OF SAMPLES
Conventional and Nonconventional Compounds								
BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD <sub>5</sub>	65	mg/L	9	mg/L	1,109	5210B	2
	CBOD <sub>5</sub>	50	mg/L	5	mg/L	1,110	5210B	2
FECAL COLIFORM		236,000	#/100 mL	26,850	#/100 mL	74	9223B	2
TOTAL SUSPENDED SOLIDS (TSS)		254	mg/L	14	mg/L	1,112	2540D	1
AMMONIA (AS N)		29	mg/L	9	mg/L	945	4500-NH3D	1
CHLORINE (TOTAL RESIDUAL, TRC)		The facility does not disinfect, no chlorination						
DISSOLVED OXYGEN		Monitoring not required						
TOTAL KJELDAHL NITROGEN (TKN)		8.2	mg/L	8.2	mg/L	1	4500-NH3H	1
NITRATE PLUS NITRITE NITROGEN		1.9	mg/L	1.9	mg/L	1	4500-NO3F	0.1
OIL AND GREASE		<5	mg/L	<5	mg/L	1	1664 Rev/99	5
PHOSPHORUS (TOTAL)		1.3	mg/L	1.3	mg/L	1	4500-P B1F	0.05
TOTAL DISSOLVE SOLIDS (TDS)		660	mg/L	660	mg/L	1	2540C	17
<b>*Maximum Daily Concentrations were anomalous and did not result in weekly average violations</b>								
<b>END OF PART B</b>								

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL			
FACILITY NAME <b>Columbia Regional Wastewater Treatment Plant</b>		PERMIT NO. <b>MO-0097837</b>	OUTFALL NO. <b>003 (Stormwater)</b>
<b>PART B – ADDITIONAL APPLICATION INFORMATION</b>			
<b>20. INFLOW AND INFILTRATION</b>			
ESTIMATE THE AVERAGE NUMBER OF GALLONS PER DAY THAT FLOW INTO THE TREATMENT WORKS FROM INFLOW AND INFILTRATION. Gallons Per Day <b>N/A</b>			
BRIEFLY EXPLAIN ANY STEPS UNDERWAY OR PLANNED TO MINIMIZE INFLOW AND INFILTRATION.			
20.1 OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)			
ARE ANY OPERATIONAL OR MAINTENANCE ASPECTS (RELATED TO WASTEWATER TREATMENT AND EFFLUENT QUALITY) OF THE TREATMENT WORKS THE RESPONSIBILITY OF A CONTRACTOR? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)			
NAME			
MAILING ADDRESS			
TELEPHONE NUMBER WITH AREA CODE			
RESPONSIBILITIES OF CONTRACTOR			
20.2 SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION. PROVIDE INFORMATION ABOUT ANY UNCOMPLETED IMPLEMENTATION SCHEDULE OR UNCOMPLETED PLANS FOR IMPROVEMENTS THAT WILL AFFECT THE WASTEWATER TREATMENT, EFFLUENT QUALITY OR DESIGN CAPACITY OF THE TREATMENT WORKS. IF THE TREATMENT WORKS HAS SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES OR IS PLANNING SEVERAL IMPROVEMENTS, SUBMIT SEPARATE RESPONSES FOR EACH. (IF NONE, GO TO QUESTION B-20.3.)			
A. List the outfall number that is covered by this implementation schedule Outfall No.		B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies. Yes <input type="checkbox"/> No <input type="checkbox"/>	
20.3 WASTEWATER DISCHARGES: COMPLETE QUESTIONS 20.4 THROUGH 20.7 ONCE FOR EACH OUTFALL (INCLUDING BYPASS POINTS) THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION ON COMBINED SEWER OVERFLOWS IN THIS SECTION.			
20.4 DESCRIPTION OF OUTFALL <b>Stormwater discharge - from WWTP grounds</b>			
OUTFALL NUMBER <b>#003 - POTW</b>			
A. LOCATION <b>Boone County</b> ¼ <b>NE</b> ¼ <b>SW</b> ¼ Section <b>29</b> Township <b>48N</b> Range <b>13</b> <input type="checkbox"/> E <input checked="" type="checkbox"/> W UTM Coordinates Easting (X): <b>551107</b> Northing (Y): <b>4307953</b> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)			
B. Distance from Shore (If Applicable) <b>N/A</b> _____ ft.		C. Depth Below Surface (If Applicable) <b>N/A</b> _____ ft.	
D. Average Daily Flow Rate _____ mgd <b>Depends on precipitation</b>			
E. Does this outfall have either an intermittent or periodic discharge? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, Provide the following information: <b>Monitoring requirements established in Plant's SWPPP</b>			
Number of Days Per Year Discharge Occurs: <b>Flow dependent upon precipitation</b>		Average Duration of Each Discharge: <b>24 Hours</b>	
		Average Flow Per Discharge: <b>N/A</b> mgd	
Months in Which Discharge Occurs:			
Is Outfall Equipped with a Diffuser? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
20.5 DESCRIPTION OF RECEIVING WATER			
B. Name of Receiving Water <b>Hinkson Creek (P)</b>			
B. Name of Watershed (If Known) <b>Hinkson Creek</b>		U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)	
B. Name of State Management/River Basin (If Known) <b>Missouri River Basin</b>		U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known) <b>10310102-120002</b>	
B. Critical Flow of Receiving Stream (If Applicable) Acute <b>N/A</b> cfs Chronic <b>N/A</b> cfs		B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable) mg/L of CaCO <sub>3</sub> <b>N/A</b>	

FACILITY NAME <b>Columbia Regional Wastewater Treatment Plant</b>	PERMIT NO. <b>MO-0097837</b>	OUTFALL NO. <b>003 ( Stormwater)</b>
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**PART B – ADDITIONAL APPLICATION INFORMATION (CONTINUED)**

20.6 DESCRIPTION OF TREATMENT

A. WHAT LEVELS OF TREATMENT ARE PROVIDED? Check All That Apply  
 Primary     Secondary     Advanced     Other (Describe)    **Retained stormwater returned to process**

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

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

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

Does the treatment plant have post aeration?     Yes     No    **N/A**

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

OUTFALL NUMBER

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

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

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

Conventional and Nonconventional Compounds

BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD <sub>5</sub>		mg/L		mg/L		
	CBOD <sub>5</sub>		mg/L		mg/L		
FECAL COLIFORM			#/100 mL		#/100 mL		
TOTAL SUSPENDED SOLIDS (TSS)			mg/L		mg/L		
AMMONIA (AS N)			mg/L		mg/L		
CHLORINE (TOTAL RESIDUAL, TRC)			mg/L		mg/L		
DISSOLVED OXYGEN			mg/L		mg/L		
TOTAL KJELDAHL NITROGEN (TKN)			mg/L		mg/L		
NITRATE PLUS NITRITE NITROGEN			mg/L		mg/L		
OIL AND GREASE			mg/L		mg/L		
PHOSPHORUS (TOTAL)			mg/L		mg/L		
TOTAL DISSOLVE SOLIDS (TDS)			mg/L		mg/L		
OTHER			mg/L		mg/L		

**END OF PART B**

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL			
FACILITY NAME <b>Columbia Regional Wastewater Treatment Plant</b>		PERMIT NO. <b>MO-0097837</b>	OUTFALL NO. <b>004 ( Stormwater)</b>
PART B – ADDITIONAL APPLICATION INFORMATION			
<b>20. INFLOW AND INFILTRATION</b>			
ESTIMATE THE AVERAGE NUMBER OF GALLONS PER DAY THAT FLOW INTO THE TREATMENT WORKS FROM INFLOW AND INFILTRATION. Gallons Per Day <b>N/A</b>			
BRIEFLY EXPLAIN ANY STEPS UNDERWAY OR PLANNED TO MINIMIZE INFLOW AND INFILTRATION.			
<b>20.1 OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)</b>			
ARE ANY OPERATIONAL OR MAINTENANCE ASPECTS (RELATED TO WASTEWATER TREATMENT AND EFFLUENT QUALITY) OF THE TREATMENT WORKS THE RESPONSIBILITY OF A CONTRACTOR? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)			
NAME			
MAILING ADDRESS			
TELEPHONE NUMBER WITH AREA CODE			
RESPONSIBILITIES OF CONTRACTOR			
<b>20.2 SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION. PROVIDE INFORMATION ABOUT ANY UNCOMPLETED IMPLEMENTATION SCHEDULE OR UNCOMPLETED PLANS FOR IMPROVEMENTS THAT WILL AFFECT THE WASTEWATER TREATMENT, EFFLUENT QUALITY OR DESIGN CAPACITY OF THE TREATMENT WORKS. IF THE TREATMENT WORKS HAS SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES OR IS PLANNING SEVERAL IMPROVEMENTS, SUBMIT SEPARATE RESPONSES FOR EACH. (IF NONE, GO TO QUESTION B-20.3.)</b>			
A. List the outfall number that is covered by this implementation schedule Outfall No.		B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies. Yes <input type="checkbox"/> No <input type="checkbox"/>	
<b>20.3 WASTEWATER DISCHARGES:</b> COMPLETE QUESTIONS 20.4 THROUGH 20.7 ONCE FOR EACH OUTFALL (INCLUDING BYPASS POINTS) THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION ON COMBINED SEWER OVERFLOWS IN THIS SECTION.			
<b>20.4 DESCRIPTION OF OUTFALL <u>Stormwater discharge from wastewater plant grounds</u></b>			
OUTFALL NUMBER <b>#004 - POTW</b>			
A. LOCATION <b>Boone County</b> $\frac{1}{4}$ <b>NE</b> $\frac{1}{4}$ <b>SW</b> $\frac{1}{4}$ Section <b>29</b> Township <b>48N</b> Range <b>13</b> <input type="checkbox"/> E <input checked="" type="checkbox"/> W UTM Coordinates Easting (X): <b>551008</b> Northing (Y): <b>4308212</b> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)			
B. Distance from Shore (If Applicable) <b>N/A</b> _____ ft.		C. Depth Below Surface (If Applicable) <b>N/A</b> _____ ft.	
D. Average Daily Flow Rate _____ mgd <b>Dependent on Precipitation</b>			
E. Does this outfall have either an intermittent or periodic discharge? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, Provide the following information: <b>Monitoring requirements established in Plant's SWPPP</b>			
Number of Days Per Year Discharge Occurs: <b>Flow dependent upon precipitation</b>		Average Duration of Each Discharge: <b>N/A</b>	
Average Flow Per Discharge: <b>N/A</b> mgd		Months in Which Discharge Occurs: <b>N/A</b>	
Is Outfall Equipped with a Diffuser? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
<b>20.5 DESCRIPTION OF RECEIVING WATER</b>			
B. Name of Receiving Water <b>Unnamed tributary to Hinkson Creek (U)</b>			
B. Name of Watershed (If Known) <b>Hinkson Creek</b>		U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)	
B. Name of State Management/River Basin (If Known) <b>Missouri River Basin</b>		U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known) <b>10310102-120002</b>	
B. Critical Flow of Receiving Stream (If Applicable) Acute <b>N/A</b> cfs Chronic <b>N/A</b> cfs		B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable) mg/L of CaCO <sub>3</sub> <b>N/A</b>	

MO 780-1805 (09-08)

FACILITY NAME <b>Columbia Regional Wastewater Treatment Plant</b>	PERMIT NO. <b>MO-0097837</b>	OUTFALL NO. <b>004 (Stormwater)</b>
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**PART B – ADDITIONAL APPLICATION INFORMATION (CONTINUED)**

20.6 DESCRIPTION OF TREATMENT

A. WHAT LEVELS OF TREATMENT ARE PROVIDED? Check All That Apply **Stormwater normally retained - Any discharge released as sheet flow across grass area**  
 Primary     Secondary     Advanced     Other (Describe)

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

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

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

Does the treatment plant have post aeration?     Yes     No    N/A

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

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

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

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

Conventional and Nonconventional Compounds

BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD <sub>5</sub>		mg/L		mg/L		
	CBOD <sub>5</sub>		mg/L		mg/L		
FECAL COLIFORM			#/100 mL		#/100 mL		
TOTAL SUSPENDED SOLIDS (TSS)			mg/L		mg/L		
AMMONIA (AS N)			mg/L		mg/L		
CHLORINE (TOTAL RESIDUAL, TRC)			mg/L		mg/L		
DISSOLVED OXYGEN			mg/L		mg/L		
TOTAL KJELDAHL NITROGEN (TKN)			mg/L		mg/L		
NITRATE PLUS NITRITE NITROGEN			mg/L		mg/L		
OIL AND GREASE			mg/L		mg/L		
PHOSPHORUS (TOTAL)			mg/L		mg/L		
TOTAL DISSOLVE SOLIDS (TDS)			mg/L		mg/L		
OTHER			mg/L		mg/L		

**END OF PART B**

**PART C - CERTIFICATION**

**30. CERTIFICATION**

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

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

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

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

**David Sorrell                      Sewer Utility Manager**

SIGNATURE



TELEPHONE NUMBER WITH AREA CODE

**573-445-9427**

DATE SIGNED

**9/24/12**

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

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

**Appropriate Regional Office**

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

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

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

**END OF PART C.**

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

Do not complete the remainder of this application, unless:

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

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

**INSTRUCTIONS FOR COMPLETING FORM B2**  
**APPLICATION FOR CONSTRUCTION OR OPERATING PERMITS FOR FACILITIES WHICH RECEIVE**  
**BASICALLY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY**  
(Facilities less than or equal to 100,000 gallons per day of domestic waste must use FORM B.)  
(Facilities that receive wastes other than domestic must fill out FORM A and other forms as appropriate.)

**PART A – BASIC APPLICATION INFORMATION**

1. Check which parameter is applicable. **Do not check more than one item.** Construction and operating permit refer to permits issued by the Department of Natural Resources, Water Protection Program, Water Pollution Branch.

Effective Sept. 1, 2008, a facility will be required to use **MISSOURI'S ANTIDegradation Rule and Implementation Procedure**. For more information, this document is available at [www.dnr.mo.gov/env/wpp/docs/aip-cwc-appr-050708.pdf](http://www.dnr.mo.gov/env/wpp/docs/aip-cwc-appr-050708.pdf). This procedure will be applicable to new and expanded wastewater facilities and requires the proposed discharge to a water body to undergo a level of Antidegradation Review that documents the use of a water body's available assimilative capacity is justified.

- 1.1 Self – explanatory.

- 1.2 An operating permit and antidegradation review public notice requires a Water Quality/Antidegradation Review Sheet to be submitted with the application (No fee required).

**CONSTRUCTION PERMIT FEES** (Include fee with application.)

\$750 for a sewage treatment facility with a design flow of less than 500,000 gallons per day.

\$2,200 for sewage treatment facility with a design flow of 500,000 gallons per day or more.

**DOMESTIC OPERATING PERMIT FEES** (Annual operating permit fees are based on flow.)

Annual fee/Design flow

Annual fee/Design flow

\$3,000.....30,000 gpd to 1 mgd

\$3,500.....>1 million gallons per day

New domestic wastewater treatment facilities must submit the annual fee with the original application.

**If the application is for a site-specific permit re-issuance, send no fees.** You will be invoiced separately by the department on the anniversary date of the original permit. Permit fees must be current for the department to reissue the operating permit. Late fees of two percent per month are charged and added to outstanding annual fees.

**PUBLIC SEWER SYSTEM OPERATING PERMIT FEES** (City, Public Sewer District, Public Water District, or other publicly owned treatment works). Annual fee is based on number of service connections. The table of fees is in 10 CSR 20-6.011 and is available at [www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf](http://www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf). New Public Sewer System facilities should not submit any fee as the department will invoice the permittee.

**OPERATING PERMIT MODIFICATIONS**, including transfers, are subject to the following fees:

a. Municipals - \$200 each.

b. All others – 25 percent of annual fee.

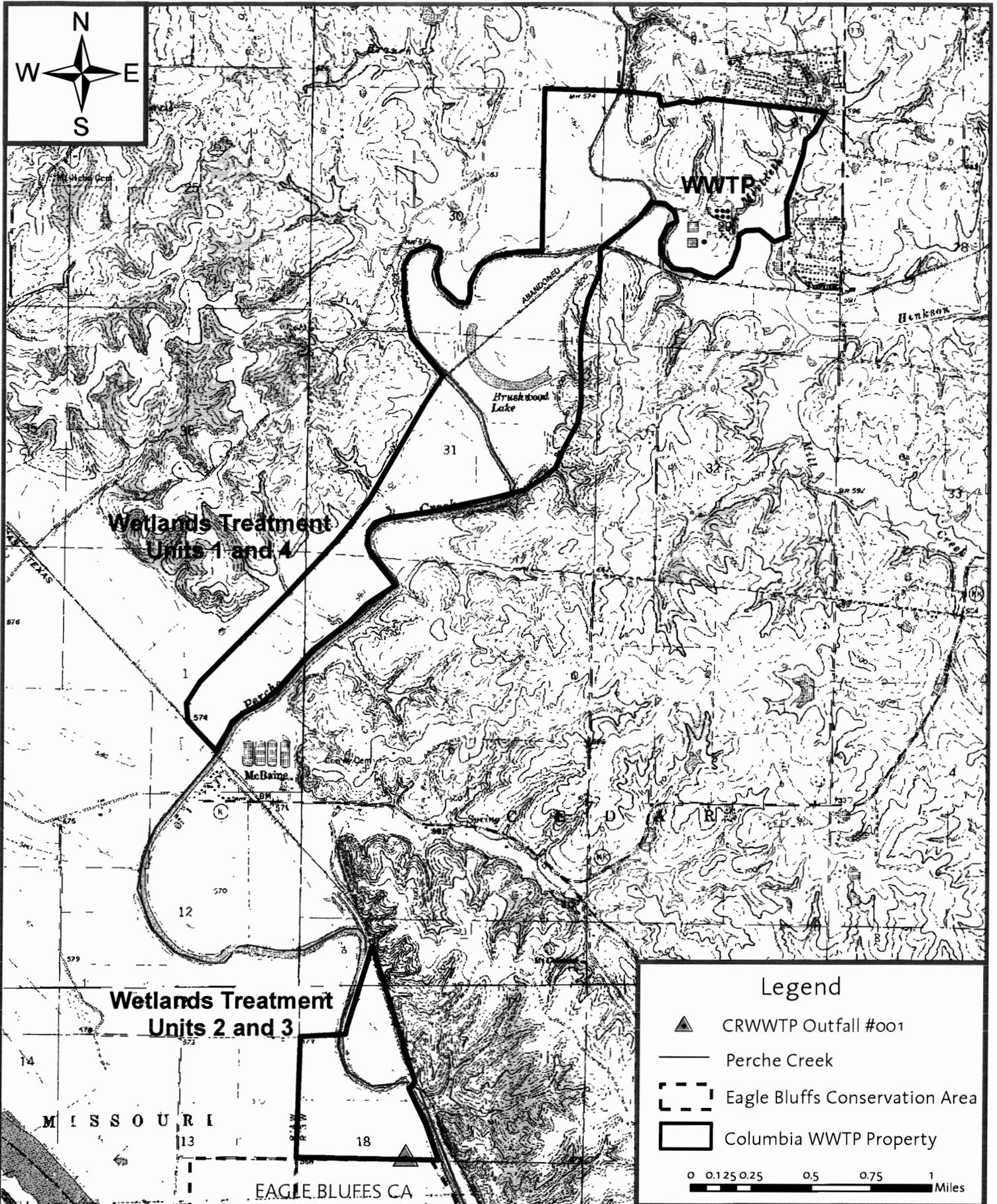
Note: Facility name or address changes where owner, operator and continuing authority remain the same are not considered transfers.

2. Name of Facility – Include the name by which this facility is locally known. Example: Southwest Sewage Treatment Plant, Country Club Mobile Home Park, etc. Provide the street address or location of the facility. If the facility lacks a street name or route number, provide the names of the closest intersection, highway, country road, etc.
  - 2.1 Self – explanatory.
  - 2.2 Global Positioning System, or GPS, is a satellite-based navigation system. The department prefers that a GPS receiver is used and the displayed coordinates submitted. If access to a GPS receiver is not available, use a mapping system to approximate the coordinates; the department's mapping system is available at [www.dnr.mo.gov/internetmapviewer/](http://www.dnr.mo.gov/internetmapviewer/).
3. Owner – Provide the legal name and address of the owner.
  - 3.1 Prior to submitting a permit to public notice, the Department of Natural Resources shall provide the permit applicant 10 days to review the draft permit for nonsubstantive drafting errors. In the interest of expediting permit issuance, permit applicants may waive the opportunity to review draft permits prior to public notice. Check Yes to review the draft permit prior to public notice. Check No to waive the process and expedite the permit.
4. Continuing Authority – Provide the permanent organization, which will serve as the continuing authority for the operation, maintenance and modernization of the facility. The regulatory requirement regarding continuing authority is available at [www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf](http://www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf) or contact the appropriate Department of Natural Resources Regional Office.
5. Operator – Provide the name, certificate number and telephone number of the operator of the facility.
6. Provide the name, title and work telephone number of a person who is thoroughly familiar with the operation of the facility and with the facts reported in this application and who can be contacted by the department, if necessary.
  - 7.1 Provide a brief description of the wastewater treatment facilities.
  - 7.2 A topographic map is available on the Web at [www.dnr.mo.gov/internetmapviewer/](http://www.dnr.mo.gov/internetmapviewer/) or from the Department of Natural Resources' Division of Geology and Land Survey in Rolla, Missouri at 573-368-2125.
  - 7.3 Self – explanatory.
  - 7.4 For Standard Industrial Codes, visit [www.osha.gov/pls/imis/sicsearch.html](http://www.osha.gov/pls/imis/sicsearch.html) and for the North American Industry Classification System, visit [www.census.gov/naics](http://www.census.gov/naics) or contact the appropriate Department of Natural Resources Regional Office.
  - 7.5 – 8.1 Self – explanatory.
  - 9.1 A copy of 10 CSR 25 is available at [www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp#10-25](http://www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp#10-25).
  - 9.2 – 9.9 Self – explanatory.

ATTACHMENT A

FORM B2  
APPLICATION FOR OPERATING PERMIT RENEWAL  
MO-0097837

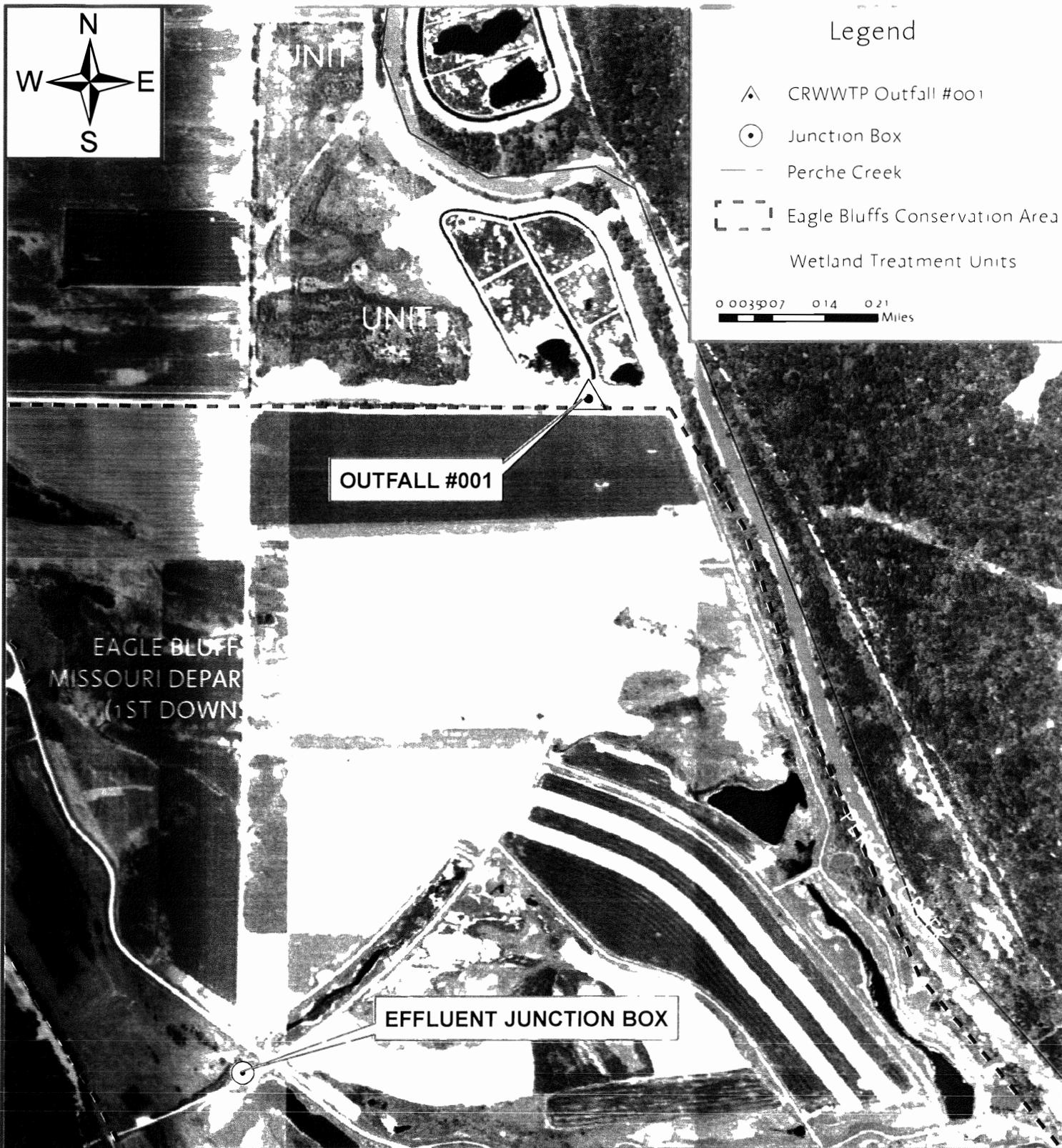
7.2 TOPOGRAPHIC AND AERIAL MAPS



Map 1: City of Columbia Regional Wastewater Treatment Plant and Wetland Treatment Properties



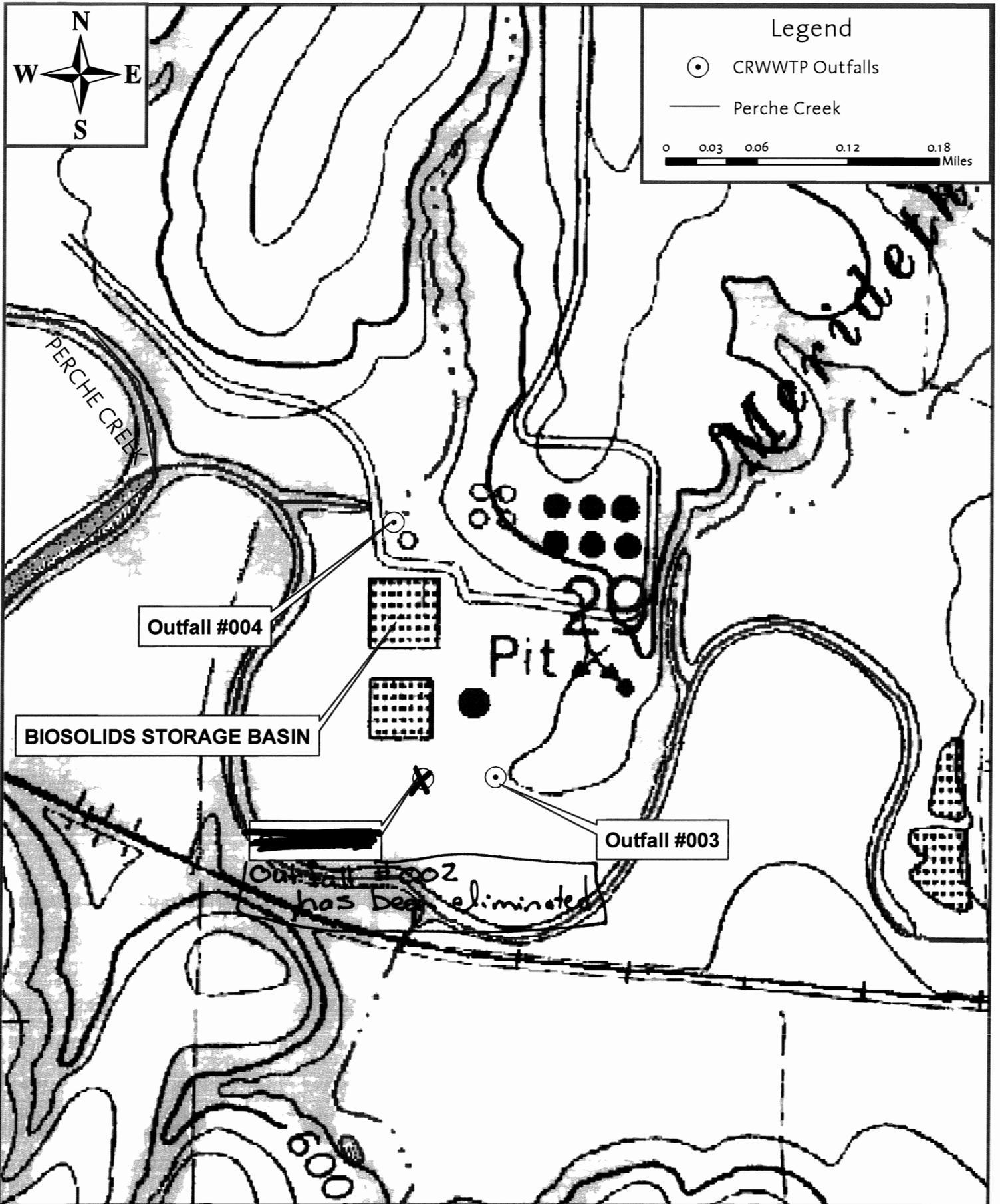
Map 2: City of Columbia Regional Wastewater Treatment Plant and Wetland Treatment Properties



Map 3: City of Columbia Regional Wastewater Treatment Plant  
 Outfall #001- POTW - SIC #4952

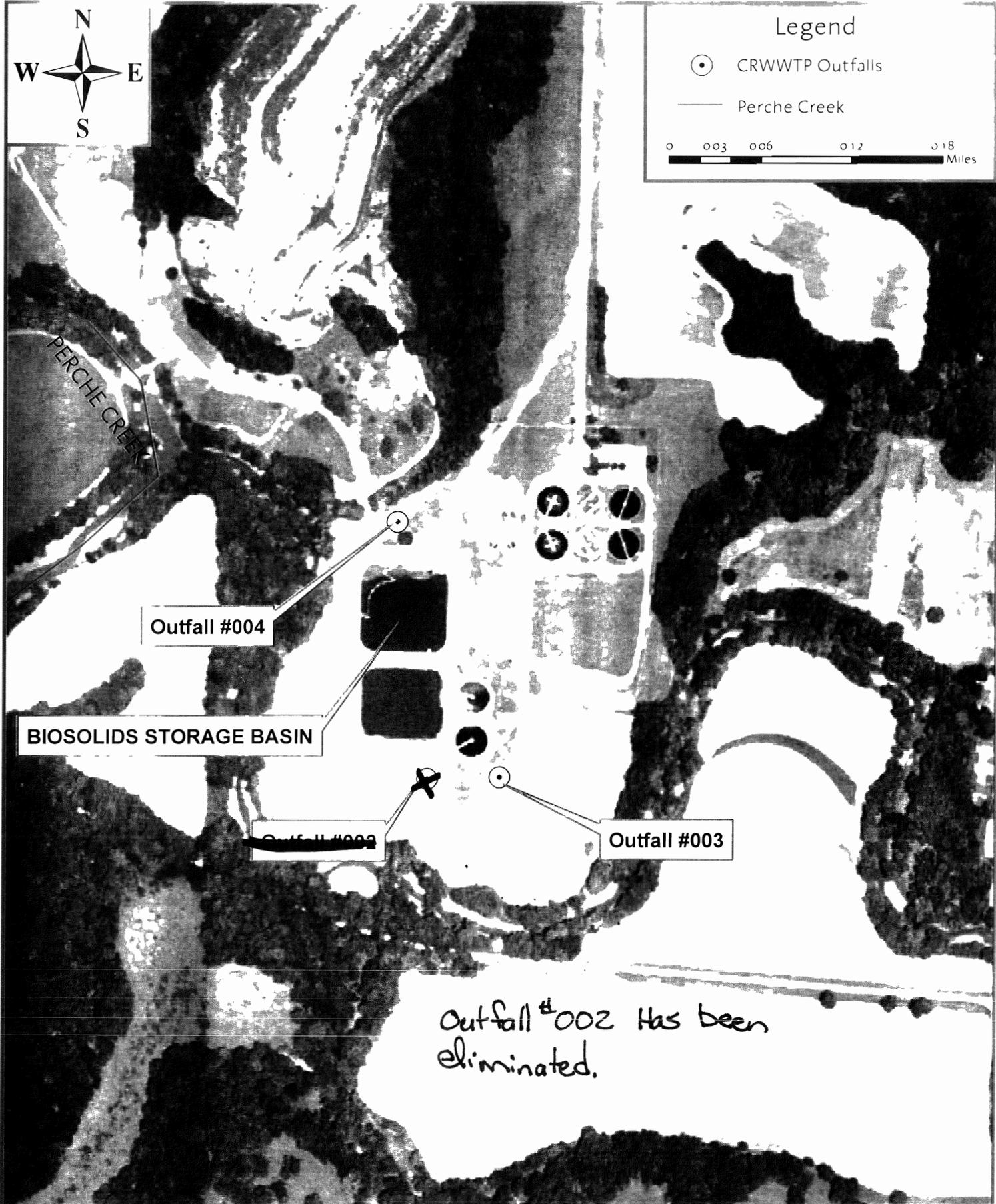
Legal Description: Sec. 18, T47N, R13W, Boone County  
 Receiving Stream: Eagle Bluffs Conservation Area (U)  
 First Classified Stream & ID: Missouri (P) (00704)  
 USGS Basin and Subwatershed: 10300102-32008

**REMOVE OUTFALL #002 FROM THE FACILITY DESCRIPTION. THE OUTFALL HAS BEEN ELIMINATED.**



Map 4: City of Columbia Regional Wastewater Treatment Plant  
~~Outfall #002~~, Outfall #003 and Outfall #004

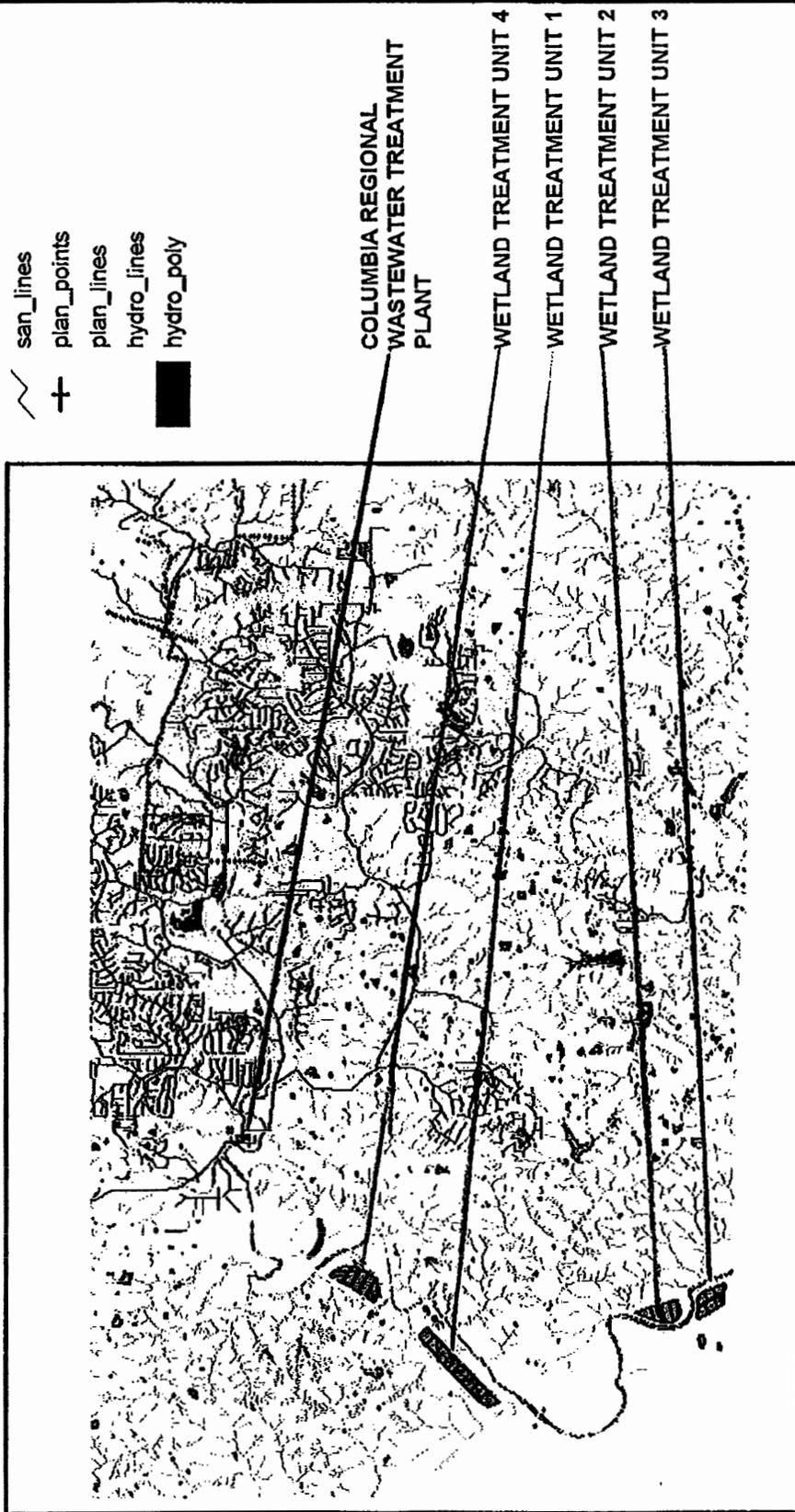
#002 Has been eliminated



Map 5: City of Columbia Regional Wastewater Treatment Plant  
~~Outfall #002~~, Outfall #003 and Outfall #004

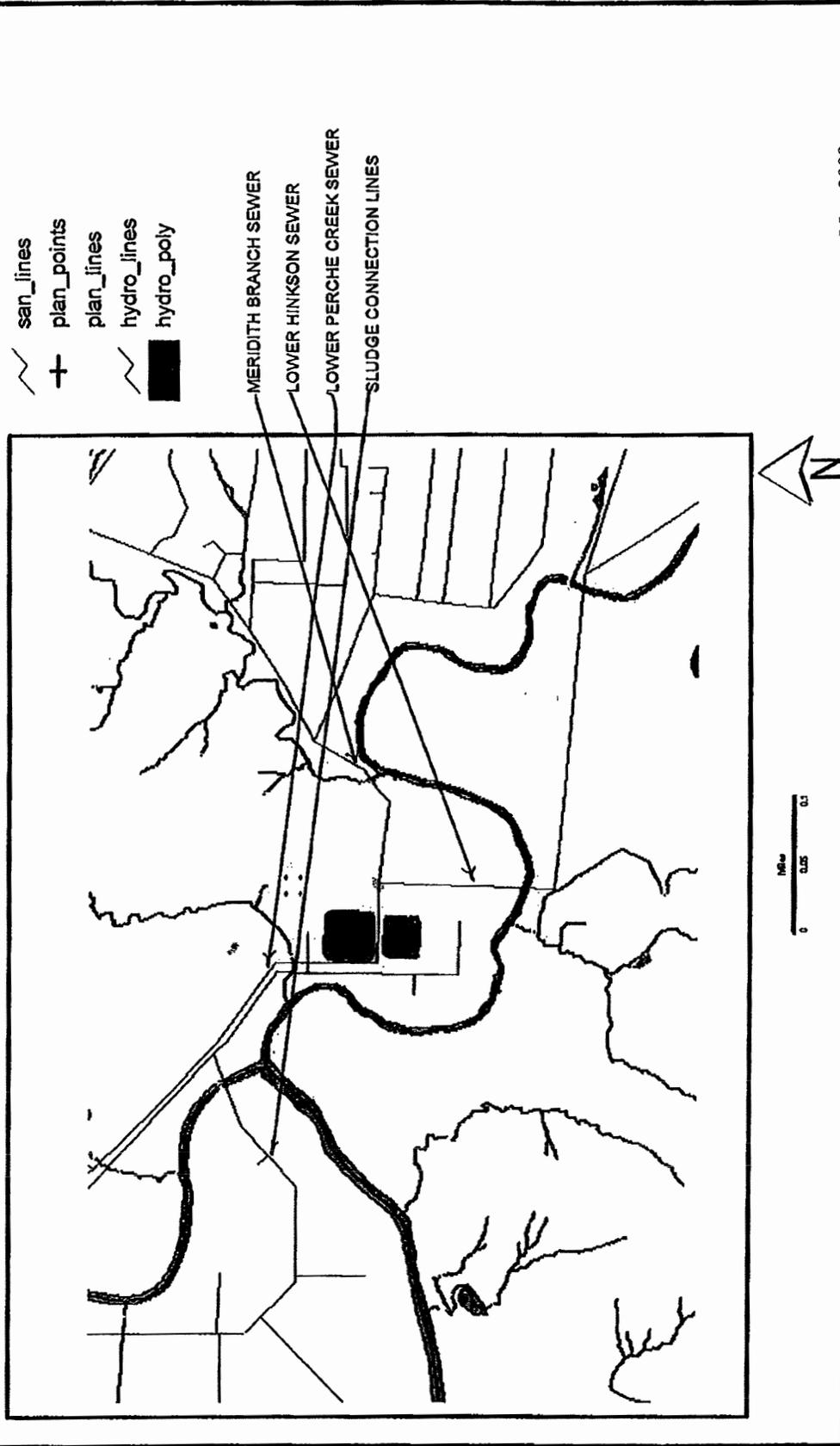
ESRI ArcExplorer 2.0

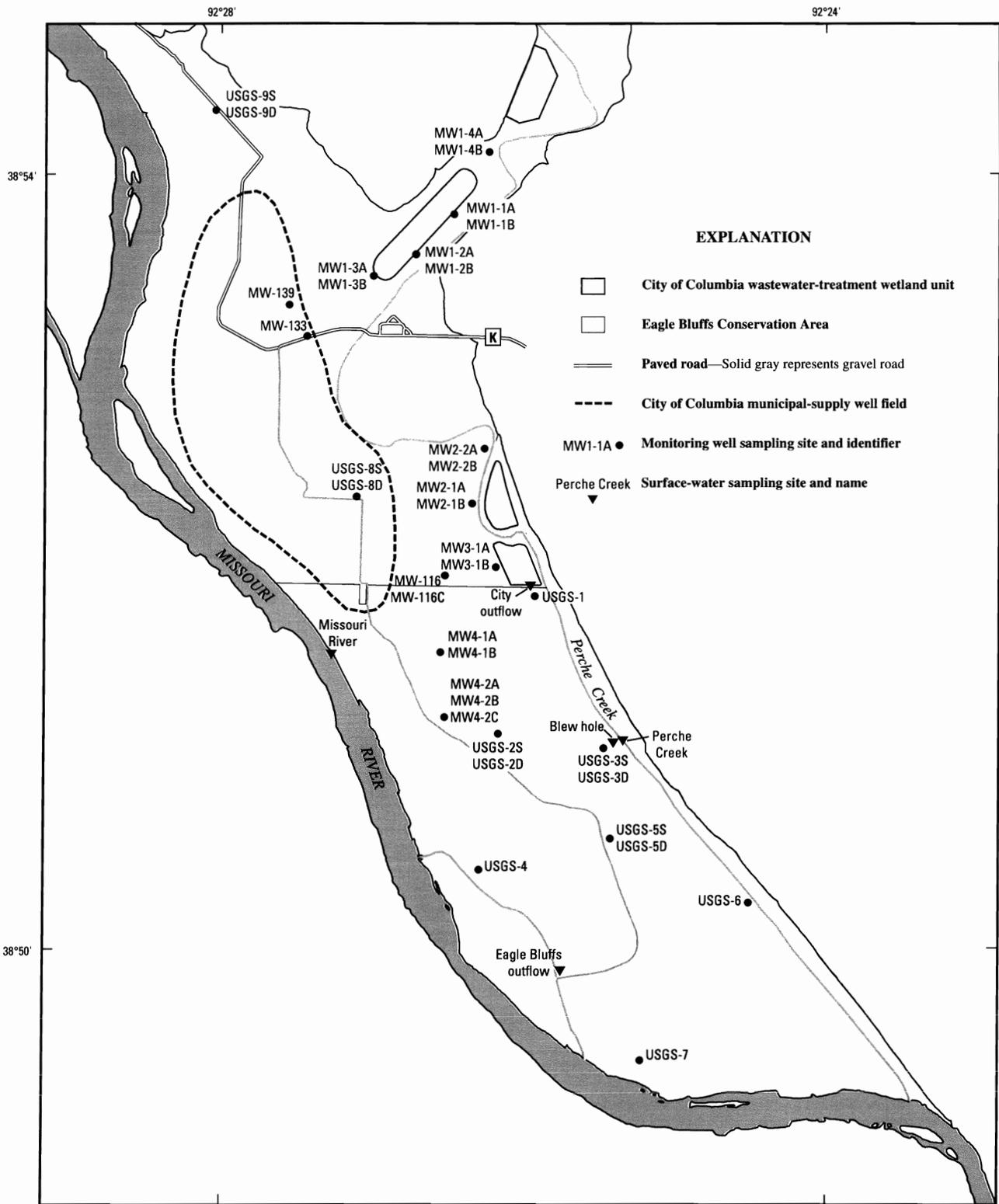
Map 6: City of Columbia Regional Wastewater Treatment Plant  
Sanitary Sewer Collection Lines



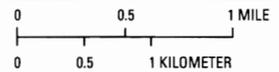
# ESRI ArcExplorer 2.0

Map 7: City of Columbia Regional Wastewater Treatment Plant  
Sanitary Sewer Collection Lines





Base from U.S. Geological Survey digital data, 1:24,000, 1993  
 Universal Transverse Mercator projection  
 Zone 15



**Map 8: Location of City of Columbia Municipal-Drinking Water Supply Field**

**ATTACHMENT B**

**FORM B2  
APPLICATION FOR OPERATING PERMIT RENEWAL  
MO-0097837**

**7.3 PROCESS FLOW DIAGRAM**

## PROCESS FLOW

The plant consists of an influent pump station, two mechanical bar screens, two primary basins, two aeration basins, two final basins, two I/I basins, an I/I holding lagoon, two gravity thickeners, two thickening centrifuges, three primary anaerobic digesters, a secondary digester, sludge holding lagoon, sludge holding tank and pump station, land application fields and wetland treatment units. Wetlands effluent is pumped to the Eagle Bluffs Conservation Area.

Flow comes to the plant influent manhole through the 24 inch Meredith Branch interceptor, the 72 inch Lower Perche Creek interceptor and the 60 inch Lower Hinkson Creek interceptor. A 72 inch line carries the wastewater to the two mechanically cleaned bar screens at the wastewater pump station. The pump station houses six 5,500 gpm vertical non-clog centrifugal pumps with variable frequency drives, which are used to pump screened wastewater to the liquid treatment processes or to one of the I/I (infiltration/inflow) clarifiers.

The liquid treatment process consists of two parallel trains, each with a primary clarifier, aeration basin and final basin. The primary splitter box divides the flow between the two process trains. A junction box between the primary and aeration basins and a junction box between the aeration basins and final basins provide a means to divert flow around any basin, which allows the basin to be taken out of service for maintenance.

The circular aeration basins have four slow speed stationary mechanical aerators. Wastewater enters the center of the basin. Two effluent boxes at the perimeter of the basin collect the mixed liquor and send it to the final basins.

Each final basin has a 60 foot diameter flocculation well. Air lift pumps are used to return activated sludge from the final basins to the aeration basins through 30 inch diameter return lines. The final basin effluent is sent to the wetlands unit through the diversion structure at the south end of the treatment plant site.

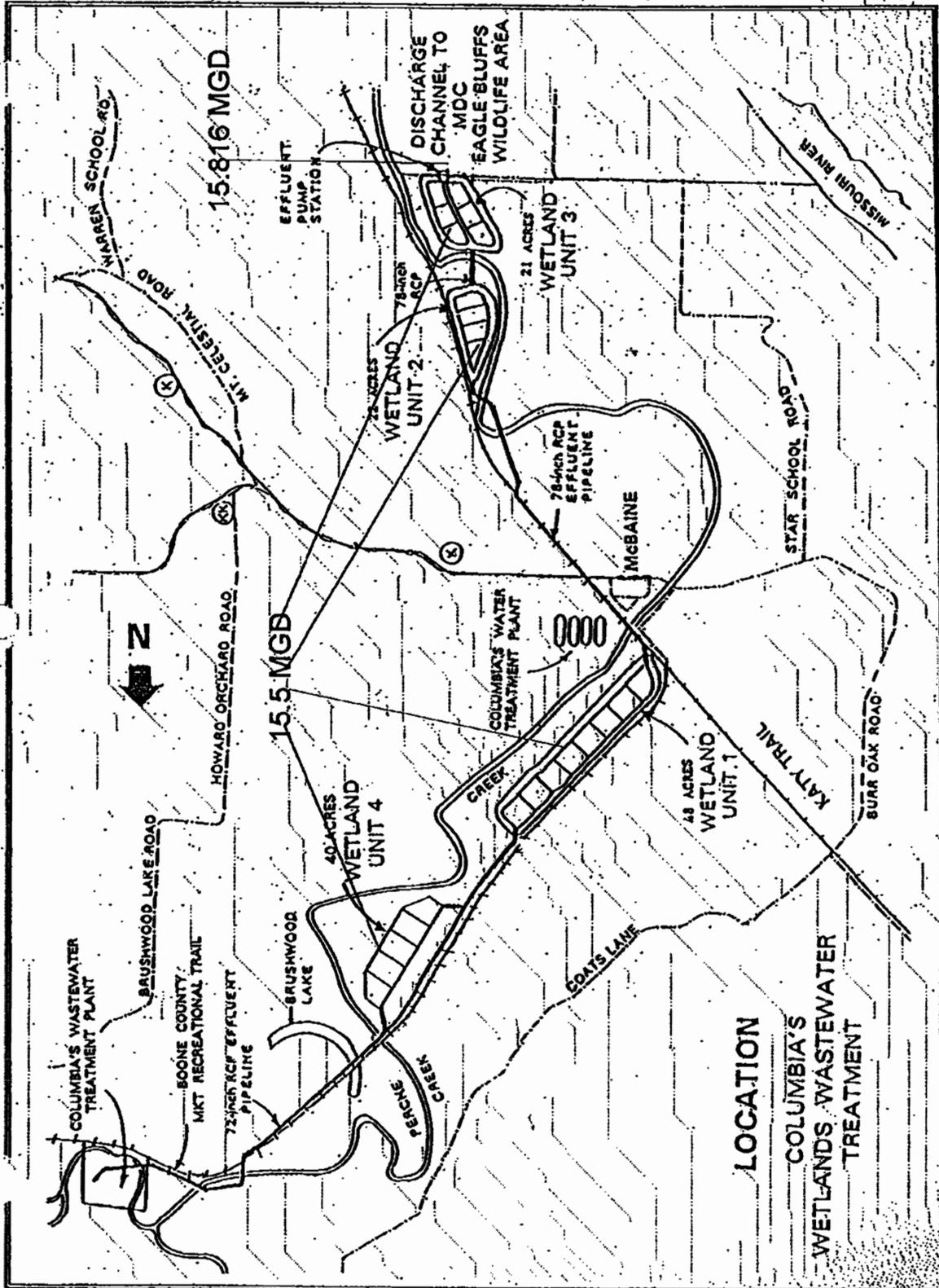
Flow in excess of what the liquid treatment facilities can effectively treat is diverted to one of the I/I clarifiers. Clarifier effluent is sent to the I/I holding lagoon until such time that the flow can be returned to the plant for treatment. If the holding lagoon is filled, overflow from the I/I holding lagoon or the I/I clarifier effluent can be directed to the diversion structure that leads to the wetlands. When not in service, the contents of the I/I clarifiers are drained back to the influent pump station.

The City has four operational wetland treatment units with a total effective treatment area of 130 acres. Effluent from the mechanical plant, including from the I/I treatment system, is sent to the wetlands for treatment before being pumped to the Eagle Bluffs Conservation Area.

The wetland treatment units are used to further improve quality by further reducing the BOD, TSS and fecal coliform levels in the mechanical plant effluent. Flow can be diverted around each treatment unit using a bypass channel for Units 1, 2 and 3 and for Unit 4.

The effluent pump station houses four 13, 900 gpm (20 mgd) constant speed vertical turbine mixed flow pumps. A composite sampler collects effluent samples. Effluent is discharged to the Eagle Bluffs Conservation Area.





**LOCATION**

COLUMBIA'S WASTEWATER TREATMENT WETLANDS

**ADD THE FOLLOWING THREE GROUND WATER MONITORING WELLS TO FACILITY DESCRIPTION TO REPLACE THE EXISTING WELLS IN FOUR LOCATIONS THAT HAVE BEEN REMOVED.**

Ground water samples will be collected from monitoring wells located around the sludge application area.

SW-1R

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550521.2 Y-4308175.4  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-2R

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550232.4 Y-4310569.7  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-3R

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550441.5 Y-4308994.5  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

**REMOVE THE FOLLOWING FOUR LOCATIONS OF GROUND WATER MONITORING WELLS TO FACILITY DESCRIPTION. THERE WERE A TOTAL OF 18 WELLS IN THESE FOUR LOCATIONS.**

SW-1

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550460.4 Y-4308075.4  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-2

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550044.4 Y-4307980.2  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-3

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550539.7 Y-4308476.6  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)

USGS Basin & Subwatershed: (10300102-110008)

SW-4

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-551005.9 Y-4307881.6  
Receiving Stream: Tributary to Hinkson Creek (PI) (1007)  
First Classified Stream & ID: Hinkson Creek (PI) (1007)  
USGS Basin & Subwatershed: (10300102-120002)



SW-3R

SW-1R

SW-2R

City of Columbia  
Wastewater Treatment  
Plant

**Legend**

- [---] Columbia Corp Limits
- Monitoring Wells



City of Columbia, Missouri  
Department of Public Works

### New Monitoring Wells

Scale: 1"=400'

Drawn: J.K.M.

Date: 8/31/12

ATTACHMENT C

FORM B2  
APPLICATION FOR OPERATING PERMIT RENEWAL  
MO-0097837

7.14 LIST OF PERMIT VIOLATIONS

Violations of Permit Limits for Calendar Year: 2007

**WWTP Effluent Limits.**

Month	M/W Average	PARAMETER	REPORTED	NPDES LIMIT	UNITS	TSS Note 1
January	M	TSS	35	70	mg/L	X
December	M	TSS	52	70	mg/L	X
January	W	TSS	80	100	mg/L	X
September	W	TSS	53	100	mg/L	X
December	W	TSS	<u>111</u>	100	mg/L	X

Note 1 - Total Suspended Solids (TSS) may be exceeded periodically due to heavy use by waterfowl. The effluent limits for TSS during these periods shall be a weekly average of 100 mg/L and monthly average of 70 mg/L. Each instance of heavy waterfowl usage shall be documented by the City and confirmed by the Missouri Department of Conservation.

**Ground water monitoring wells in sludge injection fields.**

DATE	WELL	PARAMETER	REPORTED	NPDES LIMIT	UNITS
No violations in January 2007					
No violations in February 2007					
No violations in March 2007					
No violations in April 2007					
5/9/2007	3A	NO <sub>3</sub> - N	35.34	10.00	mg/L
6/12/2007	3A	NO <sub>3</sub> - N	41.26	10.00	mg/L
7/17/2007	1A	NO <sub>3</sub> - N	10.22	10.00	mg/L
8/22/2007	3B	NO <sub>3</sub> - N	16.65	10.00	mg/L
9/14/2007	3B	NO <sub>3</sub> - N	18.20	10.00	mg/L
10/11/2007	3B	NO <sub>3</sub> - N	17.40	10.00	mg/L
11/6/2007	3B	NO <sub>3</sub> - N	18.70	10.00	mg/L
12/4/2007	3B	NO <sub>3</sub> - N	14.10	10.00	mg/L

## Violations of Permit Limits for Calendar Year: 2008

## WWTP Effluent Limits.

Month	M/W	PARAMETER	REPORTED	NPDES LIMIT	UNITS	TSS Note 1
No monthly average violations January through December 2008						
December	M	TSS	69	70	mg/L	X
December	W	TSS	120	100	mg/L	X

Note 1 - Total Suspended Solids (TSS) may be exceeded periodically due to heavy use by waterfowl. The effluent limits for TSS during these periods shall be a weekly average of 100 mg/L and monthly average of 70 mg/L. Each instance of heavy waterfowl usage shall be documented by the City and confirmed by the Missouri Department of Conservation.

## Ground water monitoring wells in sludge injection fields.

DATE	WELL	PARAMETER	REPORTED	NPDES LIMIT	UNITS
1/29/2008	3B	NO <sub>3</sub> - N	11.54	10.00	mg/L
2/26/2008	1A	NO <sub>3</sub> - N	15.10	10.00	mg/L
3/13/2008	1A	NO <sub>3</sub> - N	13.40	10.00	mg/L
4/22/2008	3A	NO <sub>3</sub> - N	38.90	10.00	mg/L
	3B	NO <sub>3</sub> - N	20.07	10.00	mg/L
5/21/2008	1A	NO <sub>3</sub> - N	10.04	10.00	mg/L
	3A	NO <sub>3</sub> - N	34.50	10.00	mg/L
	3B	NO <sub>3</sub> - N	13.61	10.00	mg/L
6/4/2008	1A	NO <sub>3</sub> - N	11.34	10.00	mg/L
	3A	NO <sub>3</sub> - N	33.95	10.00	mg/L
	3B	NO <sub>3</sub> - N	12.35	10.00	mg/L
7/17/2008	1A	NO <sub>3</sub> - N	11.17	10.00	mg/L
	3A	NO <sub>3</sub> - N	29.52	10.00	mg/L
	3B	NO <sub>3</sub> - N	10.16	10.00	mg/L
8/12/2008	1A	NO <sub>3</sub> - N	11.40	10.00	mg/L
	3A	NO <sub>3</sub> - N	31.90	10.00	mg/L
	3B	NO <sub>3</sub> - N	14.50	10.00	mg/L
9/10/2008	3A	NO <sub>3</sub> - N	28.50	10.00	mg/L
	3B	NO <sub>3</sub> - N	16.80	10.00	mg/L
10/21/2008	3A	NO <sub>3</sub> - N	22.40	10.00	mg/L



**COLUMBIA REGIONAL WASTEWATER TREATMENT PLANT**  
**Permit No. MO 009 7837**  
**Violations of Permit Limits for Calendar Year: 2010**

**CRWWTP Effluent Limits.**

Month	Parameter	Reported Value		NPDES Limits		TSS UNITS
		Monthly	Weekly	Monthly	Weekly	
January	TSS	105	170	30	45	mg/L
February	TSS	90	144	30	45	mg/L
March	No Violations					
April	TSS	46	111	30	45	mg/L
May	No Violations					
June	No Violations					
July	No Violations					
August	No Violations					
September	No Violations					
October	No Violations					
November	No Violations					
December	TSS	143	206	30	45	mg/L

**Note 1** - Total Suspended Solids (TSS) may be exceeded periodically due to heavy use by waterfowl. The effluent limits for TSS during these periods shall be a weekly average of 100 mg/L and monthly average of 70 mg/L. Each instance of heavy waterfowl usage shall be documented by the City and confirmed by the Missouri Department of Conservation.

**Ground water monitoring wells in sludge injection fields.**

DATE	Parameter	Well	Reported Value	NPDES LIMIT	UNITS
January	No Violations				
February	No Violations				
3/17/2010	Selenium	4A	10.6	10.0	µg/L
April	No Violations				
May	No Violations				
June	No Violations				
July	No Violations				
August	No Violations				
September	No Violations				
October	No Violations				
November	No Violations				
December	No Violations				

**COLUMBIA REGIONAL WASTEWATER TREATMENT PLANT**

**Permit No. MO 009 7837**

**Violations of Permit Limits for Calendar Year: 2011**

**Outfall #001 - Main Outfall - POTW**

Month	Parameter	Reported Value		NPDES Limits		TSS UNITS
		Monthly	Weekly	Monthly	Weekly	
January	TSS	90	178	30	45	mg/L
February	TSS	44	82	30	45	mg/L
March	No Violations					
April	TSS	32	47	30	45	mg/L
May	No Violations					
June	No Violations					
July	No Violations					
August	No Violations					
September	TSS		50			
October	No Violations					
November	No Violations					
December	TSS	48	63	30	45	mg/L

**Note 1** - Total Suspended Solids (TSS) may be exceeded periodically due to heavy use by waterfowl. The effluent limits for TSS during these periods shall be a weekly average of 100 mg/L and monthly average of 70 mg/L. Each instance of heavy waterfowl usage shall be documented by the City and confirmed by the Missouri Department of Conservation.

**Groundwater Monitoring Wells at On-Site Sludge Application Area**

DATE	Parameter	Well	Reported Value	NPDES LIMIT	UNITS
January	No Violations				
February	No Violations				
3/16/2011	pH	2D	5.8	6.0-9.0	SU
3/16/2011	Selenium	1A	18.2	10	µg/L
3/16/2011	Selenium	1D	10.3	10	µg/L
3/16/2011	Selenium	3A	18.8	10	µg/L
3/16/2011	Selenium	3AA	15.7	10	µg/L
3/16/2011	Selenium	4A	17.0	10	µg/L
April	No Violations				
May	No Violations				
June	No Violations				
July	No Violations				
August	No Violations				
September	No Violations				
October	No Violations				
November	No Violations				
December	No Violations				

**Outfalls #003 & 004 - Stormwater**

Quarter	Parameter	Outfall #	Reported Value	NPDES LIMIT	UNITS
First Quarter	No Violations				
Second Quarter	No Violations				
Third Quarter	No Violations				
Fourth Quarter	Sett-Solids	003	8.0	1.0 ml/L/hr	
	Sett-Solids	004	37	1.0 ml/L/hr	

**ATTACHMENT D**

**FORM B2  
APPLICATION FOR OPERATING PERMIT RENEWAL  
MO-0097837**

**PART A (9.4) – SLUDGE STORAGE PROVIDED**

## Columbia Regional WWTP Sludge Storage Description

### Secondary Digester and Sludge Injection Tank Storage

Onsite Digested Sludge Storage Volume: 602,900 gallons/80,600 cubic feet

Days of digested sludge storage at average design conditions: 3.6

Digested Sludge average percent solids: 2.5%

### Sludge Holding Lagoon

Onsite Sludge Storage Volume: 6.8 million gallons

Days of storage at average design conditions: 200

Sludge average percent solids: 6%

ATTACHMENT E

FORM B2  
APPLICATION FOR OPERATING PERMIT RENEWAL  
MO-0097837

PART B (20.2) – SCHEDULED IMPROVEMENTS

Columbia Regional WWTP  
Monitoring Well Installation

The Columbia Regional WWTP current MSOP # MO-0097837, Section F is a Schedule of Compliance (For Nitrates in Sludge Application Area Monitoring Wells). A copy of page 15 of the permits with the requirements of the schedule of compliance is included on the next sheet.

This compliance schedule required a site characterization report and plan of work be submitted to install new groundwater monitoring wells in the sludge application area. This report and plan of work were previously submitted and approved by the Missouri Department of Natural Resources Northeast Regional Office. A copy of the approval letter is attached.

The compliance schedule also requires an application for permit modification be submitted to include or remove monitoring wells. This modification must demonstrate the monitoring wells are registered with the state and comply to well construction rules. The new monitoring wells have been installed and the old wells have been abandoned. Attached is a map showing the location of the new wells; a facility description of the new wells to be added and the old wells to be removed and; copies of the Monitoring Well Certification Records submitted to the Missouri Department of Natural Resources, , Division of Geology and Land Survey, Wellhead Protection Section. Once the certification letter with the certification numbers for these wells is received, a copy will be forwarded to you office.

#### E. SEWER EXTENSION CONSTRUCTION PERMIT AUTHORITY

The department has approved the construction permit program to regulate and approve construction of sanitary sewers that are tributary to this wastewater treatment plant.

1. This approval may be modified or revoked by the department prior to the sewage collection, transportation, or treatment facilities reach their design limitations, if the facility falls into chronic noncompliance with the permit, or if the permittee fails to follow the terms and conditions of the submitted and approved program.
2. This permit may be reopened and modified or alternatively revoked and reissued to incorporate new or modified conditions to the sewer construction permit authority, if information indicates changes are necessary to assure compliance with Missouri's Clean Water Law and associated regulations.
3. When conditions #1 or #2 occur, the permittee will be notified prior to any modification of this permit condition.
4. The Permittee, as part of their Sewer Extension Program, shall submit an annual report by the twenty-eighth (28) day of January, of each year, to the Missouri Department of Natural Resources' Northeast Regional Office. The report shall include, but is not limited to, the following:
  - a. A list of the name of each individual project and their respective:
    - i. Length of sewer and force main
    - ii. Capacity of the lift stations constructed under the sewer extension (if applicable);
    - iii. Inspections made of the final construction and the findings of each;
    - iv. Results of leakage and deflection test;
    - v. Population or number of lots to be served by this extension-Design population equivalent;
    - vi. Type of wastewater (i.e., domestic or industrial); and
    - vii. Written letter from a professional engineer (signed, dated and sealed with engineer license), licensed in the State of Missouri, certifying that the project has been completed in accordance with its approved plans and specifications.
  - b. A summary of total flow at the treatment facility and a discussion regarding possible implications on operations and maintenance
5. In order to terminate the Sewer Extension Program, the permittee shall notify the department by submitting a Letter of Termination, indicating that the permittee no longer desires to continue a Sewer Extension Authority Program.
6. Unless this program is terminated prior to renewal of this operating permit, the permittee shall submit a letter with the operating permit renewal application requesting continuation of the program. Failure to apply for renewal may result in termination of this program and enforcement actions to compel compliance with this condition and the Missouri Clean Water Law.

#### F. SCHEDULE OF COMPLIANCE (For Nitrates in Sludge Application Area Monitoring Wells)

The permittee shall take action to come into compliance with Part A – Final Effluent Limitations as soon as possible but not to exceed two (2) years from the effective date of this operating permit. In order to meet the effluent limitations contained therein, the permittee shall complete the following actions:

1. Within one (1) year of the effective date of this permit, the permittee shall submit a site characterization report for review and approval to the Department's Northeast Regional Office and the Central Office Water Protection Program. The report should include steps being taken to come into compliance with said Final Effluent Limits for the On-site Sludge Application Area Monitoring Wells contained in Table A of this operating permit. This site characterization report must include details on the proper location and installation of proposed new monitoring wells. This site characterization report must indicate groundwater flow direction, elevation, and soil sampling and sufficient evidence of yielding sufficient flow for sampling. A plan of work must be submitted with the report for the installation of proposed monitoring wells.
2. Within two (2) years of the effective date of this permit, the permittee shall submit application for permit modification to include or remove groundwater monitoring wells. The modification must demonstrate the monitoring wells are registered with the state and comply to well construction rules. The modification must be submitted to the Department's Central Office's Water Protection Program. The modification will need to be public noticed.



Jeremiah W. (Jay) Nixon, Governor

Sara Parker Pauley, Director

## DEPARTMENT OF NATURAL RESOURCES

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

5.110 Columbia Regional WWTP  
Boone County  
#MO-0097837

May 18, 2012

The Honorable Bob McDavid  
Mayor, City of Columbia  
P.O. Box 6015  
Columbia, MO 65205

Dear Mayor McDavid:

On October 3, 2011, the Missouri Department of Natural Resources' Northeast Regional Office received a Site Characterization Report and Monitoring Well Work Plan (report) for the Columbia Regional Wastewater Treatment Plant's Sludge Injection Fields SC-1 through SC-12. This report was required by Missouri State Operating Permit #MO-0097837, which was issued on September 24, 2010. The report was forwarded on to the department's Division of Geology and Land Survey for comment. A response was received on December 12, 2011, and forwarded on to Mr. David Sorrell, Sewer Utility Manager for the Columbia Public Works Department. On April 2, 2012, we received a response to the comments (dated March 30, 2012). These were again forwarded on to the department's Division of Geology and Land Survey for comment. A response was received on April 30, 2012. These comments are attached.

Please be aware that the report, as amended by the March 30, 2012, response to comments, is hereby approved.

When planning to abandon/construct the new groundwater monitoring wells, please review the Frequently Asked Questions document located at <http://dnr.mo.gov/pubs/pub2193.pdf>. After you have reviewed this document, please coordinate with Mr. Chris Thiltgen with the Division of Geology and Land Survey's Wellhead Protection Section at 573-368-2167 or P.O. Box 250, Rolla, MO 65402-0250. Once the old wells are abandoned and the new wells are constructed, the city is to submit an application Form B2 to modify Missouri State Operating Permit #MO-0097837 accordingly. Form B2 (Application for Construction or Operating Permit for Facilities which receive basically domestic waste and have a design flow more than 100,000 gallons per day) is located at <http://dnr.mo.gov/forms/780-1805-f.pdf>.



Columbia Regional WWTP  
May 18, 2012  
Page 2

If you have any questions, please contact Mr. Scott Adams, or me, at 660-385-8000 in the Northeast Regional Office, 1709 Prospect Drive, Macon, Missouri 63552.

Sincerely,

NORTHEAST REGIONAL OFFICE



Irene Crawford  
Regional Director

IC/saa

Enclosure: Division of Geology and Land Survey report

c: Mr. David Sorrell, P.E. Sewer Utility Manager, City of Columbia  
Mr. John Glascock, P.E., Director of Public Works, City of Columbia  
Mr. Chris Thiltgen, Wellhead Protection Section, MDNR



**ADD THE FOLLOWING THREE GROUND WATER MONITORING WELLS TO FACILITY DESCRIPTION TO REPLACE THE EXISTING WELLS IN FOUR LOCATIONS THAT HAVE BEEN REMOVED.**

Ground water samples will be collected from monitoring wells located around the sludge application area.

SW-1R

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550521.2 Y-4308175.4  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-2R

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550232.4 Y-4310569.7  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-3R

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550441.5 Y-4308994.5  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

**REMOVE THE FOLLOWING FOUR LOCATIONS OF GROUND WATER MONITORING WELLS TO FACILITY DESCRIPTION. THERE WERE A TOTAL OF 18 WELLS IN THESE FOUR LOCATIONS.**

SW-1

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550460.4 Y-4308075.4  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-2

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550044.4 Y-4307980.2  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)  
USGS Basin & Subwatershed: (10300102-110008)

SW-3

Legal Description: Sec. 29, T48N, R13W, Boone County  
UTM Coordinates: X-550539.7 Y-4308476.6  
Receiving Stream: Tributary to Perche Creek (PI) (01005)  
First Classified Stream & ID: Perche Creek (PI) (01005)

USGS Basin & Subwatershed: (10300102-110008)

SW-4

Legal Description:

Sec. 29, T48N, R13W, Boone County

UTM Coordinates:

X-551005.9 Y-4307881.6

Receiving Stream:

Tributary to Hinkson Creek (PI) (1007)

First Classified Stream & ID:

Hinkson Creek (PI) (1007)

USGS Basin & Subwatershed:

(10300102-120002)



SW-3R

SW-1R

SW-2R

City of Columbia  
Wastewater Treatment  
Plant



City of Columbia, Missouri  
Department of Public Works

### New Monitoring Wells

Scale: 1"=400'    Drawn: J.K.M.    Date: 8/31/12

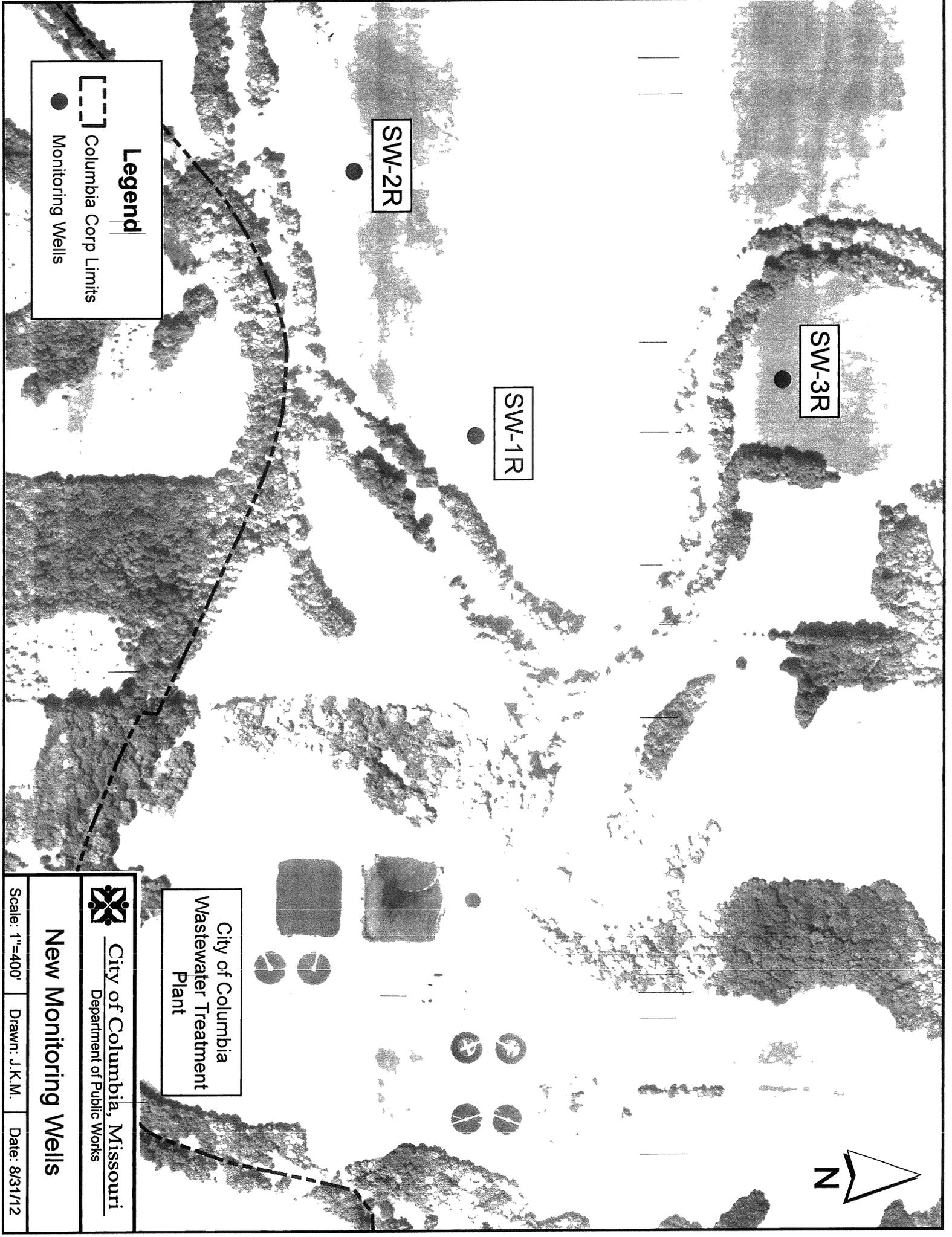
### Legend



Columbia Corp Limits



Monitoring Wells





MISSOURI DEPARTMENT OF NATURAL RESOURCES  
GEOLOGICAL SURVEY PROGRAM  
**MONITORING WELL  
CERTIFICATION RECORD**

<b>OFFICE USE ONLY</b>		DATE RECEIVED
REFERENCE NO.	CHECK NO.	
C.R. NO.		
STATE WELL NUMBER	REVENUE NO.	
ENTERED	APPROVED BY	ROUTE
Ph1 Ph2 Ph3		

**INFORMATION SUPPLIED BY PRIMARY CONTRACTOR OR DRILLING CONTRACTOR**

NOTE: THIS FORM IS NOT TO BE USED FOR NESTED WELLS

OWNER NAME City of Columbia, Missouri		CONTACT NAME Mr. Craig Cuvellier		VARIANCE GRANTED BY DNR	
OWNER ADDRESS 701 E. Broadway	CITY Columbia	STATE MO	ZIP CODE 65203	NUMBER N/A	
SITE NAME City of Columbia MO - WWTP			WELL NUMBER SW-3R	COUNTY Boone	
SITE ADDRESS 4900 W. Gillespie Bridge Rd.			CITY Columbia	STATIC WATER LEVEL 14.0	

<b>SURFACE COMPLETION</b> TYPE <input checked="" type="checkbox"/> ABOVE GROUND <input type="checkbox"/> FLUSH MOUNT <input checked="" type="checkbox"/> LOCKING CAP <input checked="" type="checkbox"/> WEEP HOLE LENGTH AND DIAMETER OF SURFACE COMPLETION LENGTH <u>2.5</u> FT DIAMETER <u>8</u> IN. DIAMETER AND DEPTH OF THE HOLE SURFACE COMPLETION WAS PLACED DIAMETER <u>16</u> IN. LENGTH <u>3</u> FT SURFACE COMPLETION GROUT <input checked="" type="checkbox"/> CONCRETE <input type="checkbox"/> OTHER _____		LOCATION OF WELL (D/M/S FORMAT ONLY) LAT. <u>38</u> ° <u>55</u> ' <u>44.32</u> " LONG. <u>92</u> ° <u>25</u> ' <u>05.04</u> " SMALLEST _____ LARGEST _____ SECTION _____ TOWNSHIP _____ NORTH RANGE _____ EAST WEST																								
ANNULAR SEAL LENGTH <u>4</u> FT <input type="checkbox"/> SLURRY <input checked="" type="checkbox"/> CHIPS <input type="checkbox"/> PELLETS <input type="checkbox"/> GRANULAR <input type="checkbox"/> CEMENT/SLURRY IF CEMENT/BENTONITE MIX: BAGS OF CEMENT USED _____ % OF BENTONITE USED _____ WATER USED/BAG <u>5</u> GAL.		MONITORING FOR: (CHECK ALL THAT APPLY) <input type="checkbox"/> RADIONUCLIDES <input type="checkbox"/> PETROLEUM PRODUCTS ONLY <input type="checkbox"/> EXPLOSIVES <input checked="" type="checkbox"/> METALS <input checked="" type="checkbox"/> VOC <input checked="" type="checkbox"/> SVOCs <input checked="" type="checkbox"/> PESTICIDES/HERBICIDES PROPOSED USE OF WELL <input type="checkbox"/> GAS MIGRATION WELL <input checked="" type="checkbox"/> OBSERVATION <input type="checkbox"/> EXTRACTION WELL <input type="checkbox"/> OPEN HOLE <input type="checkbox"/> PIEZOMETERS <input type="checkbox"/> INJECTION WELL <input type="checkbox"/> DIRECT PUSH																								
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FOR CASED WELLS, SUBMIT ADDITIONAL AS BUILT DIAGRAMS SHOWING WELL CONSTRUCTION DETAILS INCLUDING TYPE & SIZE OF ALL CASING, HOLE DIAMETER & GROUT USED.

SIGNATURE (PRIMARY CONTRACTOR)	PERMIT NUMBER 003503-M	DATE WELL DRILLING WAS COMPLETED 09/11/2012
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I HEREBY CERTIFY THAT THE MONITORING WELL HEREIN DESCRIBED WAS CONSTRUCTED IN ACCORDANCE WITH MISSOURI DEPARTMENT OF NATURAL RESOURCES REQUIREMENTS FOR THE CONSTRUCTION OF MONITORING WELLS.  PUMP INSTALLED

SIGNATURE (WELL DRILLER)	PERMIT NUMBER 003907-M	SIGNATURE (OF APPRENTICE)	APPRENTICE PERMIT NUMBER
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MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 GEOLOGICAL SURVEY PROGRAM  
**MONITORING WELL  
 CERTIFICATION RECORD**

<b>OFFICE USE ONLY</b>		DATE RECEIVED
REFERENCE NO.	C.R. NO.	CHECK NO.
STATE WELL NUMBER	REVENUE NO.	
ENTERED Ph1 Ph2 Ph3	APPROVED BY	ROUTE

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OWNER NAME City of Columbia, Missouri		CONTACT NAME Mr. Craig Cuvellier		VARIANCE GRANTED BY DNR	
OWNER ADDRESS 701 E. Broadway		CITY Columbia	STATE MO	ZIP CODE 65203	
SITE NAME City of Columbia MO - WWTP			WELL NUMBER SW-1R		COUNTY Boone
SITE ADDRESS 4900 W. Gillespie Bridge Rd.			CITY Columbia		STATIC WATER LEVEL 18.0

**SURFACE COMPLETION**

TYPE <input checked="" type="checkbox"/> ABOVE GROUND <input type="checkbox"/> FLUSH MOUNT	LENGTH AND DIAMETER OF SURFACE COMPLETION LENGTH <u>2.5</u> FT DIAMETER <u>8</u> IN.	DIAMETER AND DEPTH OF THE HOLE SURFACE COMPLETION WAS PLACED DIAMETER <u>16</u> IN. LENGTH <u>3</u> FT	SURFACE COMPLETION GROUT <input checked="" type="checkbox"/> CONCRETE <input type="checkbox"/> OTHER _____
--	--	--	--

LOCATION OF WELL (D/M/S FORMAT ONLY)

LAT 38 ° 55 ' 15.73 "

LONG. 92 ° 25 ' 01.95 "

LOCKING CAP ] \_\_\_\_\_

WEEP HOLE ] \_\_\_\_\_

ELEVATION \_\_\_\_\_ FT

SMALLEST \_\_\_\_\_ LARGEST \_\_\_\_\_

SECTION \_\_\_\_\_ TOWNSHIP \_\_\_\_\_ NORTH

RANGE \_\_\_\_\_  EAST  WEST

**ANNULAR SEAL**

LENGTH 4 FT

SLURRY  CHIPS  
 PELLETS  GRANULAR  
 CEMENT/SLURRY

IF CEMENT/BENTONITE MIX:  
 BAGS OF CEMENT USED \_\_\_\_\_  
 % OF BENTONITE USED \_\_\_\_\_  
 WATER USED/BAG 5 GAL.

MONITORING FOR: (CHECK ALL THAT APPLY)

RADIONUCLIDES  PETROLEUM PRODUCTS ONLY  
 EXPLOSIVES  METALS  VOC  
 SVOCs  PESTICIDES/HERBICIDES

PROPOSED USE OF WELL

GAS MIGRATION WELL  OBSERVATION  
 EXTRACTION WELL  OPEN HOLE  
 PIEZOMETERS  INJECTION WELL  
 DIRECT PUSH

**BENTONITE SEAL**

LENGTH 3

CHIPS  PELLETS  GRANULAR  
 SLURRY

SATURATED ZONE  HYDRATED

DEPTH		FORMATION DESCRIPTION
TO	FROM	
0	10"	Topsoil
10"	14ft	Cl SILT
14	18.5	Si CLAY, Moist
18.5	19	Fi SAND, Wet
TOTAL DEPTH:		19

**SECONDARY FILTER PACK**

LENGTH 2 FT

DEPTH		FORMATION DESCRIPTION
TO	FROM	
0	10"	Topsoil
10"	14ft	Cl SILT
14	18.5	Si CLAY, Moist
18.5	19	Fi SAND, Wet
TOTAL DEPTH:		19

**SCREEN**

SCREEN DIAMETER 4 IN.  
 SCREEN LENGTH 5 FT  
 DIAMETER OF DRILL HOLE 13 IN.  
 DEPTH TO TOP 14 FT.

**SCREEN MATERIAL**

STEEL  THERMOPLASTIC (PVC)  
 OTHER 304 SS

DEPTH TO TOP OF PRIMARY FILTER PACK 12 FT

LENGTH OF PRIMARY FILTER PACK 7 FT.

FOR CASED WELLS, SUBMIT ADDITIONAL AS BUILT DIAGRAMS SHOWING WELL CONSTRUCTION DETAILS INCLUDING TYPE & SIZE OF ALL CASING, HOLE DIAMETER & GROUT USED.

SIGNATURE (PRIMARY CONTRACTOR)	PERMIT NUMBER 003503-M	DATE WELL DRILLING WAS COMPLETED 09/10/2012
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I HEREBY CERTIFY THAT THE MONITORING WELL HEREIN DESCRIBED WAS CONSTRUCTED IN ACCORDANCE WITH MISSOURI DEPARTMENT OF NATURAL RESOURCES REQUIREMENTS FOR THE CONSTRUCTION OF MONITORING WELLS.  PUMP INSTALLED

SIGNATURE (WELL DRILLER)	PERMIT NUMBER 003907-M	SIGNATURE (OF APPRENTICE)	APPRENTICE PERMIT NUMBER
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MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 GEOLOGICAL SURVEY PROGRAM  
**MONITORING WELL  
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SITE ADDRESS 4900 W. Gillespie Bridge Rd.			CITY Columbia		STATIC WATER LEVEL 18.0

<b>SURFACE COMPLETION</b>		DIAMETER AND DEPTH OF THE HOLE SURFACE COMPLETION WAS PLACED		SURFACE COMPLETION GROUT		LOCATION OF WELL (D/M/S FORMAT ONLY)	
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FOR CASSED WELLS, SUBMIT ADDITIONAL AS BUILT DIAGRAMS SHOWING WELL CONSTRUCTION DETAILS INCLUDING TYPE & SIZE OF ALL CASING, HOLE DIAMETER & GROUT USED.

SIGNATURE (PRIMARY CONTRACTOR)	PERMIT NUMBER 003503-M	DATE WELL DRILLING WAS COMPLETED 09/11/2012
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SIGNATURE (WELL DRILLER)	PERMIT NUMBER 003907-M	SIGNATURE (OF APPRENTICE)	APPRENTICE PERMIT NUMBER
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Columbia Regional WWTP  
Outfall #002 Removal

Outfall #002 included in the Columbia Regional WWTP current MSOP # MO-0097837 facility description has been plugged with concrete and removed from service.

## Columbia Regional WWTP Scheduled Wastewater Treatment Plant Improvements

The Missouri Department of Natural Resources issued the City of Columbia a construction permit in November 2009 for expansion of the existing wastewater treatment plant. The expansion project includes the construction of additional activated sludge facilities to provide biological nutrient removal capabilities, the replacement of some headwork equipment, provision of odor control facilities, increasing biosolids handling capabilities, improvement of methane recovery efficiency and power generation facilities, and provision of process control and monitoring equipment. Please refer to “*C295361-08 City of Columbia, MO – Wastewater Treatment Plant Improvements Phase I, Construction Permit No. CP0000490*” for further improvement details.