STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

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

Permit No.	MO-0097837
Owner:	City of Columbia
Address:	P.O. Box 6015, Columbia, MO 65205
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Columbia Wastewater Treatment Plant
Facility Address:	4900 West Gillespie Bridge Road, Columbia, MO 65203
Legal Description:	See Page 2
UTM Coordinates:	See Page 2
Receiving Stream:	See Page 2
First Classified Stream and ID:	See Page 2
USGS Basin & Sub-watershed No.:	See Page 2

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

July 1, 2020 Effective Date

February 1, 2023 Modification Date

March 1, 2023 Modification Date

June 30, 2025 Expiration Date

Chris Wieberg, Director, Water Protection Program

FACILITY DESCRIPTION (continued):

Outfall #001 – POTW – SIC #4952

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

Influent pump station / 2 peak flow clarifiers / 2 peak flow storage basins / dual mechanical bar screens / dual vortex grit system / 4 primary clarifiers / 4 activated sludge basins / 4 final clarifiers / sodium hypochlorite tank / ferric chloride treatment / 4 multi-cell treatment wetlands / effluent pump station / 3 primary anaerobic digesters / 1 secondary anaerobic digester / biosolids cake storage pad / 2 sludge gravity thickeners / 2 sludge thickening centrifuges with polymer system / sludge/biosolids holding tank / biosolids are land applied, landfilled, or hauled to a permitted sludge/biosolids disposal facility

During excessive precipitation events that result in flows exceeding 50 MGD, primary treated flows are stored in the two (2) peak flow clarifiers for further treatment or are combined with flows treated by the activated sludge process and routed directly to the four (4) multi-cell treatment wetlands for secondary treatment of all flows

Of the approximate 27 acres of the WWTP, 22 acres drain to the existing I&I basin, which is then treated by the WWTP, the remaining 5 acres do not have materials stored or conduct operations in a manner that would cause the discharge of pollutants via stormwater

Design population equivalent is 178,700.
Design flow is 25.2 million gallons per day.
Actual flow is 14.2 million gallons per day.
Design sludge production is 3,948 dry tons/year.

Legal Description:	Sec. 18, T47N, R13W, Boone County
UTM Coordinates:	X=549137, Y=4301930
Receiving Stream #1:	Tributary to Old Missouri River Slough (Eagle Bluffs Conservation Area wetland)
First Classified Stream and ID #1:	100K Extent-Remaining Streams (C) (3960)
Receiving Stream #2:	Tributary to Perche Creek
First Classified Stream and ID #1:	Perche Creek (P1) (1005)
USGS Basin & Sub-watershed No.:	(10300102-0709)

Outfall #003 & #004 – Eliminated

Outfall #005 – Emergency discharge for flood relief from Treatment Wetland Unit 1

Legal Description:	Sec. 1, T47N, R14W, Boone County
UTM Coordinates:	X=547797, Y=4304706
Receiving Stream:	Tributary to Perche Creek (C)
First Classified Stream and ID #1:	Tributary to Perche Creek (C) (3960)
USGS Basin & Sub-watershed No.:	(10300102-0709)

Outfall #006 – Emergency discharge for flood relief from Treatment Wetland Unit 3 (SW corner)

Legal Description:	Sec. 18, T47N, R13W, Boone County
UTM Coordinates:	X=548949, Y=4301977
Receiving Stream:	Tributary to Perche Creek
First Classified Stream and ID #1:	Perche Creek (P1) (1005)
USGS Basin & Sub-watershed No.:	(10300102-0709)

Outfall #007 – Emergency discharge for flood relief from Treatment Wetland Unit 3 (SE corner)

Legal Description:	Sec. 18, T47N, R13W, Boone County
UTM Coordinates:	X=549252, Y=4302042
Receiving Stream:	Perche Creek (P1)
First Classified Stream and ID #1:	Perche Creek (P1) (1005)
USGS Basin & Sub-watershed No.:	(10300102-0709)

Outfall #008 – Emergency discharge for flood relief from Treatment Wetland Unit 3 (NE Corner)

Legal Description:	Sec. 18, T47N, R13W, Boone County
UTM Coordinates:	X=549159, Y=4302287
Receiving Stream #2:	Perche Creek (P1)
First Classified Stream and ID #1:	Perche Creek (P1) (1005)
USGS Basin & Sub-watershed No.:	(10300102-0709)

Permitted Feature INF – Internal Monitoring Point – Between the headworks and primary clarification

Legal Description:	Sec. 29, T48N, R13W, Boone County
UTM Coordinates:	X=551282, Y=4308154
USGS Basin & Sub-watershed No.:	(10300102-0603)

Permitted Feature IP1 – Internal Monitoring Point– after mechanical treatment and prior to the permitted wetland treatment system

Legal Description:	Sec. 29, T48N, R13W, Boone County
UTM Coordinates:	X=551061, Y=4307932
USGS Basin & Sub-watershed No.:	(10300102-0603)

OUTFALL #001	TABLE A-1 FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on **July 1, 2020** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
EFFLUENT PARAMETER(S)	**UNITS**	**FINAL EFFLUENT LIMITATIONS**			**MONITORING REQUIREMENTS**	
			7 DAY GEOMETRIC MEAN	**30 DAY GEOMETRIC MEAN**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Limit Set: M						
E. coli **(Note 1)**	#/100mL		*	*	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE AUGUST 28, 2020.						

OUTFALL #001	TABLE A-2 INTERIM EFFLUENT LIMITATIONS AND MONITORING					
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. In accordance with 10 CSR 20-7.031, the final effluent limitations outlined in **Table A-3** must be achieved as soon as possible but no later than **July 1, 2021**. These interim effluent limitations in **Table A-2** are effective beginning **July 1, 2020** and remain in effect through **June 30, 2021** or as soon as possible. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
EFFLUENT PARAMETER(S)	**UNITS**	**INTERIM EFFLUENT LIMITATIONS**			**MONITORING REQUIREMENTS**	
		DAILY MAXIMUM		**MONTHLY AVERAGE**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Limit Set: M						
Ammonia as N	mg/L	*			once/month	composite**
MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE AUGUST 28, 2020.						

OUTFALL #001	TABLE A-3 FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					
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 in **Table A-3** shall become effective on **July 1, 2021** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
EFFLUENT PARAMETER(S)	**UNITS**	**FINAL EFFLUENT LIMITATIONS**			**MONITORING REQUIREMENTS**	
		DAILY MAXIMUM		**MONTHLY AVERAGE**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Limit Set: M						
Ammonia as N	mg/L	12.1			once/month	composite**
MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE AUGUST 28, 2021.						

* Monitoring requirement only.

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

Note 1 – Monitoring only requirements for *E. coli* are only during the recreational season from April 1 through October 31.

OUTFALL #001	TABLE A-4 FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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 in **Table A-4** shall become effective on **July 1, 2020** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: M						
Flow	MGD	*		*	once/day	24 hr. Total
Biochemical Oxygen Demand$_5$	mg/L		45	30	twice/week	composite**
Total Suspended Solids **(Note 2, Page 7)**	mg/L		45	30	twice/week	composite**
Oil & Grease	mg/L	15		10	once/month	grab
Total Phosphorus	mg/L	*		*	once/month	composite**
Total Kjeldahl Nitrogen	mg/L	*		*	once/month	composite**
Nitrate + Nitrite	mg/L	*		*	once/month	composite**
Temperature	° C	*		*	once/month	measured
EFFLUENT PARAMETER(S)	**UNITS**	**MINIMUM**		**MAXIMUM**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
pH – Units ***	SU	6.0		9.0	twice/week	grab

EFFLUENT PARAMETER(S)	UNITS	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Biochemical Oxygen Demand$_5$ – Percent Removal **(Note 4, Page 7)**	%	85	twice/week	calculated
Total Suspended Solids – Percent Removal **(Note 4, Page 7)**	%	85	twice/week	calculated

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE AUGUST 28, 2020.

* Monitoring requirement only.
** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.
*** pH is measured in pH units.

OUTFALL #001	TABLE A-5 WHOLE EFFLUENT TOXICITY FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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 in **Table A-5** shall become effective on **July 1, 2020** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS	MONITORING REQUIREMENTS	
		DAILY MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: WA				
Acute Whole Effluent Toxicity **(Note 3, Page 7)**	TU_a	*	once/year	composite**

MONITORING REPORTS SHALL BE SUBMITTED **ANNUALLY**; THE FIRST REPORT IS DUE JANUARY 28, 2021.

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

OUTFALLS #005, #006, #007 & #008	TABLE A-6 FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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 in **Table A-6** shall become effective on **July 1, 2020** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: U						
Flow	MGD	*		*	weekly Φ	24 hr. estimate
Biochemical Oxygen Demand$_5$	mg/L	*		*	weekly Φ	grab
Total Suspended Solids	mg/L	*		*	weekly Φ	grab
E. coli	#/100mL	*		*	weekly Φ	grab
Ammonia as N	mg/L	*		*	weekly Φ	grab
Oil & Grease	mg/L	*		*	weekly Φ	grab
EFFLUENT PARAMETER(S)	**UNITS**	**MINIMUM**		**MAXIMUM**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
pH – Units ***	SU	*		*	weekly Φ	grab

MONITORING REPORTS SHALL BE SUBMITTED BY THE **28th DAY OF THE MONTH FOLLOWING THE END OF THE EVENT**.

* Monitoring requirement only.
*** pH is measured in pH units.

Φ When a discharge occurs from these Outfalls, sampling shall be conducted from Permitted Feature IP1 once per week, per discharge event, and reported for each outfall individually.

PERMITTED FEATURE INF	TABLE B-1 INFLUENT MONITORING REQUIREMENTS

The monitoring requirements in **Table B-1** shall become effective on **July 1, 2020** 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:

INFLUENT PARAMETER(S)	UNITS	FINAL LIMITATIONS	MONITORING REQUIREMENTS	
		MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: M				
Biochemical Oxygen Demand$_5$ (**Note 5, Page 7**)	mg/L	*	once/month	composite**
Total Suspended Solids (**Note 5**, **Page 7)**	mg/L	*	once/month	composite**
Total Phosphorus **(Note 5, Page 7**)	mg/L	*	once/month	composite**
Total Kjeldahl Nitrogen **(Note 5, Page 7**)	mg/L	*	once/month	composite**
Nitrate + Nitrite **(Note 5, Page 7**)	mg/L	*	once/month	composite**
Ammonia as N **(Note 5, Page 7**)	mg/L	*	once/month	composite**

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE AUGUST 28, 2020.

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

PERMITTED FEATURE IP1	TABLE C-1 MONITORING REQUIREMENTS

The monitoring requirements in **Table C-1** shall become effective on **July 1, 2020** and remain in effect until expiration of the permit.

EFFLUENT PARAMETER(S)	UNITS	MONITORING REQUIREMENTS				
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: M						
Total Suspended Solids **(Note 2)**	mg/L		*	*	once/week	composite**
MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE AUGUST 28, 2020.						

* Monitoring requirement only.

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

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

Note 2 – Total Suspended Solids (TSS) may be exceeded periodically due to heavy use of the treatment wetlands by waterfowl. During these periods, an alternative TSS value shall be used for the reported Outfall #001 TSS measurement. The alternative effluent TSS value reported during these periods shall be the plant effluent TSS measurement, sampled at Permitted Feature IP1, multiplied by 0.22. The multiplier of 0.22 shall be used for both average monthly and average weekly TSS determinations during these periods. Heavy waterfowl usage shall be documented by the City and confirmed by the Missouri Department of Conservation for each occurrence. The City shall submit the required documentation along with a signed MDC confirmation letter for each occurrence with the associated Discharge Monitoring Report for the month the exceedances occurred. This permitted feature is only to be reported when heavy use of the treatment wetlands by waterfowl occurs and the alternative TSS values are reported. The alternative effluent TSS value shall also be used to determine removal efficiency when heavy use of the treatment wetlands by waterfowl occurs and the alternative TSS values are reported. During months when the alternative TSS value does not apply, the City shall report No-Discharge with a NODI Code of "AG - Conditional Monitoring Not Required This Period" on the eDMR.

Note 3 – The Acute WET test shall be conducted once per year. See Special Condition #17 for additional requirements.

Note 4 – This applies to Outfall #001 and Permitted Feature INF only. Percent removal is calculated by the following formula: [(Influent –Effluent) / Influent] x 100% = Percent Removal. The Monthly Average Minimum Percent removal is to be reported as the average of all daily calculated removal efficiencies.

Note 5 – Influent samples are to be collected prior to primary treatment.

D. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Parts I, II, & III standard conditions dated August 1, 2014, May 1, 2013, and August 1, 2019, and hereby incorporated as though fully set forth herein. In accordance with Standard Condition Part III, Section G – Land Application of Biosolids, 6.g.iii., the following best management practices are approved:

- The permittee is approved to conduct biosolids land application on soil that is snow covered, frozen, or saturated with liquid, using dry or cake biosolids, if the land application sites meet the following:
  - A maximum field slope of 2 percent or less, and 35 feet of grass, or 200 feet of tilled soil or 80% crop residue buffer between the application site and waters of the state; or
  - A maximum field slope of 6 percent or less, and a minimum 35 feet of grass, or 600 feet of tilled soil or 80% crop residue buffer between the application site and waters of the state.

This approval is per Standard Conditions Part III, Section G – Land Application of Biosolids, 6. – Best Management Practices, g.iii., which requires prior approval from the Department.

E. SCHEDULE OF COMPLIANCE

1. The facility shall attain compliance with final effluent limitations for Ammonia as soon as reasonably achievable or no later than **1 year** of the effective date of this permit.

F. SPECIAL CONDITIONS

1. Electronic Discharge Monitoring Report (eDMR) Submission System.
   (a) Discharge Monitoring Reporting Requirements. The permittee must electronically submit compliance monitoring data via the eDMR system. In regards to Standard Conditions Part I, Section B, #7, the eDMR system is currently the only Department approved reporting method for this permit.
   (b) Programmatic Reporting Requirements. The following reports (if required by this permit) must be electronically submitted as an attachment to the eDMR system until such a time when the current or a new system is available to allow direct input of the data:
      (1) Collection System Maintenance Annual Reports;
      (2) Schedule of Compliance Progress Reports;
      (3) Sludge/Biosolids Annual Reports;
         i. In addition to the annual Sludge/Biosolids report submitted to the Department, the permittee must submit Sludge/Biosolids Annual Reports electronically using EPA's NPDES Electronic Reporting Tool ("NeT") (https://cdx.epa.gov/).
      (4) Pretreatment Program Reports; and
      (5) Any additional report required by the permit excluding bypass reporting.

   After such a system has been made available by the Department, required data shall be directly input into the system by the next report due date.
   (c) Other actions. The following shall be submitted electronically after such a system has been made available by the Department:
      (1) Notices of Intent to discharge (NOIs);
      (2) Notices of Termination (NOTs);
      (3) No Exposure Certifications (NOEs); and
      (4) Bypass reporting, See Special Condition #9 for 24-hr. bypass reporting requirements.
   (d) Electronic Submissions. To access the eDMR system, use the following link in your web browser: https://edmr.dnr.mo.gov/edmr/E2/Shared/Pages/Main/Login.aspx.
   (e) Waivers from Electronic Reporting. The permittee must electronically submit compliance monitoring data and reports unless a waiver is granted by the Department in compliance with 40 CFR Part 127. The permittee may obtain an electronic reporting waiver by first submitting an eDMR Waiver Request Form: http://dnr.mo.gov/forms/780-2692-f.pdf. The Department will either approve or deny this electronic reporting waiver request within 120 calendar days. Only permittees with an approved waiver request may submit monitoring data and reports on paper to the Department for the period that the approved electronic reporting waiver is effective.

F. SPECIAL CONDITIONS (continued)

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

3. The full implementation of this operating permit, which includes implementation of any applicable schedules of compliance, shall constitute compliance with all applicable federal and state statutes and regulations in accordance with §644.051.16, RSMo, and the Clean Water Act (CWA) section 402(k); however, this permit may be reopened and modified, or alternatively revoked and reissued:
   (a) To 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 CWA, 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) To incorporate an approved pretreatment program or modification thereto pursuant to 40 CFR 403.8(c) or 40 CFR 403.18(e), respectively.

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

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

6. The permittee shall comply with any applicable requirements listed in 10 CSR 20-9. The permittee has been granted approval for an alternative operational monitoring schedule in accordance with 10 CSR 20-9.010(3). This approval is limited to operational monitoring and does not apply to the certified operator requirements of 10 CSR 20-9.020. The applicable operational monitoring parameters and frequencies for this facility are:

Operational Monitoring Parameter	Frequency
Weather Conditions – Precipitation	Daily (Mon - Fri except City observed Holidays included in Section 19-121 of the City's Code of Ordinances)
Flow – Influent or Effluent	
pH – Influent	
Temperature – Aeration basin	
TSS – Influent	once per week
TSS – Mixed Liquor	once per week
Settleability – Mixed Liquor	Daily (Mon - Fri except City observed Holidays included in Section 19-121 of the City's Code of Ordinances)
Dissolved Oxygen – Mixed Liquor	
Temperature – Mixed Liquor	
pH – Anaerobic Digester	
Temperature – Anaerobic Digester	

7. Reporting of Non-Detects:
   (a) An analysis conducted by the permittee or their contracted laboratory shall be conducted in such a way that the precision and accuracy of the analyzed result can be enumerated.
   (b) The permittee shall not report a sample result as "Non-Detect" without also reporting the detection limit of the test. Reporting as "Non Detect" without also including the detection limit will be considered failure to report, which is a violation of this permit.
   (c) The permittee shall provide the "Non-Detect" sample result using the less than sign and the method detection limit (e.g. <10).
   (d) Where the permit contains a Minimum Level (ML) and the permittee is granted authority in the permit to report zero in lieu of the < ML for a specified parameter (conventional, priority pollutants, metals, etc.), then zero (0) is to be reported for that parameter.
   (e) See Standard Conditions Part I, Section A, #4 regarding proper detection limits used for sample analysis.
   (f) When a parameter is not detected above ML, the permittee must report the data qualifier signifying less than ML for that parameter (e.g., < 50 µg/L, if the ML for the parameter is 50 µg/L). For reporting an average based on a mix of values detected and not detected, assign a value of "0" for all non-detects for that reporting period and report the average of all the results.

F. SPECIAL CONDITIONS (continued)

8. The permittee shall continue to implement a program for maintenance and repair of its collection system according to the City's Integrated Management Plan, which was adopted by the Columbia City Council, Resolution 198-18 and acknowledged by the Department in a letter dated March 21, 2019. The permittee may compare collection system performance results and other data with the benchmarks used in the Departments' Capacity, Management, Operation, And Maintenance (CMOM) Model located at http://dnr.mo.gov/env/wpp/permits/docs/cmom-template.doc. Additional information regarding the Departments' CMOM Model is available at http://dnr.mo.gov/pubs/pub2574.htm.

   The permittee shall also submit the following annual report via the Electronic Discharge Monitoring Report (eDMR) Submission System annually, by November 28th, for the previous City fiscal year. The report shall contain the following information:
   (a) A summary of the efforts to locate and eliminate sources of excessive infiltration and inflow into the collection system serving the facility for the previous year.
   (b) A summary of the general maintenance and repairs to the collection system serving the facility for the previous year.
   (c) A summary of planned maintenance and repairs to the collection system serving the facility for the upcoming calendar year.

9. Bypasses are not authorized at this facility unless they meet the criteria in 40 CFR 122.41(m). If a bypass occurs, the permittee shall report in accordance to 40 CFR 122.41(m)(3), and with Standard Condition Part I, Section B, subsection 2.b. Bypasses are to be reported to the Northeast Regional Office or by using the online Sanitary Sewer Overflow/Facility Bypass Application, located at: https://dnr.mo.gov/mogem/ during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours. Blending, which is the practice of combining a partially-treated wastewater process stream with a fully-treated wastewater process stream prior to discharge, is not considered a form of bypass. If the permittee wishes to utilize additional blending, the permittee shall file an application to modify this permit to facilitate the inclusion of appropriate monitoring conditions.

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

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

12. The outfall sewer shall be protected against the effects of floodwater, ice or other hazards as to reasonably insure its structural stability and freedom from stoppage. The outfall shall be maintained so that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters.

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

14. The peak flow storage basins shall be operated and maintained to ensure its structural integrity, which includes maintaining adequate freeboard and keeping the berms free of deep-rooted vegetation, animal dens, or other potential sources of damage.

15. The facility shall ensure that adequate provisions are provided to prevent surface water intrusion into the peak flow storage basins and to divert stormwater runoff around the peak flow storage basins and protect embankments from erosion. This does not include stormwater routed to the peak flow storage basins from the treatment plant.

16. Acute Whole Effluent Toxicity (WET) tests shall be conducted as follows:
   (a) Freshwater Species and Test Methods: Species and short-term test methods for estimating the acute toxicity of NPDES effluents are found in the most recent edition of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/821/R-02/012; Table IA, 40 CFR Part 136). The permittee shall concurrently conduct 48-hour, static, non-renewal toxicity tests with the following species:
      - The fathead minnow, *Pimephales promelas* (Acute Toxicity EPA Test Method 2000.0).
      - The daphnid, *Ceriodaphnia dubia* (Acute Toxicity EPA Test Method 2002.0).
   (b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
   (c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
   (d) The Allowable Effluent Concentration (AEC) for this facility is 100% with the dilution series being: 100%, 50%, 25%, 12.5%, and 6.25%.
   (e) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.

F. SPECIAL CONDITIONS (continued)

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

(g) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of acute toxic units ($TU_a = 100/LC_{50}$) reported according to the test methods manual chapter on report preparation and test review. The Lethal Concentration 50 Percent (LC_{50}) is the effluent concentration that would cause death in 50 percent of the test organisms at a specific time.

17. Pretreatment: The permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 10 CSR 20-6.100. The approved pretreatment program is hereby incorporated by reference.

(a) The permittee shall submit to the Department via the Electronic Discharge Monitoring Report (eDMR) Submission System 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:

(1) 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;

(2) A summary of the status of Industrial User compliance over the reporting period;

(3) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and

(4) Any other relevant information requested by the Department.

(b) Pursuant to 40 CFR 122.44(j)(2)(ii), the permittee shall submit to the Department a written technical evaluation of the need to revise local limits under 40 CFR 403.5(c)(1) by **January 1, 2021**. Please contact the Department's pretreatment coordinator for further guidance. Should revision of local limits be deemed necessary, it is recommended that revisions follow the US Environmental Protection Agency's guidance document *Local Limits Development Guidance.* EPA833-R04-002A. July 2004.

18. Sewer Extension Authority Supervised Program

The Department approved the Sewer Extension Authority Supervised Program for the City of Columbia to regulate and approve construction of sanitary sewers and pump stations, which are tributary to this wastewater treatment facility on October 11, 2019. The City of Columbia shall act as the continuing authority for the operation, maintenance, and modernization of the constructed collection system. This approval may be modified or revoked by the Department if the wastewater collection, transportation, or treatment facilities reach their design capacity, if the treatment 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.

This permit may be reopened and modified or alternatively revoked and reissued to incorporate new or modified conditions to the Sewer Extension Authority Supervised Program, if information indicates changes are necessary to assure compliance with Missouri's Clean Water Law and associated regulations. When any of the above mentioned conditions occur, the permittee will be notified prior to any modifications of this permit condition. Plans and specifications for all projects which include a proposed sanitary sewer overflow must be submitted to the Department to provide record information for location and size of the sanitary sewer overflow.

An annual report on the Sewer Extension Authority Supervised Program must be submitted by November 28 of each year to the Missouri Department of Natural Resources' Water Protection Program's Engineering Section. Please see **Appendix – Sewer Extension Authority Supervised Program Reauthorization Letter** for applicable conditions.

The Department's Water Protection Program's Engineering Section will reevaluate the City's Sewer Extension Authority Supervised Program for reauthorization when they file an application for permit renewal to determine if it is current, complete, and meets the requirements of 10 CSR 20-8 Minimum Design Standards. Once the Sewer Extension Authority Supervised Program is reauthorized or denied, this condition will be updated accordingly.

F. SPECIAL CONDITIONS (continued)

19. On June 5, 2012, EPA published its Integrated Municipal Stormwater and Wastewater Planning Approach Framework ("Framework"). The stated purpose of the Framework is to assist municipalities on their critical paths to achieving the human health and water quality objectives of the Clean Water Act by identifying efficiencies in implementing requirements that arise from distinct wastewater and stormwater programs, including how to best prioritize capital investments. The City developed the "Columbia Wastewater and Stormwater Integrated Management Plan", dated September 28, 2018. This plan was adopted by the Columbia City Council, Resolution 198-18. This integrated management plan was acknowledged by the Department in a letter dated March 21, 2019. The Department has agreed to use the City's Integrated Management Plan when making future wastewater and storm water regulatory decisions affecting the City.
    (a) The Integrated Management Plan outlines anticipated schedules for the following long-range management actions and investments:
        (1) Wastewater treatment improvements
        (2) Wastewater collection system capacity, renewal, and maintenance
        (3) Stormwater management
    (b) The Integrated Management Plan includes a 5-year action plan that guides the City's implementation activities.
    (c) The City will provide the Department with an implementation progress report annually, by November 28th, for the previous City fiscal year. The report shall be submitted to the Missouri Department of Natural Resources, Water Protection Program, Attn: Integrated management Plan Coordinator, PO Box 176, Jefferson City, MO 65102. The report will include the following:
        (1) Implementation activities performed during the prior year;
        (2) Any proposed updates to the Integrated Management Plan; and
        (3) Implementation activities planned for the following year.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
STATEMENT OF BASIS
MO- MO-0097837
COLUMBIA WASTEWATER TREATMENT PLANT

This Statement of Basis (Statement) gives pertinent information regarding modification(s) to the above listed operating permit / minor modification(s) to the above listed operating permit without the need for a public comment process. A Statement is not an enforceable part of a Missouri State Operating Permit.

Part I – Modification Rationale

This operating permit is hereby modified to reflect a typographical error.

No other changes were made at this time.

Part II – Administrative Requirements

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

DATE OF FACT SHEET: 02/14/2023

Completed by:
Brad Allen, State Industrial Pretreatment Coordinator
Water Protection Program
573-522-3454 Brad.allen@dnr.mo.gov

Missouri Department of Natural Resources
Factsheet Addendum
For Pretreatment Program Modification
#MO-0097837
Columbia Wastewater Treatment Plant

This addendum gives pertinent information regarding minor/simple modification(s) to the above listed operating permit for a public comment process. An addendum is not an enforceable part of a Missouri State Operating Permit.

In accordance with the state Clean Water Law, Chapter 644, RSMo, and the Federal Clean Water Act, the city of Columbia has an approved pretreatment program to meet the requirements of 40 CFR Part 403 and 10 CSR 20-6.100. The Department, as Approval Authority, reviewed the proposed program modifications and, by the issuance of this permit, grants its approval as required by 40 CFR 403.18 and 10 CSR 20-6.100.

Part I – Proposed Pretreatment Program Modification

☒ - The Department is required to Public Notice
The public notice of the Department of Natural Resources' intent to approve the city of Columbia's pretreatment program modification has ended as of November 14, 2022. The pretreatment program is hereby approved pursuant to 40 CFR 403.18 (adopted in 10 CSR 20-6.100).

The city completed a detailed technical reevaluation of the local limits in 2012. The city conducted extensive domestic background sampling at two pump stations for the 2011 local limits report. Due to limited changes in the domestic catchment areas of both pump stations, the city conducted a resampling event in 2021 at the Cascades Pump Station during dry weather to determine if pollutant concentrations had changed meaningfully since the 2011 local limits derivation. Results from the 24-hr composite sampling event conducted on July 27, 2021, indicated domestic contributions were equal to or less than the samples collected for the 2011 local limits report. As a result, the larger 2011 domestic background dataset was used for the updated local limits calculations. The city compared the 2011 and 2021 actual loading to the Maximum Allowable Headworks Loading (MAHL). The current calculated loadings as a percentage of MAHLs for all Pollutants of Concern (POC) were generally less than 30 percent, with the exception of copper and molybdenum, which were 58 and 55 percent, respectively. Due to a decrease in the actual flow rate of the Wastewater Treatment Plant (WWTP), a reduction in sludge production, and other factors, the city recommends lowering local limits for nine POCs (silver, arsenic, chromium, copper, nickel, lead, zinc, molybdenum, and selenium) and raising limits for three POCs (cadmium, cyanide, and mercury). These changes could have a significant impact on the operation of the program, pursuant to 40 CFR 403.18(b)(7).

Part II – Reason for the NPDES Permit Modification

In accordance with 40 CFR 403.18(e), "all modifications shall be incorporated into the POTW's NPDES permit upon approval. The permit will be modified to incorporate the approved modification in accordance with 40 CFR 122.63(g)." Upon the consent of the permittee, the Director may modify a permit to make the corrections or allowances for changes in the permitted activity listed in this section, without following the procedures of part 124. Any permit modification not processed as a minor modification under this section must be made for cause, with part 124 draft permit, and public notice as required in § 122.62. Minor modifications include:

(g) Incorporate the conditions of a POTW pretreatment program that has been approved in accordance with the procedures in 40 CFR 403.11 (or a modification thereto that has been approved in accordance with the procedures in 40 CFR 403.18) as enforceable conditions of the POTW's permits.

Date of addendum: 11/23/22

Completed by:
Brad Allen, State Industrial Pretreatment Coordinator
Water Protection Program
573-522-3454 Brad.allen@dnr.mo.gov

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0097837
COLUMBIA 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 stormwater from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (Department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified.

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

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

This Factsheet is for a Major

Part I – Facility Information

Facility Type: POTW - SIC #4952

Facility Description: Influent pump station / 2 peak flow clarifiers / 2 peak flow storage basins / dual mechanical bar screens / dual vortex grit system / 4 primary clarifiers / 4 activated sludge basins / 4 final clarifiers / sodium hypochlorite tank / ferric chloride treatment / 4 multi-cell treatment wetlands / effluent pump station / 3 primary anaerobic digesters / 1 secondary anaerobic digester / biosolids cake storage pad / 2 sludge gravity thickeners / 2 sludge thickening centrifuges with polymer system / sludge/biosolids holding tank / biosolids are land applied, landfilled, or hauled to a permitted sludge/biosolids disposal facility

During excessive precipitation events that result in flows exceeding 50 MGD, primary treated flows are stored in the two (2) peak flow clarifiers for further treatment or are combined with flows treated by the activated sludge process and routed directly to the four (4) multi-cell treatment wetlands for secondary treatment of all flows

Of the approximate 27 acres of the WWTP, 22 acres drain to the existing I&I basin, which is then treated by the WWTP, the remaining 5 acres do not have materials stored or conduct operations in a manner that would cause the discharge of pollutants via stormwater

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

✓ No.

Application Date: 03/19/2015
Expiration Date: 09/23/2015

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
#001	39.06	Secondary	Domestic
#005	0	Secondary	Domestic
#006	0	Secondary	Domestic
#007	0	Secondary	Domestic
#008	0	Secondary	Domestic

Facility Performance History:
The facility exceeded final limits for Total Recoverable Cadmium and Total Recoverable Copper on the March 2013 Discharge Monitoring Report (DMR) for Outfall #001.

This facility was last inspected on August 24 and September 7, 2017. The inspection showed the following unsatisfactory feature; failure to meet effluent limitations. The facility was returned to compliance by the Department via a letter to the City dated November 16, 2017.

Comments: Changes in this permit include the following:

Arsenic, Cadmium, Chromium III, Chromium VI, Copper, Cyanide, Lead, Mercury, Nickel, Silver, and Zinc were removed from Outfall #001. Sludge lagoon freeboard was removed. Final effluent limits for Ammonia were included, and Ammonia sampling was increased to once per month for Outfall #001. Ammonia limits were calculated for Outfall #001. *E. coli* monitoring requirements were added to Outfall #001. Effluent monitoring for Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite were added to the permit. Sampling frequencies for BOD_5, TSS, and pH for Outfall #001 were reduced to twice per week.

Outfalls #003 and #004 were removed from the permit. Of the approximate 27 acres of the WWTP, 22 acres drain to the existing I&I basin, which is then treated by the WWTP, the remaining 5 acres do not have materials stored or conduct operations in a manner that would cause the discharge of pollutants via stormwater, therefore stormwater outfalls are not necessary.

Permitted Features SW1, SW2, and SW3, previously SW-1R, SW-2R, and SW-3R, were removed from the permit as the 1999 Settlement Agreement requiring these monitoring wells was closed January 25, 2001.

Permitted Features #01A, #01B, #02A, #02B, #03A, #03B, #04A, #04B, #05A, #05B, #06A, #06B, #07A, #07B, #08A, and #08B were removed from the permit as groundwater monitoring is not needed, as the wetland treatment was not constructed to discharge to groundwater.

Permitted Feature INF was added as the influent monitoring location. Permitted Feature INF was added as an internal monitoring location for influent Total Phosphorus, Total Kjeldahl Nitrogen, Ammonia (influent), and Nitrate + Nitrite. This permitted feature is located at the headworks to the wastewater treatment plant.

Outfalls #005, #006, #007, and #008 were added to the permit. Outfall #005 is an emergency discharge outfall for flood relief at the Treatment Wetland Unit #1. Outfalls #006, #007, and #008 are emergency discharge outfalls for flood relief outfall at the Treatment Wetland Unit #3. The outfalls are infrequently used during certain high flooding events. Due to safety concerns, and that discharges from the wetlands during these flood events are not representative, sampling during these emergency events shall occur at Permitted Feature IP1 and reported for each outfall individually.

Permitted Feature IP1 was added as a location for sampling of Total Suspended Solids during those events when heavy use of the treatment wetlands by waterfowl occurs. During these periods, an alternative Total Suspended Solids value shall be used for the reported Outfall #001 Total Suspended Solids measurement. The alternative effluent Total Suspended Solids value reported during these periods shall be the plant effluent Total Suspended Solids measurement, sampled at Permitted Feature IP1, multiplied by 0.22. The multiplier of 0.22 shall be used for both average monthly and average weekly Total Suspended Solids determinations during these periods. Heavy waterfowl usage shall be documented by the City and confirmed by the Missouri Department of Conservation for each occurrence. The facility shall submit the City documentation and signed MDC confirmation letter for each occurrence with the associated Discharge Monitoring Report for the month the exceedances occurred. 22% was determined using the 95th percentile of Total Suspended Solids samples collected at IP1 and those collected at Outfall #001 when the treatment wetlands were not impacted by waterfowl. Permitted Feature IP1 is also to be used when discharges occur from Outfalls #005, #006, #007, and #008. Due to safety concerns, and that discharges from the wetlands during these flood events are not representative, sampling during those emergency events shall occur at Permitted Feature IP1 and reported for each outfall individually.

The Old Missouri River Slough (C) (3960) is now a classified stream as EPA has approved the Department's new stream classifications.

See Part VI of the Fact Sheet for further information regarding the addition and removal of effluent parameters. Special conditions were updated to include the addition of inflow and infiltration reporting requirements, reporting of Non-detects, and bypass reporting requirements.

On June 5, 2012, EPA published its Integrated Municipal Stormwater and Wastewater Planning Approach Framework ("Framework"). The stated purpose of the Framework is to assist municipalities on their critical paths by achieving the human health and water quality objectives of the Clean Water Act by identifying efficiencies in implementing requirements that arise from distinct wastewater and stormwater programs, including how to best prioritize capital investments. The City developed the "Columbia Wastewater and Stormwater Integrated Management Plan", dated September 28, 2018. This plan was adopted by the Columbia City Council, Resolution 198-18. This integrated management plan was acknowledged by the Department in a letter dated March 21,

2019. The Integrated Management Plan outlines anticipated long-range wastewater treatment, wastewater collection and stormwater management actions and investments, and includes a five year action plan that will guide the City's implementation activities during this permit cycle. The City will provide the Department with an annual implementation progress report. The Integrated Management Plan will be updated as the five year plan is completed and the update provided to the Department. The Department has agreed to use the City's integrated management plan when making future wastewater and storm water regulatory decisions affecting the City.

Part II – Operator Certification Requirements

✓ This facility is required to have a certified operator.

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

Owned or operated by or for a

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

Each of the above entities are only applicable if they have a Population Equivalent greater than two hundred (200).

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

Operator's Name: George W. Gering
Certification Number: 4574
Certification Level: WW-A

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

Part III– Operational Monitoring

Missouri Clean Water Commission regulation 10 CSR 20-9.010 requires certain publically owned treatment works and privately owned facilities regulated by the Public Service Commission to conduct internal operational control monitoring to further ensure proper operation of the facility and to be a safeguard or early warning for potential plant upsets that could affect effluent quality. This requirement is only applicable if the publically owned treatment works and privately owned facilities regulated by the Public Service Commission has a Population Equivalent greater than two hundred (200).

10 CSR 20-9.010(3) allows the Department to modify the monitoring frequency required in the rule based upon the Department' judgement of monitoring needs for process control at the specified facility

✓ As per [10 CSR 20-9.010(4))], the facility is required to conduct operational monitoring.

- The facility has the following Department approved modification to the Operational Control Testing requirements.

Operational Monitoring Parameter	Frequency
Weather Conditions – Precipitation	Daily (Mon - Fri except City observed Holidays included in Section 19-121 of the City's Code of Ordinances)
Flow – Influent or Effluent	
pH – Influent	
Temperature – Aeration basin	
TSS – Influent	once per week
TSS – Mixed Liquor	once per week
Settleability – Mixed Liquor	Daily (Mon - Fri except City observed Holidays included in Section 19-121 of the City's Code of Ordinances)
Dissolved Oxygen – Mixed Liquor	
Temperature – Mixed Liquor	
pH – Anaerobic Digester	
Temperature – Anaerobic Digester	

Part IV – Receiving Stream Information

10 CSR 20-7.031 Missouri Water Quality Standards, the Department defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and/or 1st classified receiving stream's beneficial water uses to be maintained, are located in the Receiving Stream Table located below in accordance with [10 CSR 20-7.031(4)].

RECEIVING STREAM(S) TABLE: OUTFALL #001

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
Tributary to Old Missouri River Slough (Eagle Bluff Conservation Area wetland)	NA	NA	General Criteria	10300102-0709	~1 mile from Outfall to MDC Distribution Building ~2.3 miles from MDC Distribution Building to Old Missouri River Slough through EBCA wetlands
Tributary to Old Missouri River Slough (East Pipe Outlet)	NA	NA	General Criteria		~1 mile from Outfall to MDC Distribution Building ~1 mile from MDC Distribution Building to Old Missouri River Slough through pipe outlet located east of the distribution building
Old Missouri River Slough	C	3960	IRR, LWW, AQL, HHP, WBC-B, SCR		NA
Tributary to Perche Creek (Eagle Bluff Conservation Area wetland)	NA	NA	General Criteria		~1 mile from Outfall to MDC Distribution Building ~2.4 miles from MDC Distribution Building to Perche Creek through EBCA wetlands
Perche Creek	P1	1005	IRR, LWW, AQL, HHP, WBC-B, SCR		NA

RECEIVING STREAM(S) TABLE: OUTFALL #005

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
Tributary to Perche Creek	C	1005	IRR, LWW, AQL, HHP, WBC-B, SCR	10300102-0709	0

RECEIVING STREAM(S) TABLE: OUTFALL #006

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
Tributary to Perche Creek	NA	NA	General Criteria	10300102-0709	0
Perche Creek	P1	1005	IRR, LWW, AQL, HHP, WBC-B, SCR		0.68

RECEIVING STREAM(S) TABLE: OUTFALL #007 & #008

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
Perche Creek	P1	3960	IRR, LWW, AQL, HHP, WBC-B, SCR	10300102-0709	0

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

RECEIVING STREAM(S) LOW-FLOW VALUES:

RECEIVING STREAM (C, E, P, P1)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Perche Creek (P1)	0.1	0.1	1

MIXING CONSIDERATIONS

Mixing Zone: Not Allowed [10 CSR 20-7.031(5)(A)4.B.(I)(a)].
Zone of Initial Dilution: Not Allowed [10 CSR 20-7.031(5)(A)4.B.(I)(b)].

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

Receiving Water Body's Water Quality: Currently, the Department has not conducted a stream survey for this waterbody. When a stream survey is conducted, more information may be available about the receiving stream.

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

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

- ✓ The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(40)] & [10 CSR 20-7.031(1)(O)], or is an existing facility.

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

- ✓ Limitations in this operating permit for the reissuance of this permit conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 CFR Part 122.44.
  - o Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which has justified the application of a less stringent effluent limitation at the time of permit issuance.
    - Permitted Features SW1, SW2, and SW3 were removed from the permit as the 1999 Settlement Agreement requiring these monitoring wells, was closed January 25, 2001.
    - Permitted Features #01A, #01B, #02A, #02B, #03A, #03B, #04A, #04B, #05A, #05B, #06A, $06B, #07A, #07B, #08A, and #08B were removed from the permit as groundwater monitoring is not needed, as the wetland treatment was not constructed to discharge to groundwater.
    - WET testing requirements were changed from pass/fail to monitoring only for toxic units (TU). This change reflects modifications to Missouri's Effluent Regulation found at 10 CSR 20-7.015. 40 CFR 122.44(d)(1)(ii) requiring the Department to establish effluent limitations to control all parameters which have the reasonable potential to cause or contribute to an excursion above any state water quality standard, including state narrative criteria. The previous permit imposed a pass/fail limitation without collecting sufficient numerical data to conduct an analytical reasonable potential analysis. The permit writer has made a reasonable potential determination which concluded the facility does not have

reasonable potential at this time but monitoring is required. Implementation of the TU monitoring requirement will allow the Department to effect numeric criteria in accordance with water quality standards established under §303 of the CWA.

- Sampling frequencies for BOD_5 TSS, and pH were reduced to twice per week. The DMR data submitted by the permittee shows that operations at the facility have been consistent and have low variability and therefore the permittee is eligible for reduced monitoring frequencies. The permit is still protective of water quality.
- Arsenic, Cadmium, Chromium III, Chromium VI, Copper, Cyanide, Lead, Mercury, Nickel, Silver, and Zinc: As a result of a Reasonable Potential Analysis, it was determined that there is no reasonable potential to cause an excursion of water quality standards for these parameters in the receiving stream. Therefore the parameters have been removed. This determination will be reassessed at renewal. Please see **Appendix – RPA Results** for more information.

o The Department determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b).

- **General Criteria**. The previous permit contained a special condition which described a specific set of prohibitions related to general criteria found in 10 CSR 20-7.031(4). In order to comply with 40 CFR 122.44(d)(1), the permit writer has conducted reasonable potential determinations for each general criterion and established numeric effluent limitations where reasonable potential exists. While the removal of the previous permit special condition creates the appearance of backsliding, since this permit establishes numeric limitations where reasonable potential to cause or contribute to an excursion of the general criteria exists the permit maintains sufficient effluent limitations and monitoring requirements in order to protect water quality, this permit is equally protective as compared to the previous permit. Therefore, given this new information, and the fact that the previous permit special condition was not consistent with 40 CFR 122.44(d)(1), an error occurred in the establishment of the general criteria as a special condition of the previous permit. Please see Part VI – Effluent Limits Determination for more information regarding the reasonable potential determinations for each general criterion related to this facility.

ANTIDEGRADATION:

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

✓ This permit contains new and/or expanded discharge. The expansion primarily consisted of replacement of existing bar screens, increasing pumping capacity, new vortex grit removal, two new activated sludge trains sized for nitrification, new aeration facilities, etc. The city increased the design flow from 20.6 MGD to 25.2 MGD. The expansion was public noticed in 2009. The Antidegradation limits were recalculated as new information was provided to the permit writer that the discharges from the Eagle Bluff wetlands only occur for less than 4 days in a row, therefore the Chronic Criteria does not apply to the discharge. Limits were recalculated based on using the Acute Water Quality Standards only. See **APPENDIX – ANTIDEGRADATION EFFLUENT LIMIT CALCULATIONS.**

AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:

As per [10 CSR 20-6.010(2)(C)], …An applicant may utilize a lower preference continuing authority by submitting, as part of the application, a statement waiving preferential status from each existing higher preference authority, providing the waiver does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the Department.

BIOSOLIDS & SEWAGE SLUDGE:

Biosolids are solid materials resulting from domestic wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works

✓ Permittee is authorized to land apply biosolids in accordance with Standard Conditions III and the approved changes listed in the permit.

COMPLIANCE AND ENFORCEMENT:

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

✓ The facility is not currently under Water Protection Program enforcement action.

ELECTRONIC DISCHARGE MONITORING REPORT (EDMR) SUBMISSION SYSTEM:
The U.S. Environmental Protection Agency (EPA) promulgated a final rule on October 22, 2015, to modernize Clean Water Act reporting for municipalities, industries, and other facilities by converting to an electronic data reporting system. This final rule requires regulated entities and state and federal regulators to use information technology to electronically report data required by the National Pollutant Discharge Elimination System (NPDES) permit program instead of filing paper reports. To comply with the federal rule, the Department is requiring all permittees to begin submitting discharge monitoring data and reports online.

Per 40 CFR 127.15 and 127.24, permitted facilities may request a temporary waiver for up to 5 years or a permanent waiver from electronic reporting from the Department. To obtain an electronic reporting waiver, a permittee must first submit an eDMR Waiver Request Form: http://dnr.mo.gov/forms/780-2692-f.pdf. A request must be made for each facility. If more than one facility is owned or operated by a single entity, then the entity must submit a separate request for each facility based on its specific circumstances. An approved waiver is non-transferable.

The Department must review and notify the facility within 120 calendar days of receipt if the waiver request has been approved or rejected [40 CFR 124.27(a)]. During the Department review period as well as after a waiver is granted, the facility must continue submitting a hard-copy of any reports required by their permit. The Department will enter data submitted in hard-copy from those facilities allowed to do so and electronically submit the data to the EPA on behalf of the facility.

✓ The permittee/facility is currently using the eDMR data reporting system.

NUMERIC LAKE NUTRIENT CRITERIA:

✓ This facility does not discharge into a lake watershed where numeric lake nutrient criteria are applicable.

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

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

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)(1)(iii)] if the permit writer determines that any given pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

✓ A RPA was conducted on appropriate parameters. Please see **APPENDIX – RPA RESULTS.**

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

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

SANITARY SEWER OVERFLOWS (SSO) AND INFLOW AND INFILTRATION (I&I):
Sanitary Sewer Overflows (SSOs) are defined as untreated sewage releases and are considered bypassing under state regulation [10 CSR 20-2.010(12)] and should not be confused with the federal definition of bypass. SSOs result from a variety of causes including blockages, line breaks, and sewer defects that can either allow wastewater to backup within the collection system during dry weather

conditions or allow excess stormwater and groundwater to enter and overload the collection system during wet weather conditions. SSOs can also result from lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs include overflows out of manholes, cleanouts, broken pipes, and other into waters of the state and onto city streets, sidewalks, and other terrestrial locations.

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

Missouri RSMo §644.026.1.(13) mandates that the Department issue permits for discharges of water contaminants into the waters of this state, and also for the operation of sewer systems. Such permit conditions shall ensure compliance with all requirements as established by sections 644.006 to 644.141. Standard Conditions Part I, referenced in the permit, contains provisions requiring proper operation and maintenance of all facilities and systems of treatment and control. Missouri RSMo §644.026.1.(15) instructs the Department to require proper maintenance and operation of treatment facilities and sewer systems and proper disposal of residual waste from all such facilities. To ensure that public health and the environment are protected, any noncompliance which may endanger public health or the environment must be reported to the Department within 24 hours of the time the permittee becomes aware of the noncompliance. Standard Conditions Part I, referenced in the permit, contains the reporting requirements for the permittee when bypasses and upsets occur. The permit also contains requirements for permittees to develop and implement a program for maintenance and repair of the collection system. The permit requires that the permittee submit an annual report to the Department for the previous fiscal year that contains a summary of efforts taken by the permittee to locate and eliminate sources of excess I & I, a summary of general maintenance and repairs to the collection system, and a summary of any planned maintenance and repairs to the collection system for the upcoming calendar year.

- ✓ 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). For additional information regarding the Departments' CMOM Model, see the CMOM Plan Model Guidance document at http://dnr.mo.gov/pubs/pub2574.htm. The CMOM identifies some of the criteria used 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. The City developed the "Columbia Wastewater and Stormwater Integrated Management Plan", dated September 28, 2018. This plan was adopted by the Columbia City Council, Resolution 198-18. This integrated management plan was acknowledged by the Department in a letter dated March 21, 2019. The Integrated Management Plan includes a five year action plan that will guide the City's activities during this permit cycle. Annual reporting of progress will be provided to the Department and the plan will be updated the update with permit renewal applications. The Department has agreed to use the City's integrated management plan when making future wastewater and storm water regulatory decisions affecting the City.

SCHEDULE OF COMPLIANCE (SOC):

Per 644.051.4 RSMo, a permit may be issued with a Schedule of Compliance (SOC) to provide time for a facility to come into compliance with new state or federal effluent regulations, water quality standards, or other requirements. Such a schedule is not allowed if the facility is already in compliance with the new requirement, or if prohibited by other statute or regulation. A SOC includes an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit. *See also* Section 502(17) of the Clean Water Act, and 40 CFR §122.2. For new effluent limitations, the permit includes interim monitoring for the specific parameter to demonstrate the facility is not already in compliance with the new requirement. Per 40 CFR § 122.47(a)(1) and 10 CSR 20-7.031(11), compliance must occur as soon as possible. If the permit provides a schedule for meeting new water quality based effluent limits, a SOC must include an enforceable, final effluent limitation in the permit even if the SOC extends beyond the life of the permit.

A SOC is not allowed:

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

In order to provide guidance to Permit Writers in developing SOCs, and attain a greater level of consistency, on April 9, 2015 the Department issued an updated policy on development of SOCs. This policy provides guidance to Permit Writers on the standard time frames for schedules for common activities, and guidance on factors that may modify the length of the schedule such as a Cost Analysis for Compliance.

The City developed the "Columbia Wastewater and Stormwater Integrated Management Plan", dated September 28, 2018. This plan was adopted by the Columbia City Council, Resolution 198-18. This integrated management plan was acknowledged by the Department in a letter dated March 21, 2019. The Integrated Management Plan outlines anticipated long-range wastewater treatment, wastewater collection and stormwater management actions and investments, and includes a five year action plan that will guide the City's implementation activities during this permit cycle. The City will provide the Department with an annual implementation progress report. The Integrated Management Plan will be updated as the five year plan is completed and the update provided to the Department. The Department has agreed to use the City's integrated management plan when making future wastewater and storm water regulatory decisions affecting the City.

- ✓ The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(11)]. The facility has been given a schedule of compliance to meet final effluent limits for Ammonia. The one year schedule of compliance for Ammonia will provide adequate time for the facility to evaluate operations and make any necessary adjustments to meet the final limits.

SEWER EXTENSION AUTHORITY SUPERVISED PROGRAM:
In accordance with [10 CSR 20-6.010(6)(A)], the Department may grant approval of a permittee's Sewer Extension Authority Supervised Program. These approved permittees regulate and approve construction of sanitary sewers and pump stations, which are tributary to this wastewater treatment facility. The permittee shall act as the continuing authority for the operation, maintenance, and modernization of the constructed collection system. See http://dnr.mo.gov/env/wpp/permits/sewer-extension.htm.

- ✓ The permittee's Sewer Extension Authority Supervised Program has been reauthorized. Please see **Appendix – Sewer Extension Authority Supervised Program Reauthorization Letter** for applicable conditions.

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

In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in February 2009], BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure. Additionally in accordance with the Stormwater Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of stormwater discharges.

- ✓ The facility has the potential to store materials or conduct operations in a manner that would cause these materials to be exposed to stormwater. However, any stormwater that comes into contact with these materials is not discharged, but is routed back to the headworks of the wastewater treatment plant. The City of Columbia submitted a No Exposure Certification for Exclusion from NPDES Stormwater Permitting for the remaining portion of the plant, where stormwater is not routed back to the headworks of the wastewater treatment plant. This exclusion will be reevaluated at the time of renewal. This permit does not authorize the discharge of stormwater that has come into contact with potential pollutant sources, and a SWPPP is not required.

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

- ✓ This operating permit is not drafted under premises of a petition for variance.

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:
As per [10 CSR 20-2.010(86)], the amount of pollutant each discharger is allowed by the Department to release into a given stream after the Department has determined total amount of pollutant that may be discharged into that stream without endangering its water quality.

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

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

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

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

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

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

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

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

WATER QUALITY STANDARDS:
Per [10 CSR 20-7.031(4)], General Criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the Department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

WHOLE EFFLUENT TOXICITY (WET) TEST:

✓ The permittee is required to conduct WET test for this facility.

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

☒ Facility is a designated Major.
☒ Facility has Water Quality-based Effluent Limitations for toxic substances (other than NH_3)
☒ Facility is a municipality with a Design Flow ≥ 22,500 gpd.

40 CFR 122.41(M) - BYPASSES:

The federal Clean Water Act (CWA), Section 402 prohibits wastewater dischargers from "bypassing" untreated or partially treated sewage (wastewater) beyond the headworks. A bypass is defined as an intentional diversion of waste streams from any portion of a treatment facility, [40 CFR 122.41(m)(1)(i)]. Additionally, Missouri regulation 10 CSR 20-7.015(9)(G) states a bypass means the intentional diversion of waste streams from any portion of a treatment facility, except in the case of blending, to waters of the state. Only under exceptional and specified limitations do the federal regulations allow for a facility to bypass some or all of the flow from its treatment process. Bypasses are prohibited by the CWA unless a permittee can meet all of the criteria listed in 40 CFR 122.41(m)(4)(i)(A), (B), & (C). Any bypasses from this facility are subject to the reporting required in 40 CFR 122.41(l)(6) and per Missouri's Standard Conditions I, Section B, part 2.b. Additionally, Anticipated Bypasses include bypasses from peak flow basins or similar devices designed for peak wet weather flows.

- ✓ This facility does not anticipate bypassing.

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

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

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

- ✓ This facility discharges to a stream with an EPA approved TMDL. The TMDL for the Missouri River was approved by the EPA on November 3, 2006. The pollutants of concern were Chlordane and Polychlorinated Biphenyls. The TMDL discusses that there are no Missouri facilities which discharge either directly to the Missouri River, or a tributary to, that have a potential to discharge detectable amounts of PCBs or chlordane. Therefore, the Columbia WWTP is not considered a source of the pollutants of concern.

Part VI – Effluent Limits Determination

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

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

OUTFALL #001 – MAIN FACILITY OUTFALL

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

OUTFALL #001 EFFLUENT LIMITATIONS TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
Flow	MGD	1	*		*	*/*	1/day	monthly	T
BOD_5	mg/L	1		45	30	45/30	2/week	monthly	C
TSS	mg/L	1		45	30	45/30	2/week	monthly	C
Ammonia as N (Interim)	mg/L	2, 3	*			*/*	1/month	monthly	C
Ammonia (Apr 1 –Sep 30) (Final)	mg/L	2, 3	12.1			*	1/month	monthly	C
Ammonia (Oct 1 – Mar 31) (Final)	mg/L	2, 3	12.1			*	1/month	monthly	C
Escherichia coli **	#/100mL	1, 3		*	*	***	1/week	monthly	G
Oil & Grease	mg/L	1, 3	15		10	15/10	1/month	monthly	G
Total Phosphorus	mg/L	1	*		*	***	1/month	monthly	C
Total Kjeldahl Nitrogen	mg/L	1	*		*	***	1/month	monthly	C
Nitrate + Nitrite	mg/L	1	*		*	***	1/month	monthly	C
Temperature	° C	1	*		*	*/*	1/month	monthly	M

PARAMETER	Unit	Basis for Limits	Daily Maximum		Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
Acute Whole Effluent Toxicity	TUa	1, 9	*			***	1/year	annually	C

PARAMETER	Unit	Basis for Limits	Minimum		Maximum	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
pH	SU	1	6.0		9.0	6.0 – 9.0	2/week	monthly	G

PARAMETER	Unit	Basis for Limits			Monthly Average Minimum	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
BOD_5 Percent Removal	%	1			85	85	1/weekday	monthly	M
TSS Percent Removal	%	1			85	85	1/weekday	monthly	M

* - Monitoring requirement only.
** - #/100mL; the Monthly Average for *E. coli* is a geometric mean.
*** - Parameter not previously established in previous state operating permit.

**** - C = 24-hour composite
G = Grab
T = 24-hr. total
M = Measured/calculated

Basis for Limitations Codes:

1. State or Federal Regulation/Law
2. Water Quality Standard (includes RPA)
3. Water Quality Based Effluent Limits
4. Antidegradation Review
5. Antidegradation Policy
6. Water Quality Model
7. Best Professional Judgment
8. TMDL or Permit in lieu of TMDL
9. WET Test Policy
10. Multiple Discharger Variance
11. Nutrient Criteria Implementation Plan

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

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

- **Biochemical Oxygen Demand (BOD_5).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Effluent Limits Determination.**

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

  Total Suspended Solids (TSS) may be exceeded periodically due to heavy use of the treatment wetlands by waterfowl. During these periods, an alternative TSS value shall be used for the reported Outfall #001 TSS measurement. The alternative effluent TSS value reported during these periods shall be the plant effluent TSS measurement, sampled at Permitted Feature IP1, multiplied by 0.22. The multiplier of 0.22 shall be used for both average monthly and average weekly TSS determinations during these periods. The 0.22 multiplier was obtained by taking the 95th percentile of the calculated percent removal of TSS samples from effluent from the Treatment Wetlands and to TSS samples collected after Secondary Treatment but prior to the Treatment Wetlands. This data excluded effluent TSS values above the monthly average effluent limit of 30 mg/L. The 95th percentile was used as EPA generally uses statistical procedures to determine the values of the limitations specified in the effluent guidelines. Those procedures involve fitting effluent data to distributions and using estimated upper percentiles of the distributions. The average monthly limitation is an estimate of the 95th percentile of the distribution of the monthly averages of the daily measurements. EPA bases its limitations on percentiles chosen with the intention that they be high enough above the long-term average to accommodate reasonably anticipated variability within control of the facility.

  Total Ammonia Nitrogen – Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(5)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.01 mg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion. The Department has determined that the Ammonia data collected by the facility may not be representative of the actual treatment capabilities of the wastewater treatment plant due to the recent expansion, startup, and period of gaining better process knowledge of the expansion to the plant, and has updated the calculations by including a Coefficient of Variation (CV) value of 0.6 in accordance with the EPA's Technical Support Document for Water Quality-based Toxics Control document for reasonable potential calculations.

  The Department previously followed the 2007 Ammonia Guidance method for derivation of ammonia limits. However, the EPA's Technical Support Document for Water Quality-based Toxic Controls (TSD) establishes other alternatives to limit derivation. The Department has determined that the approach established in Section 5.4.2 of the TSD, which allows for direct application of both the acute and chronic wasteload allocations (WLA) as permit limits for toxic pollutants, is more appropriate limit derivation approach. Using this method for a discharge to a waterbody where mixing is not allowed, the criterion continuous concentration (CCC) and the criterion maximum concentration (CMC) will equal the chronic and acute WLA respectively. The WLAs are then applied as effluent limits, per Section 5.4.2 of the TSD, where the CMC is the Daily Maximum and the CCC is the Monthly Average.

  Controlled Discharges
  Federal regulation 40 CFR 122.45 defines non-continuous discharges as, "discharges which are not continuous as defined in 40 CFR 122.2, shall be particularly described and limited, considering the following factors, as appropriate:". The factors are as follows:
  - Frequency: permit writers review the frequency of historical discharge events to determine the feasibility of the permittee to control discharges for less than 30 days.
  - Total mass: typically permit writers establish ammonia limits as a concentration unless there is a specific need to establish the limit as a mass.
  - Maximum rate of discharge: the permit establishes conditions to avoid adverse changes affecting the hydrology of the receiving stream by requiring the permittee to dissipate the energy of the controlled discharge.
  - Prohibition or limitation of specified pollutants by mass, concentration, or other appropriate measures: the permittee cannot exceed ammonia acute criteria at the end of the zone of initial dilution or end of pipe where mixing considerations are not allowed.

  The discharges from the Eagle Bluffs Conservation Area wetlands are controlled discharges. Using the above approach for controlled discharges, the permittee will receive only a MDL based on ammonia's CMC. No AML will be established in the permit.

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	NA	12.1
Winter	6	7.8	NA	12.1

Summer: April 1 – September 30
Acute WLA: C_e = ((39.06 + 0.0)12.1 – (0.0 * 0.01))/39.06
C_e = 12.1 mg/L

MDL = WLA_a = **12.1** mg/L

Winter: October 1 – March 31
Acute WLA: C_e = ((39.06 + 0.0)12.1 – (0.0 * 0.01))/39.06
C_e = 12.1 mg/L

MDL = WLA_a = **12.1** mg/L

- ***Escherichia coli* (*E. coli*)**. Monitoring only. *E. coli* sampling data from January 2014 to November 2016 from both the discharge and a sampling location within Eagle Bluff Conservation Area wetland provided by the City, shows that the discharge to the Eagle Bluff Conservation Area wetland has not cause an exceedance of the Water Quality Standard for Secondary Contact Recreation as a recreational season geometric mean. Also, the permit writer observed that the designated use of Secondary Contact Recreation in the Eagle Bluff Conservation Area wetlands has not been affected due to the ongoing existing usage (fishing, wading, bow fishing, and boating) of the wetlands by the public.

- **Oil & Grease**. Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

- **Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite**. Monitoring required for facilities greater than 1,000,000 gpd design flow per 10 CSR 20-7.015(9)(D)8. Nitrate + Nitrite can be analyzed together or separately.

- **pH**. – 6.0-9.0 SU. The Water Quality Standard pH limits of 6.5-9.0 SU do not apply as the Chronic Criteria does not apply to the receiving body of water, only the Acute Criteria. Technology based effluent limitations of 6.0-9.0 SU [10 CSR 20-7.015] apply to the discharge.

- **Temperature**. Monitoring requirement only. This data will be used during the next permit renewal along with effluent pH data to calculate Ammonia limits, as Ammonia toxicity is Temperature and pH dependent.

- **Biochemical Oxygen Demand (BOD_5) & Total Suspended Solids (TSS) Percent Removal**. In accordance with 40 CFR Part 133.102(a)(3) & (b)(3) and 40 CFR Part 133.105(a)(3) & (b)(3), removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD_5) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for BOD_5.

Acute Whole Effluent Toxicity. Monitoring only requirement. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards.

Acute and/or Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to Waters of the State lacking designated uses, Class C, Class P (with default Mixing Considerations), or Lakes [10 CSR 20-7.031(5)(A)4.B.(IV)(b)] are 100%, 50%, 25%, 12.5%, & 6.25%.

- **Parameters Removed**. Arsenic was removed as there is no Acute Water Quality Standard for this parameter. Cadmium, Chromium III, Chromium VI, Copper, Cyanide, Lead, Mercury, Nickel, Silver, and Zinc: As a result of a Reasonable Potential Analysis, it was determined that there is no reasonable potential to cause an excursion of water quality standards for these parameters in the receiving stream. Therefore the parameters have been removed. This determination will be reassessed at renewal. Please see **Appendix – RPA Results** for more information. The sludge lagoon freeboard was removed as there is no regulatory requirement for this parameter.

Sampling Frequency Justification: Sampling and Reporting Frequency was retained from previous permit, except for Ammonia, BOD_5, TSS, and pH. Ammonia was increased to monthly as it showed a reasonable potential to violate Water Quality Standards. BOD, TSS, and pH were reduced to twice per week as the DMR data submitted by the permittee shows that operations at the facility have been consistent and have low variability and therefore the permittee is eligible for reduced monitoring frequencies. Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite were established as monthly per 10 CSR 20-7.015(9)(D)8. Weekly sampling is required for *E. coli*, per 10 CSR 20-7.015(9)(D)6.A.

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

Acute Whole Effluent Toxicity

☒ - No less than **ONCE/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_3).

Sampling Type Justification: As per 10 CSR 20-7.015, samples collected for mechanical plants shall be a 24 hour composite sample. Grab samples, however, must be collected for pH, *E. coli*, and Oil & Grease in accordance with recommended analytical methods. For further information on sampling and testing methods please review 10 CSR 20-7.015(9)(D) 2.

OUTFALLS #005, #006, #007, & #008 – EMERGENCY OUTFALLS

Monitoring requirements established in the below Effluent Limitations Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit. Outfalls #005, #006, #007, and #008 are emergency discharge outfalls for flood relief outfall at the Treatment Wetland Units #1 and #3. The outfalls are infrequently used during certain high flooding events.

OUTFALLS #005, #006, #007, & #008 EFFLUENT LIMITATIONS TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
Flow	mg/L	7	*		*	***	Weekly Φ	U	E
Biochemical Oxygen Demand	mg/L	7	*		*	***	Weekly Φ	U	G
Total Suspended Solids	mg/L	7	*		*	***	Weekly Φ	U	G
Ammonia	mg/L	7	*		*	***	Weekly Φ	U	G
E. coli	#/100mL	7	*		*	***	Weekly Φ	U	G
Oil & Grease	mg/L	7	*		*	***	Weekly Φ	U	G

PARAMETER	Unit	Basis for Limits	Minimum		Maximum	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
pH	SU	1	*		*	***	Weekly Φ	U	G

* - Monitoring requirement only.
** - #/100mL; the Monthly Average for *E. coli* is a geometric mean.
*** - Parameter not previously established in previous state operating permit.
U = Unscheduled reporting frequency. Reports to be submitted by the 28th day of the month following the event
**** - C = 24-hour composite, G = Grab, T = 24-hr. total, M = Measured/calculated
Φ - When a discharge occurs from these Outfalls, sampling shall be conducted from Permitted Feature IP1 once per week, per discharge event, and reported for each outfall individually.

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

OUTFALLS #005, #006, #007, & #008 – DERIVATION AND DISCUSSION OF MONITORING REQUIREMENTS:

During discharge events from these outfalls, due to safety concerns, and that discharges from the wetlands during these flood events are not representative, sampling shall occur at Permitted Feature IP1 and reported for each outfall individually.

- **Flow**. Monitoring only requirement. The Department will review the data during the next permit renewal.
- **Biochemical Oxygen Demand**. Monitoring only requirement. The Department will review the data during the next permit renewal.
- **Total Suspended Solids**. Monitoring only requirement. The Department will review the data during the next permit renewal.
- **Ammonia**. Monitoring only requirement. The Department will review the data during the next permit renewal.
- ***E coli***. Monitoring only requirement. The Department will review the data during the next permit renewal.
- **Oil & Grease**. Monitoring only requirement. The Department will review the data during the next permit renewal.
- **pH**. Monitoring only requirement. The Department will review the data during the next permit renewal.

PERMITTED FEATURE INF – INFLUENT MONITORING

MONITORING REQUIREMENTS TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
BOD_5	mg/L	1			*	***	1/month	monthly	C
TSS	mg/L	1			*	***	1/month	monthly	C
Ammonia as N	mg/L	1			*	***	1/month	monthly	C
Total Phosphorus	mg/L	1			*	***	1/month	monthly	C
Total Kjeldahl Nitrogen	mg/L	1			*	***	1/month	monthly	C
Nitrite + Nitrate	mg/L	1			*	***	1/month	monthly	C

* - Monitoring requirement only.
*** - Parameter not previously established in previous state operating permit.

**** - C = 24-hour composite
G = Grab
M = Total Measured / Measured

Basis for Limitations Codes:

1. State or Federal Regulation/Law
2. Water Quality Standard (includes RPA)
3. Water Quality Based Effluent Limits
4. Antidegradation Review
5. Antidegradation Policy
6. Water Quality Model
7. Best Professional Judgment
8. TMDL or Permit in lieu of TMDL
9. WET Test Policy
10. Multiple Discharger Variance
11. Nutrient Criteria Implementation Plan

PERMITTED FEATURE INF – DERIVATION AND DISCUSSION OF MONITORING REQUIREMENTS:

- **Biochemical Oxygen Demand (BOD_5)**. An influent sample is required to determine the removal efficiency. In accordance with 40 CFR Part 133, removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD_5) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals.

- **Total Suspended Solids (TSS)**. An influent sample is required to determine the removal efficiency. In accordance with 40 CFR Part 133, removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD_5) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals.

- **Total Phosphorus, Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia**. Influent monitoring for Total Phosphorus, Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia required per 10 CSR 20-7.015(9)(D)8.

Sampling Frequency Justification: The sampling and reporting frequencies for Total Phosphorus and Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia parameters were established to match the required sampling frequency of these parameters in the effluent, per [10 CSR 20-7.015(9)(D)8.]. The sampling and reporting frequencies for influent BOD_5 and TSS have been established to match the required sampling frequency of these parameters in the effluent.

Sampling Type Justification: Sample types for influent parameters were established to match the required sampling type of these parameters in the effluent. Samples should be analyzed as soon as possible after collection and/or properly preserved according to method requirements.

PERMITTED FEATURE IP1 – INTERNAL MONITORING

MONITORING REQUIREMENTS TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
Total Suspended Solids	mg/L	7		*	*	***	weekly	monthly	C

* - Monitoring requirement only.
*** - Parameter not previously established in previous state operating permit.

**** - C = 24-hour composite
G = Grab
M = Total Measured / Measured

Basis for Limitations Codes:

1. State or Federal Regulation/Law
2. Water Quality Standard (includes RPA)
3. Water Quality Based Effluent Limits
4. Antidegradation Review
5. Antidegradation Policy
6. Water Quality Model
7. Best Professional Judgment
8. TMDL or Permit in lieu of TMDL
9. WET Test Policy
10. Multiple Discharger Variance
11. Nutrient Criteria Implementation Plan

PERMITTED FEATURE IP1 – DERIVATION AND DISCUSSION OF MONITORING REQUIREMENTS:

- **Total Suspended Solids**. There are events when heavy uses of the treatment wetlands by waterfowl occur. During these periods, an alternative TSS value shall be used for the reported Outfall #001 TSS measurement. The alternative effluent TSS value reported during these periods shall be the plant effluent TSS measurement, sampled at Permitted Feature IP1, multiplied by 0.22. The multiplier of 0.22 shall be used for both average monthly and average weekly TSS determinations during these periods. Heavy waterfowl usage shall be documented by the City and confirmed by the Missouri Department of Conservation for each occurrence. The facility shall submit the City documentation and signed MDC confirmation letter for each occurrence with the associated Discharge Monitoring Report for the month the exceedances occurred. 22% was determined using the 95th percentile of TSS samples collected at IP1 and those collected at Outfall #001 when the treatment wetlands were not impacted by waterfowl.

Sampling Frequency Justification: The sampling and reporting frequency for Total Suspended Solids has been established to match the required sampling frequency of the effluent Total Suspended Solids.

Sampling Type Justification: 10 CSR 20-7.015 requires Total Suspended test samples to be collected for mechanical plants as a 24 hour composite sample. As this sample may be substituted for the effluent sample during those heavy uses of the treatment wetlands by waterfowl, the sample collection shall occur.

Part VII – Cost Analysis for Compliance

Pursuant to Section 644.145, RSMo, when issuing permits under this chapter that incorporate a new requirement for discharges from publicly owned combined or separate sanitary or storm sewer systems or publicly owned treatment works, or when enforcing provisions of this chapter or the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., pertaining to any portion of a publicly owned combined or separate sanitary or storm sewer system or [publicly owned] treatment works, the Department of Natural Resources shall make a "finding of affordability" on the costs to be incurred and the impact of any rate changes on ratepayers upon which to base such permits and decisions, to the extent allowable under this chapter and the Federal Water Pollution Control Act. This process is completed through a cost analysis for compliance. Permits that do not include new requirements may be deemed affordable.

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

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

The following table summarizes the results of the cost analysis. See **Appendix – Cost Analysis for Compliance** for detailed information.

Summary Table. Cost Analysis for Compliance Summary for the City of Columbia

New Permit Requirements			
For Outfall #001; weekly *E. coli* (rec season), monthly Ammonia, Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite. For Permitted Feature INF; monthly Ammonia, Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite.			
Estimated Annual Cost	Annual Median Household Income (MHI)	Estimated Monthly User Rate	User Rate as a Percent of MHI
$3,549	$48,390	$29.43	0.72%

Part VIII – Administrative Requirements

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

WATER QUALITY STANDARD REVISION:
In accordance with section 644.058, RSMo, the Department is required to utilize an evaluation of the environmental and economic impacts of modifications to water quality standards of twenty-five percent or more when making individual site-specific permit decisions.

- ✓ This operating permit does not contain requirements for a water quality standard that has changed twenty-five percent or more since the previous operating permit.

PERMIT SYNCHRONIZATION:
The Department of Natural Resources is currently undergoing a synchronization process for operating permits. Permits are normally issued on a five-year term, but to achieve synchronization many permits will need to be issued for less than the full five years allowed by regulation. The intent is that all permits within a watershed will move through the Watershed Based Management (WBM) cycle together will all expire in the same fiscal year. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the Department to explore a watershed based permitting effort at some point in the future. Renewal applications must continue to be submitted within 180 days of expiration, however, in instances where effluent data from the previous renewal is less than 4 years old, that data may be re-submitted to meet the requirements of the renewal application. If the permit provides a schedule of compliance for meeting new water quality based effluent limits beyond the expiration date of the permit, the time remaining in the schedule of compliance will be allotted in the renewed permit. The Department will provide this permit with a five year term. However, at the next permit renewal, the permit will be synced with the other permits in the watershed and will be issued for a term of less than five-years.

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 March 13, 2020 to April 13, 2020. Responses to the Public Notice of this operating permit did warrant the modification of the terms and conditions of this permit. Changes included the removal of blending from the Facility Description, Special Conditions, and the Fact Sheet, and also correction of typographical errors.

DATE OF FACT SHEET: APRIL 27, 2020

COMPLETED BY:

BRANT FARRIS, ENVIRONMENTAL SPECIALIST III
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT
(660) 385-8019
brant.farris@dnr.mo.gov

Appendices

APPENDIX - CLASSIFICATION WORKSHEET:

Item	Points Possible	Points Assigned
Maximum Population Equivalent (P.E.) served , peak day	1 pt./10,000 PE or major fraction thereof. (Max 10 pts.)	10
Design Flow (avg. day) or peak month's flow (avg. day) whichever is larger	1 pt. / MGD or major fraction thereof. (Max 10 pts.)	10
Effluent Discharge		
Missouri or Mississippi River	0	0
All other stream discharges except to losing streams and stream reaches supporting whole body contact recreation	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	3
Direct reuse or recycle of effluent	6	
Land Application/Irrigation		
Drip Irrigation	3	
Land application/irrigation	5	
Overland flow	4	
Variation in Raw Wastes (highest level only)		
Variations do not exceed those normally or typically expected	0	
Reoccurring deviations or excessive variations of 100 to 200 percent in strength and/or flow	2	2
Reoccurring deviations or excessive variations of more than 200 percent in strength and/or flow	4	
Department-approved pretreatment program	6	
Preliminary Treatment		
STEP systems (operated by the permittee)	3	
Screening and/or comminution	3	3
Grit removal	3	3
Plant pumping of main flow	3	3
Flow equalization	5	5
Primary Treatment		
Primary clarifiers	5	5
Chemical addition (except chlorine, enzymes)	4	4
Secondary Treatment		
Trickling filter and other fixed film media with or without secondary clarifiers	10	
Activated sludge (including aeration, oxidation ditches, sequencing batch reactors, membrane bioreactors, and contact stabilization)	15	15
Stabilization ponds without aeration	5	
Aerated lagoon	8	
Advanced Lagoon Treatment – Aerobic cells, anaerobic cells, covers, or fixed film	10	
Biological, physical, or chemical	12	12
Carbon regeneration	4	
Total from page **ONE (1)**	----	76

APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Solids Handling		
Sludge Holding	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
Disinfection		
Chlorination or comparable	5	
On-site generation of disinfectant (except UV light)	5	
Dechlorination	2	
UV light	4	
Required Laboratory Control Performed by Plant Personnel (highest level only)		
Lab work done outside the 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
Total from page **TWO (2)**	----	39
Total from page **ONE (1)**	---	76
Grand Total	---	115

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

APPENDIX – RPA RESULTS:

Outfall #001

Parameter	CMC*	RWC Acute*	CCC*	RWC Chronic*	n**	Range max/min	CV***	MF	RP Yes/No
Total Ammonia as Nitrogen (Summer) mg/L	12.1	22.80	NA	NA	10.00	7.6/0.3	0.88	3.00	YES
Total Ammonia as Nitrogen (Winter) mg/L	12.1	27.60	NA	NA	10.00	9.2/0.3	1.03	3.00	YES
Arsenic, Total Recoverable	340.0	7.10	NA	NA	20.00	4.98/2.5	0.2	1.43	NO
Cadmium, Total Recoverable	14.1	0.39	NA	NA	20.00	0.39/0.1	0.2	1.00	NO
Chromium III, Total Recoverable	4135.2	3.82	NA	NA	20.00	3.64/2.5	0.1	1.05	NO
Chromium VI, Dissolved	16.0	5.32	NA	NA	20.00	5.3/2.5	0.2	1.00	NO
Copper, Total Recoverable	36.4	10.65	NA	NA	20.00	10.6/5	0.2	1.00	NO
Cyanide, Amenable to Chlorination	22.0	5.05	NA	NA	20.00	5/1	0.5	1.01	NO
Lead, Total Recoverable	296.5	2.51	NA	NA	20.00	2.5/1.25	0.2	1.00	NO
Mercury, Total Recoverable	1.6	0.91	NA	NA	20.00	0.89/0.01	1.4	1.02	NO
Nickel, Total Recoverable	1106.5	20.08	NA	NA	20.00	20/10	0.2	1.00	NO
Silver, Total Recoverable	21.7	3.68	NA	NA	20.00	3.65/1.25	0.4	1.01	NO
Zinc, Total Recoverable	283.3	20.08	NA	NA	20.00	20/10	0.2	1.00	NO

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

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

APPENDIX – Sewer Extension Authority Supervised Program Reauthorization Letter:

Missouri Department of NATURAL RESOURCES
dnr.mo.gov
Michael L. Parson, Governor
Carol S. Comer, Director

OCT 11 2019

Mr. David Sorrell, P.E.
City of Columbia
P.O. Box 6015
Columbia, MO 65202

RE: Addendum to City of Columbia – ACT151, Sewer Extension Authority Supervised Program Reauthorization

Dear Mr. Sorrell:

The Missouri Department of Natural Resources' Water Protection Program has reevaluated the city of Columbia's Sewer Extension Authority Supervised Program (Program) and approved the reauthorization. This Program delegate's administrative responsibility of construction sewer extension permits to the city of Columbia and reporting requirements are included in the associated Missouri State Operating Permits (MSOP).

The Program for city of Columbia shall apply to construction permits for sewer extensions that discharge to the following MSOP:

- MO-0097837 [Columbia WWTF]
- MO-0092924 [Columbia Regional Airport]

The city of Columbia shall act as the continuing authority for the constructed collection system.

This approval is granted until it is reauthorized during the operating permit renewal. Enclosed are the Program conditions, annual reporting requirements, and renewal reauthorization requirements. The Program annual report must be submitted to the Department by November 28 of each year.

This reauthorization does not supersede any requirements of the operating permit or enforcement actions. Nothing in this reauthorization removes any obligations to comply with county or other local ordinances or restrictions.

If you were adversely affected by this decision, you may be entitled to an appeal before the Administrative Hearing Commission (AHC) pursuant to Section 621.250, RSMo. To appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC. Contact information for the AHC is: Administrative Hearing Commission, United States Post Office Bldg., Third Floor, 131 West High Street, P.O. Box 1557, Jefferson City, MO 65102, Phone: 573-751-2422, Fax: 573-751-5018, and Website: www.oa.mo.gov/ahc.

If you have any questions concerning this matter, please contact Ms. Leasue Meyers, of the Water Protection Program by phone at 573-751-7906 or by mail at Department of Natural Resources, P.O. Box 176, Jefferson City, MO 65102.

Thank you for your efforts to help ensure clean water in Missouri.

Sincerely,

WATER PROTECTION PROGRAM

Chris Wieberg
Director

CW:lmt

Enclosure

c: Ms. Kori Thompson, P.E., City of Columbia Engineering Supervisor
Mr. Brant Farris, Domestic Wastewater Unit
Mr. Charles Harwood, Domestic Wastewater Unit

City of Columbia
Page One

Activity No. ACT151

SEWER EXTENSION AUTHORITY SUPERVISED PROGRAM REAUTHORIZATION

I. CONDITIONS:

1. This approval is limited to sewer extensions proposed within the city of Columbia boundaries for which the receiving wastewater treatment facility is owned, operated, and maintained by the city of Columbia

2. Upon completion of accepted construction, the city of Columbia will become the continuing authority for the operation, maintenance, and modernization of the sewer extension.

3. Additional requirements may be necessary to comply with the requirements contained in 10 CSR 20-4, "Grants and Loans" when funding from the Department is requested.

4. Any updates to the city of Columbia's Street, Storm Drain, and Sanitary Sewer Specifications and Standards, dated October 2016, Addendum #1 dated October 2018, and Sanitary Sewer Pump Station Design Requirements and Standard Specifications, dated January 2018 will require a subsequent review and approval by the Department.

   A. This approval is limited to only wastewater components. Other items contained in this standard specification and details such as drinking water, roadways, structural, mechanical, electrical, etc. were not reviewed.

5. This approval may be reopened and modified to comply with any new or amended design regulations in 10 CSR 20-6.010 and 10 CSR 20-8.

II. ANNUAL REPORTS:

The city of Columbia must submit an annual report by November 28th of each year to the Engineering Section. The electronic submittals may be emailed to DNR.WPPEngineerSection@dnr.mo.gov. The report shall contain the following for each sewer extension:

1. Name of sewer extension;
2. Population or number of lots to be served;
3. Type of wastewater (i.e. domestic or industrial);
4. Design flow in gallons per day;
5. Length of sewer and force main;

6. Capacity of each pump station, if applicable;
7. Date sewer extension permit is issued;
8. Dates of leakage and deflection tests passing;
9. Dates of city of Columbia construction inspections;
10. Date sewer extension construction is accepted;
11. Number of warnings, violations, or notices issued by the city of Columbia; and
12. The remaining capacity of the wastewater treatment facility.

III. REAUTHORIZATION REQUEST:

The City of Columbia must submit a request for reauthorization to the Engineering Section at least 180 days prior to expiration date of the Columbia WWTF operating permit. The request shall contain the following:

1. The current standard technical specifications and typical detail drawings signed, sealed, and dated by a Missouri registered professional engineer.

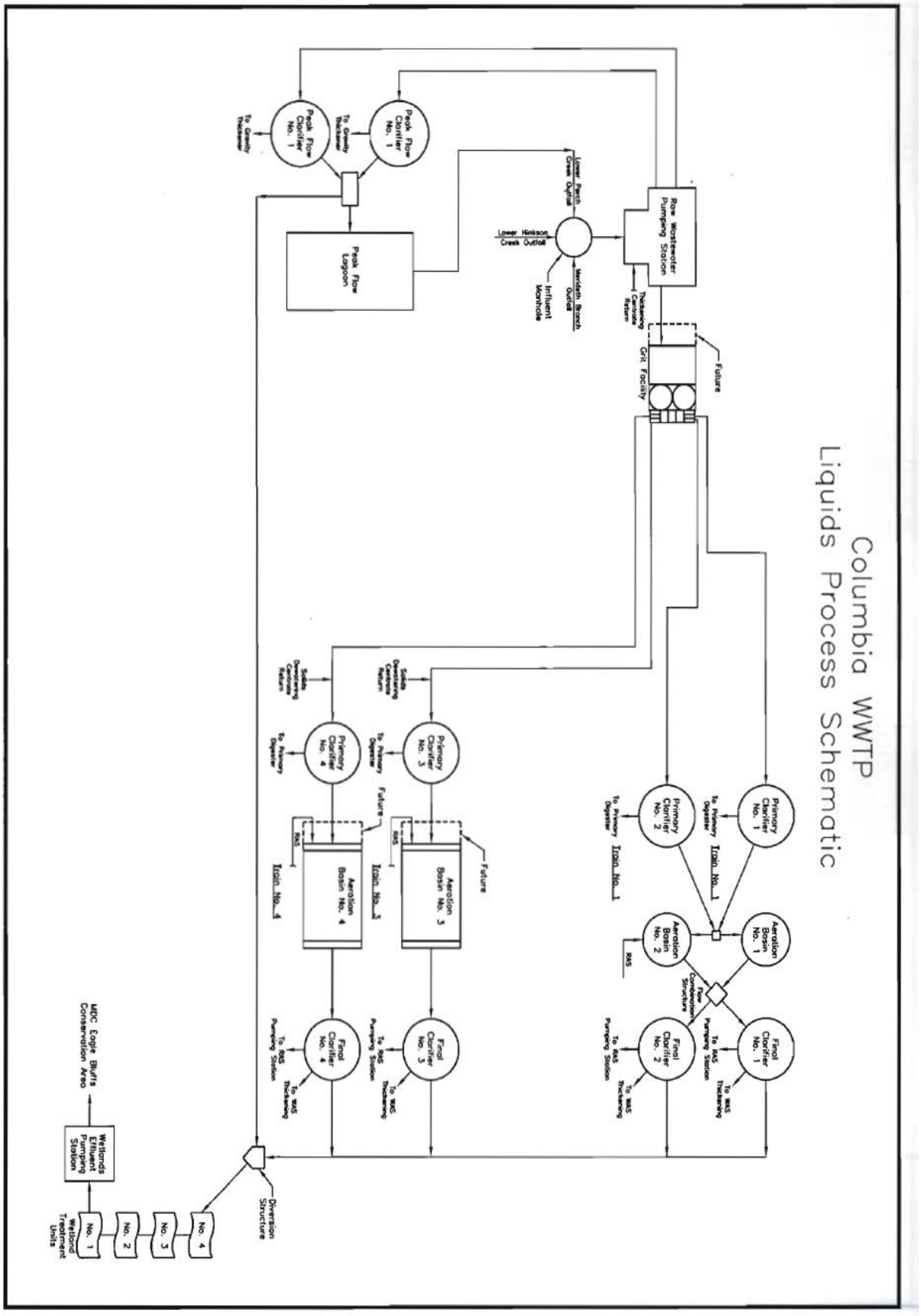
2. A current layout map, or maps, of the collection system or electronic demonstration. The map(s) shall show sewer sizes and lengths, manholes, cleanouts, pump stations, force mains, air release valves, other sewer appurtenances as necessary, and street names.

3. A list and current number of Missouri registered professional engineers and other qualified staff reviewing plans, issuing sewer extension permits, preparing reports, inspecting construction, and enforcing local and state requirements under the Program.

4. A written statement from the City of Columbia ensuring that permanent plans of all permitted and constructed sewer extensions records are maintained.

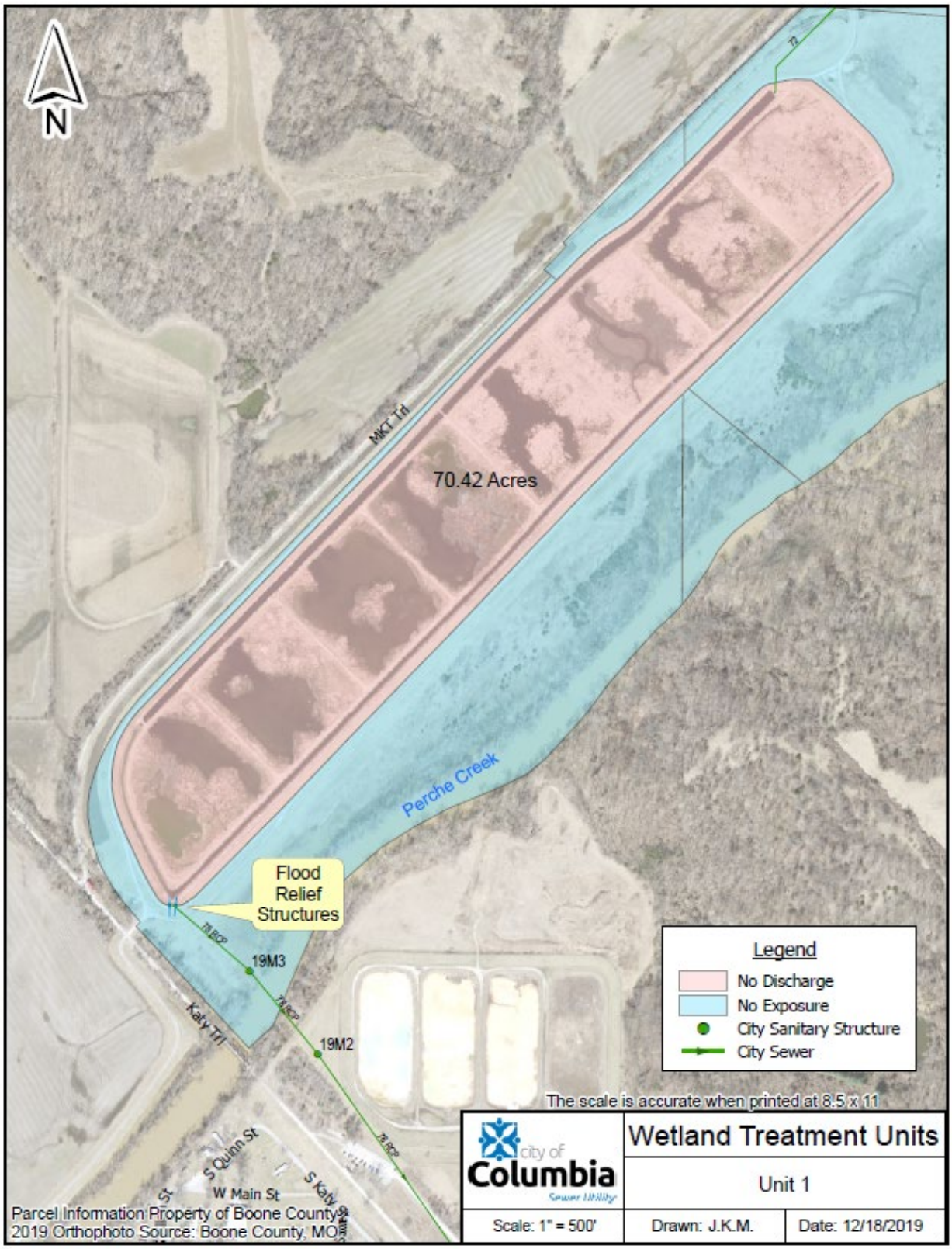
Leasue Meyers, EI
Engineering Section
leasue.meyers@dnr.mo.gov

APPENDIX – ALTERNATIVE: Flow diagram

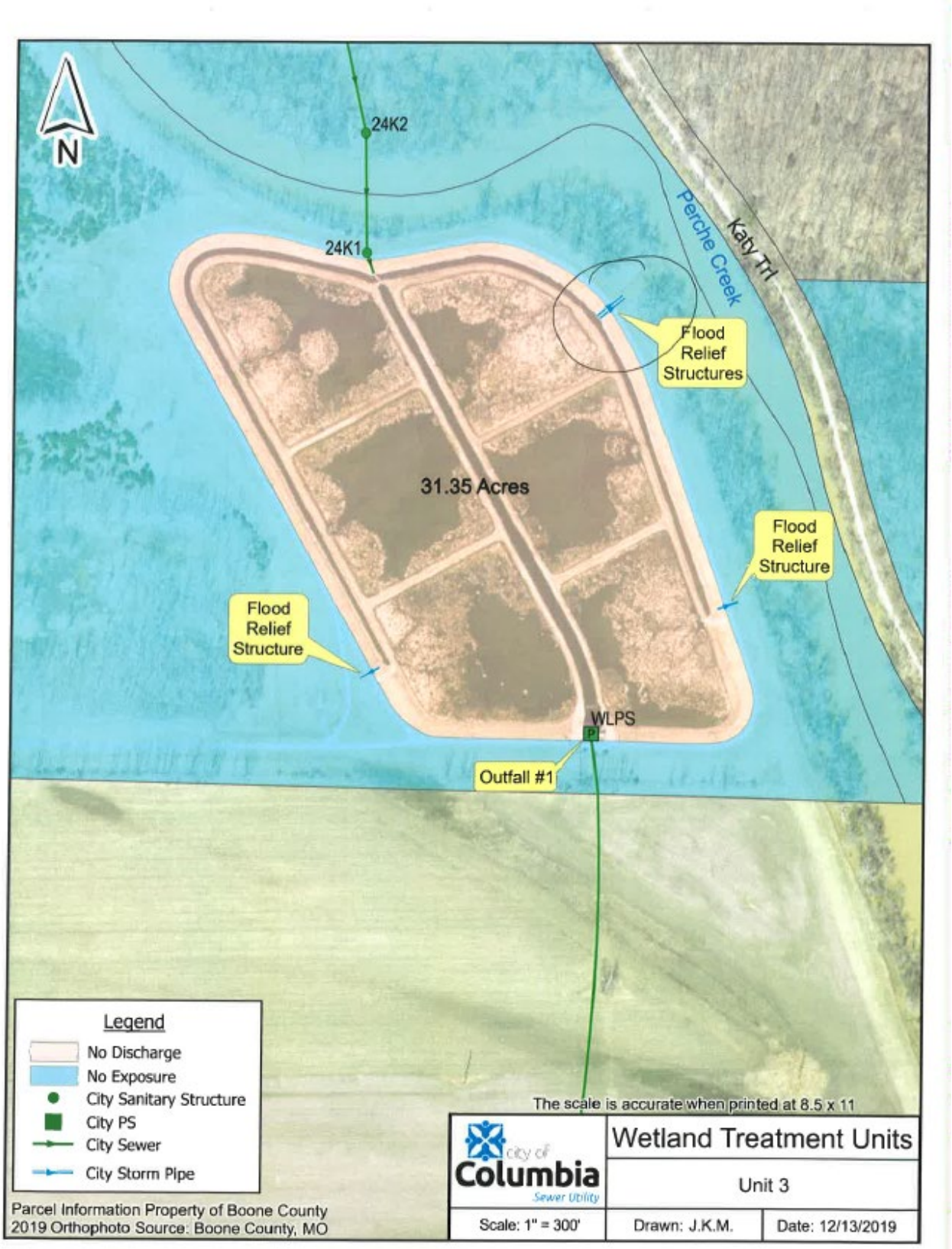


APPENDIX – ALTERNATIVE: Treatment Wetlands

APPENDIX – ALTERNATIVE: Treatment Wetlands Unit 1 Outfall map



APPENDIX – ALTERNATIVE: Treatment Wetlands Unit 3 Outfalls map



APPENDIX – COST ANALYSIS FOR COMPLIANCE:

Missouri Department of Natural Resources
Water Protection Program
Cost Analysis for Compliance
(In accordance with RSMo 644.145)

Columbia WWTP, Permit Renewal
City of Columbia
Missouri State Operating Permit #MO-0097837

Section 644.145 RSMo requires the Department of Natural Resources (Department) to make a "finding of affordability" when "issuing permits under" or "enforcing provisions of" state or federal clean water laws "pertaining to any portion of a combined or separate sanitary sewer system for publicly-owned treatment works." This cost analysis does not dictate how the permittee will comply with new permit requirements.

New Permit Requirements

The permit requires compliance with the following new monitoring requirements: For Outfall #001; weekly E. coli (rec season), monthly Ammonia, Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite. For Permitted Feature INF; monthly Ammonia, Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite.

For Outfall #001, the permit also contains new effluent limits for Ammonia, and revised limits for Cadmium, Chromium III, Chromium VI, Copper, Cyanide, Lead, and Mercury.

Connections
The number of connections was reported by the permittee on the Financial Questionnaire.

Connection Type	Residential	Commercial + Industrial	Total
Number	44,983	4,729	49,712

Data Collection for this Analysis
This cost analysis is based on data available to the Department as provided by the permittee and data obtained from readily available sources. For the most accurate analysis, it is essential that the permittee provides the Department with current information about the City's financial and socioeconomic situation. The financial questionnaire available to permittees on the Department's website (http://dnr.mo.gov/forms/780-2511-f.pdf) is a required attachment to the permit renewal application. If the financial questionnaire is not submitted with the renewal application, the Department sends a request to complete the form with the welcome correspondence. If certain data was not provided by the permittee to the Department and the data is not obtainable through readily available sources, this analysis will state that the information is "unknown".

Eight Criteria of 644.145 RSMo
The Department must consider the eight (8) criteria presented in subsection 644.145 RSMo to evaluate the cost associated with new permit requirements.

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

Criterion 1 Table. Current Financial Information for the City of Columbia	
Current Monthly User Rates per 5,000 gallons*	$29.42
Median Household Income (MHI)[1]	$48,390
Current Annual Operating Costs (excludes depreciation)	$9,760,604

*User Rates were reported by the permittee on the Financial Questionnaire.

(2) Affordability of pollution control options for the individuals or households at or below the median household income level of the community;

The following tables outline the estimated costs of the new permit requirements:

Criterion 2A Table. Estimated Cost Breakdown of New Permit Requirements					
Outfall/ Permitted Feature	New Requirement	Frequency	Total Annual Samples (New)	Estimated Cost	Estimated Annual Cost
001	*E. coli*	Weekly	28§	$29	$812
001	Total Phosphorus	Monthly	12	$24	$288
001	Total Kjeldahl Nitrogen	Monthly	12	$33	$396
001	Nitrate + Nitrite	Monthly	12	$40	$480
001	Ammonia	Monthly	8†	$20	$160
INF	Total Phosphorus	Monthly	12	$24	$288
INF	Total Kjeldahl Nitrogen	Monthly	12	$33	$396
INF	Nitrate + Nitrite	Monthly	12	$40	$480
INF	Ammonia	Monthly	12	$20	$240
Total Estimated Annual Cost of New Permit Requirements					$3,549

§ - only required during April - October
† - facility already collects quarterly samples
€ - facility already collects annual samples

Criterion 2B Table. Estimated Costs for New Permit Requirements		
(1)	Estimated Annual Cost	$3,549
(2)	Estimated Monthly User Cost for New Requirements [2]	$0.01
	Estimated Monthly User Cost for New Requirements as a Percent of MHI [3]	0.0003%
(3)	Total Monthly User Cost*	$29.43
	Total Monthly User Cost as a Percent of MHI[4]	0.72%

* Current User Rate + Estimated Monthly Costs of New Sampling Requirements

For Outfall #001, the facility has the technology that can meet the limits for Ammonia, therefore a one year schedule of compliance was provided to allow the facility time to make operational changes necessary to meet the final limits. The facility already meets the final limits revised for Cadmium, Chromium III, Chromium VI, Copper, Cyanide, Lead, and Mercury, therefore there should be no cost increase to meet the final limits.

Due to the minimal cost associated with new permit requirements, the Department anticipates an extremely low to no rate increase will be necessary, which could impact individuals or households of this community.

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

This analysis is being conducted based on new requirements in the permit, which will not require the addition of new control technologies at the facility. However, the new sampling requirements are being established in order to provide data regarding the health of the receiving stream's aquatic life and to ensure that the existing permit limits are providing adequate protection of aquatic life. Improved wastewater provides benefits such as avoided health costs due to water-related illness, enhanced environmental ecosystem quality, and improved natural resources. The preservation of natural resources has been proven to increase the economic value and sustainability of the surrounding communities. Maintaining Missouri's water quality standards fulfills the goal of restoring and maintaining the chemical, physical, and biological integrity of the receiving stream; and, where attainable, it achieves a level of water quality that provides for the protection and propagation of fish, shellfish, wildlife, and recreation in and on the water.

(4) Inclusion of ongoing costs of operating and maintaining the existing wastewater collection and treatment system, including payments on outstanding debts for wastewater collection and treatment systems when calculating projected rates:

The community reported that their outstanding debt for their current wastewater collection and treatment systems is $102,820,700. The community reported that each user pays $29.42 monthly, of which, ~$18.01 (45.7%) is used toward payments on the current outstanding debt.

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

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

The following table characterizes the current overall socioeconomic condition of the community as compared to the overall socioeconomic condition of Missouri. The following information was compiled using the latest U.S. Census data.

Criterion 5 Table. Socioeconomic Data [1, 5-9] for the City of Columbia

No.	Administrative Unit	Columbia City	Missouri State
1	Population (2016)	117,165	6,059,651
2	Percent Change in Population (2000-2016)	38.6%	8.3%
3	2016 Median Household Income (in 2017 Dollars)	$45,973	$50,417
4	Percent Change in Median Household Income (2000-2016)	-3.5%	-5.9%
5	Median Age (2016)	27.4	38.3
6	Change in Median Age in Years (2000-2016)	0.6	2.2
7	Unemployment Rate (2016)	4.2%	6.6%
8	Percent of Population Below Poverty Level (2016)	23.6%	15.3%
9	Percent of Household Received Food Stamps (2016)	10.0%	13.0%
10	(Primary) County Where the Community Is Located	Boone County	

(6) An assessment of other community investments and operating costs relating to environmental improvements and public health protection;

The City reported the following investments relating to environmental improvements.

List of major infrastructure or other investments in environmental projects

Name	Design Year	Construction year	Cost
Sewer Projects			
Annual 100-Acre Point Trunks			$140,000/year
Annual Inflow & Infiltration Program			$2,000,000/year
Annual Private Common Collector			$500,000/Year
Annual Sewer Main and Manhole Rehab			$700,000/year
Annual Sewer System Improvements			$1,000,000/year
B-8 Relief Sewer - Rangeling & Vandiver	2020	2021	$ 1,847,800
B-9 Relief Sewer - Garth & Vandiver	2020	2021	$ 693,420
C-5 Trunk Relief Sewer - Rock Quarry: Nifong - Zoe	2020	2021	$ 288,925
Calvert Drive Sewer Relocation	2016	2017	$ 240,000
Cout and Hickory Street Sewer Relocation	2015	2016	$ 245,000
Cow Branch Outfall	2021	2023	$ 3,484,500
FBRS - 4th Street - Elm to Rogers/Broadawy	2018	2019	$ 3,862,251
FBRS - Elm & 6th Street	2014	2016	$ 2,336,000
FBRS - Stadium to Elm	2014	2015	$ 3,100,000
FBRS to Turner Relief Sewer	2014	2015	$ 410,000
FY12 Sewer Main Rehab	2012	2012	$ 5,072,343
FY2014 Sewer Main Rehab	2014	2014	$ 1,308,701
FY2015 Sewer Main Rehab	2015	2015	$ 2,700,000
Gans Creek Pump Station Upgrade	2020	2021	$ 2,543,200
Haystack Acres Pump Station Interceptor	2012	2021	$ 656,807
Henderson Branch Sewer: Midway Sewer Extension	2015	2017	$ 2,669,000
Hominy Branch Outfall Ext: LOW Rd - Mexico Gravel	2021	2023	$ 2,568,800
Hominy Branch Outfall Relief Sewer	2009	2011	$ 4,531,996
Little Bonne Femme Regional Pump Station	2021	2023	$ 9,479,250
Lower Southwest Outfall Relief Sewer	2020	2021	$ 809,320
M-2 Interceptor Relief - Merideth Branch Creek	2020	2021	$ 450,690
North Grindstone Creek Bank Stabilization	2013	2015	$ 200,000
North Grindstone Outfall Ext. Phase III	2009	2019	$ 1,406,020
PCCE #3 - Stewart & Medavista	2012	2016	$ 1,515,000
PCCE #8 - Thilly Lathrop	2010	2016	$ 2,200,000
PCCE #11 - Wilson Street/High Street	2010	2015	$ 253,000
PCCE #14 - Cliff Drive	2013	2015	$ 329,750
PCCE #16 - Bingham Rd & West Ridgeley Rd	2013	2017	$ 463,900
PCCE #17 - Wilson Street/Ross Street	2010	2017	$ 290,398
PCCE #18 - Spring Valley Road	2013	2016	$ 149,000
PCCE #19 - Sunset Lane	2010	2012	$ 735,000
PCCE #20 - Ridgemont	2015	2015	$ 271,500
PCCE #21 - Stanford	2017	2018	$ 79,343
PCCE #22 - Shannon Place	2016	2018	$ 94,941
PCCE #23 - Lakeshore Drive & Edgewood	2017	2018	$ 238,028
PCCE #24 - St. James & St. Joseph	2015	2016	$ 154,100

PCCE #25 - Glenwood & Redbud	2016	2018	$	591,110
PCCE #27 - Grace Ellen	2015	2016	$	365,000
PCCE #28 - Hickory Hill Drive & Sunset Drive	2017	2018	$	158,685
PCCE #29 - East Sunset Lane	2017	2018	$	238,028
PCCE #30 - West Stewart, Edgewood, Westmount Ave	2018	2019	$	354,186
PCCE #31 - Oakwood Court	2018	2019	$	163,470
PCCE #33 - Lyon Street	2018	2019	$	81,736
PCCE #34 - Forest Hill Court & Ridge Road	2019	2020	$	533,283
PCCE #35 - Richmond Ave	2019	2020	$	129,111
PCCE #38 - North Eighth Street	2020	2021	$	138,684
PCCE #39 - Hubbell Drive Sewer Improvement	2014	2015	$	125,000
PCCE #40 - Sunset Dr, Prospect St, Crestland Ave	2020	2021	$	404,495
PCCE #41 - W Stewart Road & West Blvd	2020	2021	$	190,691
Prathersville Area Sewer District	2020	2021	$	375,520
Rocky Fork Outfall Sewer	2025	2027	$	8,913,500
Sewer District #170 - S. Bethel Church Road	2011	2015	$	370,380
Sewer District #171 - Crites Lane	2016	2021	$	83,388
Sewer District - Hill Creek Road	2021	2022	$	51,163
Sexton Road Relief Sewer	2020	2021	$	2,543,200
Southwest Trunk #2 Relief Sewer	2020	2021	$	809,650
Stephens Park Sewer Relocation	2020	2021	$	103,815
STM WWTP Energize MO Comm	2012	2012	$	628,725
STM WWTP Improvement	2009	2010	$	3,000,000
Upper Bear Creek Sewer Replacement	2020	2021	$	601,030
Upper Hinkson Creek Outfall Ext	2012	2015	$	7,650,174
Upper Merideth Branch Stream Bank Stabiliz.	2013	2016	$	600,000
Upper Southwest Outfall Relief	2020	2021	$	317,900
W Broadway Sewer Improvement	2014	2015	$	175,000
Westwood Avenue Sewer Relocation	2013	2015	$	321,715
Woodrail Sewer Replacement Project	2014	2016	$	330,000
Woodstock MHP WWTP Interceptor	2020	2021	$	115,570
WWTP - Digester Complex Improvements	2017	2018	$	4,337,390
WWTP - Fine Screen Facility	2025	2025	$	2,400,000
WWTP - Engineering Addition	2015	2016	$	100,000
WWTP Improvement Project Phase I	2008	2010	$	63,914,991
Landfill Projects				
Agriturf for Bioreactor Cell	2016	2016	$	255,000
Collection and Admin Relocation - Landfill	2013	2016	$	4,670,000
Disposal Cell #6	2016	2017	$	4,300,000
Disposal Cell #7	2023	2024	$	4,000,000
Household Hazardous Waste Building	2024	2024	$	350,000
Landfill & Compost Facility Stormwater Compliance	2015	2016	$	245,000
Landfill Expansion Permitting	2017	2019	$	600,000
Landfill Wetlands	2014	2016	$	225,000
Leachate Storage & Handling	2016	2017	$	608,827

Landfill Gas to Energy, Heat recovery system	2014	2016	$	325,000
Material Recovery Facility Expansion Phase 2	2024	2024	$	2,400,000
Material Recovery Factility Phase 1	2015	2018	$	1,500,000
Methane Gas Extraction Wells		2014	$	2,125,947
Recycling Drop-Off Site - S. Providence Rd	2014	2015	$	150,000
State Farm Parkway off Nifong Connector Drop-Off	2014	2015	$	20,839
Stimulus Landfill Gas Plant EMC	2010	2011	$	425,275

Stormwater Projects

2302 Business 70 East	2025	2026	$	400,000
Alan Lane	2020	2021	$	276,840
Aldeah & Ash Storm Pipe Rehab	2016	2016	$	150,000
Annual CAM projects	$50,000/year			
Annual Downtown Tree Planters	$25,000/year			
Annual Floodplain Mapping	Starts in 2021, $50,000			
Annual Mitigation Bank Program	Starts in 2017, $50,000 first year then $100,000			
Annual Projects	$50,000/yea $100,000/year starting in FY2018			
Annual Property Acquisition	Starts in 2021, $50,000			
Annual TV Inspections	Starts in 2021, $50,000			
Bourn Avenue	2021	2021	$	650,000
Braemore Drainage	2021	2022	$	275,000
Bray/Longwell Drainage	2021	2021	$	250,000
Calvert Drive	2021	2022	$	700,000
CAM - Forum Nature Area	2013	2014	$	50,000
CAM - Hubbart Flow & Sediment Study	2014	2016	$	72,282
Capri Estates Drainage	2020	2021	$	404,000
Downtown Tree Planter 2015	2015	2016	$	30,000
E Nifong Culvert Rehab	2016	2016	$	125,000
East Downtown	2022	2022	$	1,500,000
East Point Lining	2016	2016	$	100,000
East Point Storm Water Study	2021	2021	$	50,000
English/Subella/Jake Drainage	2021	2022	$	180,000
Flat Branch System Inventory Model	2022	2022	$	400,000
Garth @ Oak Tower	2018	2019	$	458,420
Garth-Jewell	2021	2021	$	250,000
Gillespie Bridge Road	2021	2022	$	600,000
Grasslands - Brandon Drainage	2022	2022	$	1,100,000
Greenwood South	2020	2020	$	225,200
Greenwood Stewart Phase 2	2022	2022	$	1,600,000
Grissum Bldg Water Quality Improvements	2012	2012	$	546,745
Hickman & 6th & 7th	2018	2018	$	371,350
Hinkson Avenue	2021	2022	$	300,000
Hinkson Bacteria Assessment	2015	2015	$	15,167
Hitt and Elm	2011	2015	$	112,000
Kelly Detention Retrofit	2022	2022	$	306,282
Lakshire Estates Lake Modification	2022	2022	$	150,000

Leawood Subdivision	2021	2022	$	1,775,000
Manor Drive	2016	2017	$	51,350
Martinshire Drive	2027	2028	$	250,000
Mary Jane Jamesdale	2023	2023	$	150,000
Mill Creek Detention Retrofits	2023	2023	$	300,000
Mill Creek Phase 3	2022	2023	$	210,000
Nebraska Avenue	2021	2021	$	405,650
Nifong & Bethel Drainage Project	2013	2017	$	820,000
Ninth and Elm Storm Drain Replacement	2015	2017	$	193,000
Old Plank Storm Drainage - South Side	2023	2023	$	162,000
Parkade Blvd and Plaza	2023	2023	$	350,000
Pear Tree Circle Storm Drainage	2027	2027	$	170,000
Proctor Drive	2023	2023	$	600,000
Quail Drive	2018	2020	$	366,068
Rangeline Street Smith Street	2027	2027	$	225,000
Rockhill Rd	2019	2020	$	505,050
Rockingham - E. Briarwood	2023	2023	$	550,000
Rollins Rd at Rock Creek	2016	2016	$	400,000
Rollins/Cowan/Ridge Drainage	2024	2024	$	170,000
Royal Lytham - Fallwood	2021	2022	$	410,000
Salt Storage Site improvements	2027	2028	$	900,000
Sappington Drainage	2027	2028	$	145,000
Seventh and Locust	2021	2021	$	173,850
Sexton Road at Jackson	2022	2023	$	315,000
Sexton/McBaine Drainage	2021	2022	$	265,500
Sinclair Culvert at Mill Creek	2016	2017	$	256,750
Sixth & Elm Storm Drain Replacement	2024	2024	$	727,500
Stewart Park Drainage	2024	2024	$	100,000
Stormwater Master Plan	2022	2022	$	477,600
Trimble Rd Storm Lining	2015	2016	$	25,000
Vandiver/Sylvan Storm Drainage	2022	2023	$	2,100,000
Wayne Road	2024	2024	$	75,000
West Blvd & Stadium Storm Pipe Rehab	2015	2015	$	75,000
West Worley Storm Systerm Replacement	2015	2016	$	207,000
Wilson Ross	2022	2022	$	155,000
Woodland - Northridge Drainage	2024	2024	$	400,000
Worley Again East Phase I	2021	2022	$	237,050

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

The new requirements associated with this permit will not impose a financial burden on the community, nor will they require the City of Columbia to seek funding from an outside source.

(8) An assessment of any other relevant local community economic conditions.

The community did not report any other relevant local economic conditions that were not previously addressed in this document.

Conclusion and Finding

As a result of new regulations, the Department is proposing modifications to the current operating permit that may require the permittee to increase monitoring. The Department has considered the eight (8) criteria presented in subsection 644.145 RSMo to evaluate the cost associated with the new permit requirements.

This analysis examined whether the new sampling requirements affect the ability of an individual customer or household to pay a utility bill without undue hardship or unreasonable sacrifice in the essential lifestyle or spending patterns of the individual or household. After reviewing the above criteria, the Department finds that the new sampling requirements may result in a low burden with regard to the community's overall financial capability and a low financial impact for most individual customers/households; therefore, the new permit requirements are affordable.

References

1. (A) 2016 MHI in 2016 Dollar: United States Census Bureau. 2012-2016 American Community Survey 5-Year Estimates, Table B19013: Median Household Income in the Past 12 Months (in 2016 Inflation-Adjusted Dollars). http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_B19013&prodType=table.
   (B) 2000 MHI in 1999 Dollar: U.S. Census Bureau (2002) 2000 Census of Population and Housing, Summary Population and Housing Characteristics, PHC-1-27, Missouri, Table 2. Age and Sex: 2000, Washington, DC. http://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf.
   (C) 2017 CPI, 2016 CPI and 1999 CPI: For United States, United States Bureau of Labor Statistics (2017) Consumer Price Index - All Urban Consumers, United States City Average. All Items. 1982-84=100. http://data.bls.gov/timeseries/CUUR0000SA0?data_tool=Xgtable. For Missouri State: United States Bureau of Labor Statistics (2017) Consumer Price Index - All Urban Consumers, Midwest Urban Areas, All Items. 1982-84=100. http://data.bls.gov/timeseries/CUUR0200SA0?data_tool=Xgtable.
   (D) 2016 MHI in 2017 Dollar: 2016 MHI in 2016 Dollar x 2017 CPI /2016 CPI; 2000 MHI in 2017 Dollar: 2000 MHI in 1999 Dollar x 2017 CPI /1999 CPI.
   (E) Percent Change in Median Household Income (2000-2016) = (2016 MHI in 2017 Dollar - 2000 MHI in 2017 Dollar) / (2000 MHI in 2017 Dollars).
2. ($3,549/$49,712)/12 = $0.01 (Estimated Monthly User Cost for New Requirements)
3. ($0.01/($48,390/12))100% = 0.0003% (New Sampling Only)
4. ($29.43/($48,390/12))100% = 0.72% (Total User Cost)
5. (A) Total Population in 2016: United States Census Bureau. 2012-2016 American Community Survey 5-Year Estimates, Table B01003: Total Population - Universe: Total Population. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_B01003&prodType=table.
   (B) Total Population in 2000: U.S. Census Bureau (2002) 2000 Census of Population and Housing, Summary Population and Housing Characteristics, PHC-1-27, Missouri, Table 2. Age and Sex: 2000, Washington, DC. http://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf.
   (C) Percent Change in Population (2000-2016) = (Total Population in 2016 - Total Population in 2000) / (Total Population in 2000).
6. (A) Median Age in 2016: United States Census Bureau. 2012-2016 American Community Survey 5-Year Estimates, Table B01002: Median Age by Sex - Universe: Total population. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_B01002&prodType=table.
   (B) Median Age in 2000: For United States, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-1-1 Part 1. United States Summary, Table 1. Age and Sex: 2000, Washington, DC., Page 2. https://www.census.gov/prod/cen2000/phc-1-1-pt1.pdf. For Missouri State, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Population and Housing Characteristics, PHC-1-27, Missouri, Table 2. Age and Sex: 2000, Washington, DC., Pages 64-92. http://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf.
   (C) Change in Median Age in Years (2000-2016) = (Median Age in 2016 - Median Age in 2000).
7. United States Census Bureau. 2012-2016 American Community Survey 5-Year Estimates, B23025: Employment Status for the Population 16 Years and Over - Universe: Population 16 years and Over. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_B23025&prodType=table.
8. United States Census Bureau. 2012-2016 American Community Survey 5-Year Estimates, Table S1701: Poverty Status in the Past 12 Months. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_S1701&prodType=table.
9. United States Census Bureau. 2012-2016 American Community Survey 5-Year Estimates, Table B22003: Receipt of Food Stamps/SNAP in the Past 12 Months by Poverty Status in the Past 12 Months for Households - Universe: Households. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_16_5YR_B22003&prodType=table.

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

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

Part I – General Conditions
Section A – Sampling, Monitoring, and Recording

1. **Sampling Requirements.**
   a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
   b. All samples shall be taken at the outfall(s) or Missouri Department of Natural Resources (Department) approved sampling location(s), and unless specified, before the effluent joins or is diluted by any other body of water or substance.

2. **Monitoring Requirements**.
   a. Records of monitoring information shall include:
      i. The date, exact place, and time of sampling or measurements;
      ii. The individual(s) who performed the sampling or measurements;
      iii. The date(s) analyses were performed;
      iv. The individual(s) who performed the analyses;
      v. The analytical techniques or methods used; and
      vi. The results of such analyses.
   b. If the permittee monitors any pollutant more frequently than required by the permit at the location specified in the permit using test procedures approved under 40 CFR Part 136, or another method required for an industry-specific waste stream under 40 CFR subchapters N or O, the results of such monitoring shall be included in the calculation and reported to the Department with the discharge monitoring report data (DMR) submitted to the Department pursuant to Section B, paragraph 7.

3. **Sample and Monitoring Calculations.** Calculations for all sample and monitoring results which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in the permit.

4. **Test Procedures**. The analytical and sampling methods used shall conform to the reference methods listed in 10 CSR 20-7.015 unless alternates are approved by the Department. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. The facility shall ensure that the selected methods are able to quantify the presence of pollutants in a given discharge at concentrations that are low enough to determine compliance with Water Quality Standards in 10 CSR 20-7.031 or effluent limitations unless provisions in the permit allow for other alternatives. A method is "sufficiently sensitive" when; 1) the method minimum level is at or below the level of the applicable water quality criterion for the pollutant or, 2) the method minimum level is above the applicable water quality criterion, but the amount of pollutant in a facility's discharge is high enough that the method detects and quantifies the level of pollutant in the discharge, or 3) the method has the lowest minimum level of the analytical methods approved under 10 CSR 20-7.015. These methods are also required for parameters that are listed as monitoring only, as the data collected may be used to determine if limitations need to be established. A permittee is responsible for working with their contractors to ensure that the analysis performed is sufficiently sensitive.

5. **Record Retention.** Except for records of monitoring information required by the permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five (5) years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

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

Section B – Reporting Requirements

1. **Planned Changes.**
   a. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility when:
      i. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
      ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42;
      iii. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;
      iv. Any facility expansions, production increases, or process modifications which will result in a new or substantially different discharge or sludge characteristics must be reported to the Department 60 days before the facility or process modification begins. Notification may be accomplished by application for a new permit. If the discharge does not violate effluent limitations specified in the permit, the facility is to submit a notice to the Department of the changed discharge at least 30 days before such changes. The Department may require a construction permit and/or permit modification as a result of the proposed changes at the facility.

2. **Non-compliance Reporting.**
   a. The permittee shall report any noncompliance which may endanger health or the environment. Relevant information shall be provided orally or via the current electronic method approved by the Department, within 24 hours from the time the permittee becomes aware of the circumstances, and shall be reported to the appropriate Regional Office during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours. A written submission shall also be provided within five (5) business days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

b. The following shall be included as information which must be reported within 24 hours under this paragraph.
   i. Any unanticipated bypass which exceeds any effluent limitation in the permit.
   ii. Any upset which exceeds any effluent limitation in the permit.
   iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit required to be reported within 24 hours.

c. The Department may waive the written report on a case-by-case basis for reports under paragraph 2. b. of this section if the oral report has been received within 24 hours.

3. **Anticipated Noncompliance**. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The notice shall be submitted to the Department 60 days prior to such changes or activity.

4. **Compliance Schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date. The report shall provide an explanation for the instance of noncompliance and a proposed schedule or anticipated date, for achieving compliance with the compliance schedule requirement.

5. **Other Noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs 2, 3, and 6 of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph 2. a. of this section.

6. **Other Information**. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

7. **Discharge Monitoring Reports.**
   a. Monitoring results shall be reported at the intervals specified in the permit.
   b. Monitoring results must be reported to the Department via the current method approved by the Department, unless the permittee has been granted a waiver from using the method. If the permittee has been granted a waiver, the permittee must use forms provided by the Department.
   c. Monitoring results shall be reported to the Department no later than the 28th day of the month following the end of the reporting period.

Section C – Bypass/Upset Requirements

1. **Definitions.**
   a. *Bypass*: the intentional diversion of waste streams from any portion of a treatment facility, except in the case of blending.
   b. *Severe Property Damage*: substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
   c. *Upset*: an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

2. **Bypass Requirements.**
   a. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2. b. and 2. c. of this section.
   b. Notice.
      i. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
      ii. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Section B – Reporting Requirements, paragraph 5 (24-hour notice).
   c. Prohibition of bypass.
      i. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:
         1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
         2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
         3. The permittee submitted notices as required under paragraph 2. b. of this section.
      ii. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three (3) conditions listed above in paragraph 2. c. i. of this section.

3. **Upset Requirements.**
   a. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph 3. b. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
   b. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
      i. An upset occurred and that the permittee can identify the cause(s) of the upset;
      ii. The permitted facility was at the time being properly operated; and
      iii. The permittee submitted notice of the upset as required in Section B – Reporting Requirements, paragraph 2. b. ii. (24-hour notice).
      iv. The permittee complied with any remedial measures required under Section D – Administrative Requirements, paragraph 4.
   c. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

Section D – Administrative Requirements

1. **Duty to Comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Missouri Clean Water Law and Federal Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.
   a. The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
   b. The Federal Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed $25,000 per day for each violation. The Federal Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement

imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.

c. Any person may be assessed an administrative penalty by the EPA Director for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed $10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed $25,000. Penalties for Class II violations are not to exceed $10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed $125,000.

d. It is unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law, or any standard, rule or regulation promulgated by the commission. In the event the commission or the director determines that any provision of sections 644.006 to 644.141 of the Missouri Clean Water Law or standard, rules, limitations or regulations promulgated pursuant thereto, or permits issued by, or any final abatement order, other order, or determination made by the commission or the director, or any filing requirement pursuant to sections 644.006 to 644.141 of the Missouri Clean Water Law or any other provision which this state is required to enforce pursuant to any federal water pollution control act, is being, was, or is in imminent danger of being violated, the commission or director may cause to have instituted a civil action in any court of competent jurisdiction for the injunctive relief to prevent any such violation or further violation or for the assessment of a penalty not to exceed $10,000 per day for each day, or part thereof, the violation occurred and continues to occur, or both, as the court deems proper. Any person who willfully or negligently commits any violation in this paragraph shall, upon conviction, be punished by a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than one year, or both. Second and successive convictions for violation of the same provision of this paragraph by any person shall be punished by a fine of not more than $50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.

2. **Duty to Reapply.**
   a. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.
   b. A permittee with a currently effective site-specific permit shall submit an application for renewal at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Department. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
   c. A permittees with currently effective general permit shall submit an application for renewal at least 30 days before the existing permit expires, unless the permittee has been notified by the Department that an earlier application must be made. The Department may grant permission for a later submission date. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

3. **Need to Halt or Reduce Activity Not a Defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. **Duty to Mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

5. **Proper Operation and Maintenance**. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

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

7. **Permit Transfer.**
   a. Subject to 10 CSR 20-6.010, an operating permit may be transferred upon submission to the Department of an application to transfer signed by the existing owner and the new owner, unless prohibited by the terms of the permit. Until such time the permit is officially transferred, the original permittee remains responsible for complying with the terms and conditions of the existing permit.
   b. The Department may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Missouri Clean Water Law or the Federal Clean Water Act.
   c. The Department, within 30 days of receipt of the application, shall notify the new permittee of its intent to revoke or reissue or transfer the permit.

8. **Toxic Pollutants.** The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the Federal Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.

9. **Property Rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.

10. **Duty to Provide Information.** The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.

11. **Inspection and Entry.** The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:
    a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
    b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
    c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
    d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Federal Clean Water Act or Missouri Clean Water Law, any substances or parameters at any location.

12. **Closure of Treatment Facilities.**
    a. Persons who cease operation or plan to cease operation of waste, wastewater, and sludge handling and treatment facilities shall close the facilities in accordance with a closure plan approved by the Department.
    b. Operating Permits under 10 CSR 20-6.010 or under 10 CSR 20-6.015 are required until all waste, wastewater, and sludges have been disposed of in accordance with the closure plan approved by the Department and any disturbed areas have been properly stabilized. Disturbed areas will be considered stabilized when perennial vegetation, pavement, or structures using permanent materials cover all areas that have been disturbed. Vegetative cover, if used, shall be at least 70% plant density over 100% of the disturbed area.

13. **Signatory Requirement.**
    a. All permit applications, reports required by the permit, or information requested by the Department shall be signed and certified. (See 40 CFR 122.22 and 10 CSR 20-6.010)
    b. The Federal Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six (6) months per violation, or by both.
    c. The Missouri Clean Water Law provides that any person who knowingly makes any false statement, representation or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than ten thousand dollars, or by imprisonment for not more than six months, or by both.

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

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

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

1. Definitions

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

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

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

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

2. Identification of Industrial Discharges

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

3. Application Information

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

4. Notice to the Department

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

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

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

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

STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
August 1, 2019

PART III – BIOSOLIDS AND SLUDGE FROM DOMESTIC TREATMENT FACILITIES

SECTION A – GENERAL REQUIREMENTS

1. PART III Standard Conditions pertain to biosolids and sludge requirements under the Missouri Clean Water Law and regulations for domestic and municipal wastewater and also incorporates federal sludge disposal requirements under 40 CFR Part 503 for domestic wastewater. The Environmental Protection Agency (EPA) has principal authority for permitting and enforcement of the federal sludge regulations under 40 CFR Part 503 for domestic biosolids and sludge.
2. PART III Standard Conditions apply only to biosolids and sludge generated at domestic wastewater treatment facilities, including public owned treatment works (POTW) and privately owned facilities.
3. Biosolids and Sludge Use and Disposal Practices:
    a. The permittee is authorized to operate the biosolids and sludge generating, treatment, storage, use, and disposal facilities listed in the facility description of this permit.
    b. The permittee shall not exceed the design sludge/biosolids volume listed in the facility description and shall not use biosolids or sludge disposal methods that are not listed in the facility description, without prior approval of the permitting authority.
    c. For facilities operating under general operating permits that incorporate Standard Conditions PART III, the facility is authorized to operate the biosolids and sludge generating, treatment, storage, use and disposal facilities identified in the original operating permit application, subsequent renewal applications or subsequent written approval by the department.
4. Biosolids or Sludge Received from other Facilities:
    a. Permittees may accept domestic wastewater biosolids or sludge from other facilities as long as the permittee's design sludge capacity is not exceeded and the treatment facility performance is not impaired.
    b. The permittee shall obtain a signed statement from the biosolids or sludge generator or hauler that certifies the type and source of the sludge
5. Nothing in this permit precludes the initiation of legal action under local laws, except to the extent local laws are preempted by state law.
6. This permit does not preclude the enforcement of other applicable environmental regulations such as odor emissions under the Missouri Air Pollution Control Law and regulations.
7. This permit may (after due process) be modified, or alternatively revoked and reissued, to comply with any applicable biosolids or sludge disposal standard or limitation issued or approved under Section 405(d) of the Clean Water Act or under Chapter 644 RSMo.
8. In addition to Standard Conditions PART III, the Department may include biosolids and sludge limitations in the special conditions portion or other sections of a site specific permit.
9. Exceptions to Standard Conditions PART III may be authorized on a case-by-case basis by the Department, as follows:
    a. The Department may modify a site-specific permit following permit notice provisions as applicable under 10 CSR 20-6.020, 40 CFR § 124.10, and 40 CFR § 501.15(a)(2)(ix)(E).
    b. Exceptions cannot be granted where prohibited by the federal sludge regulations under 40 CFR Part 503.

SECTION B – DEFINITIONS

1. Best Management Practices are practices to prevent or reduce the pollution of waters of the state and include agronomic loading rates (nitrogen based), soil conservation practices, spill prevention and maintenance procedures and other site restrictions.
2. Biosolids means organic fertilizer or soil amendment produced by the treatment of domestic wastewater sludge.
3. Biosolids land application facility is a facility where biosolids are spread onto the land at agronomic rates for production of food, feed or fiber. The facility includes any structures necessary to store the biosolids until soil, weather, and crop conditions are favorable for land application.
4. Class A biosolids means a material that has met the Class A pathogen reduction requirements or equivalent treatment by a Process to Further Reduce Pathogens (PFRP) in accordance with 40 CFR Part 503.
5. Class B biosolids means a material that has met the Class B pathogen reduction requirements or equivalent treatment by a Process to Significantly Reduce Pathogens (PSRP) in accordance with 40 CFR Part 503.
6. Domestic wastewater means wastewater originating from the sanitary conveniences of residences, commercial buildings, factories and institutions; or co-mingled sanitary and industrial wastewater processed by a (POTW) or a privately owned facility.
7. Feed crops are crops produced primarily for consumption by animals.
8. Fiber crops are crops such as flax and cotton.
9. Food crops are crops consumed by humans which include, but is not limted to, fruits, vegetables and tobacco.
10. Industrial wastewater means any wastewater, also known as process wastewater, not defined as domestic wastewater. Per 40 CFR Part 122.2, process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product. Land application of industrial wastewater, residuals or sludge is not authorized by Standard Conditions PART III.
11. Mechanical treatment plants are wastewater treatment facilities that use mechanical devices to treat wastewater, including, sand filters, extended aeration, activated sludge, contact stabilization, trickling filters, rotating biological contact systems, and other similar facilities. It does not include wastewater treatment lagoons or constructed wetlands for wastewater treatment.
12. Plant Available Nitrogen (PAN) is nitrogen that will be available to plants during the growing seasons after biosolids application.
13. Public contact site is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.
14. Sludge is the solid, semisolid, or liquid residue removed during the treatment of wastewater. Sludge includes septage removed from septic tanks or equivalent facilities. Sludge does not include carbon coal byproducts (CCBs), sewage sludge incinerator ash, or grit/screenings generated during preliminary treatment of domestic sewage.
15. Sludge lagoon is part of a mechanical wastewater treatment facility. A sludge lagoon is an earthen or concrete lined basin that receives sludge that has been removed from a wastewater treatment facility. It does not include a wastewater treatment lagoon or sludge treatment units that are not a part of a mechanical wastewater treatment facility.
16. Septage is the sludge pumped from residential septic tanks, cesspools, portable toilets, Type III marine sanitation devices, or similar treatment works such as sludge holding structures from residential wastewater treatment facilities with design populations of less than 150 people. Septage does not include grease removed from grease traps at a restaurant or material removed from septic tanks and other similar treatment works that have received industrial wastewater. The standard for biosolids from septage is different from other sludges. See Section H for more information.

SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES

1. Biosolids or sludge shall be routinely removed from wastewater treatment facilities and handled according to the permit facility description and the requirements of Standard Conditions PART III or in accordance with Section A.3.c., above.
2. The permittee shall operate storage and treatment facilities, as defined by Section 644.016(23), RSMo, so that there is no biosolids or sludge discharged to waters of the state. Agricultural storm water discharges are exempt under the provisions of Section 644.059, RSMo.
3. Mechanical treatment plants shall have separate biosolids or sludge storage compartments in accordance with 10 CSR 20, Chapter 8. Failure to remove biosolids or sludge from these storage compartments on the required design schedule is a violation of this permit.

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

1. Permittees that use contract haulers, under the authority of their operating permit, to dispose of biosolids or sludge, are responsible for compliance with all the terms of this permit. Contract haulers that assume the responsibility of the final disposal of biosolids or sludge, including biosolids land application, must obtain a Missouri State Operating Permit unless the hauler transports the biosolids or sludge to another permitted treatment facility.
2. Testing of biosolids or sludge, other than total solids content, is not required if biosolids or sludge are hauled to a permitted wastewater treatment facility, unless it is required by the accepting facility.

SECTION E – INCINERATION OF SLUDGE

1. Please be aware that sludge incineration facilities may be subject to the requirements of 40 CFR Part 503 Subpart E, Missouri Air Conservation Commission regulations under 10 CSR 10, and solid waste management regulations under 10 CSR 80, as applicable.
2. Permittee may be authorized under the facility description of this permit to store incineration ash in lagoons or ash ponds. This permit does not authorize the disposal of incineration ash. Incineration ash shall be disposed in accordance with 10 CSR 80; or, if the ash is determined to be hazardous, with 10 CSR 25.
3. In addition to normal sludge monitoring, incineration facilities shall report the following as part of the annual report, mass of sludge incinerated and mass of ash generated. Permittee shall also provide the name of the ash disposal facility and permit number if applicable.

SECTION F – SURFACE DISPOSAL SITES AND BIOSOLIDS AND SLUDGE LAGOONS

1. Please be aware that surface disposal sites of biosolids or sludge from wastewater treatment facilities may be subject to other laws including the requirements in 40 CFR Part 503 Subpart C, Missouri Air Conservation Commission regulations under 10 CSR 10, and solid waste management regulations under 10 CSR 80, as applicable.
2. Biosolids or sludge storage lagoons are temporary facilities and are not required to obtain a permit as a solid waste management facility under 10 CSR 80. In order to maintain biosolids or sludge storage lagoons as storage facilities, accumulated biosolids or sludge must be removed routinely, but not less than once every two years unless an alternate schedule is approved in the permit. The amount of biosolids or sludge removed will be dependent on biosolids or sludge generation and accumulation in the facility. Enough biosolids or sludge must be removed to maintain adequate storage capacity in the facility.
    a. In order to avoid damage to the lagoon seal during cleaning, the permittee may leave a layer of biosolids or sludge on the bottom of the lagoon, upon prior approval of the Department; or
    b. Permittee shall close the lagoon in accordance with Section I.

SECTION G – LAND APPLICATION OF BIOSOLIDS

1. The permittee shall not land apply biosolids unless land application is authorized in the facility description, the special conditions of the issued NPDES permit, or in accordance with Section A.3.c., above.
2. This permit only authorizes "Class A" or "Class B" biosolids derived from domestic wastewater to be land applied onto grass land, crop land, timber, or other similar agricultural or silviculture lands at rates suitable for beneficial use as organic fertilizer and soil conditioner.
3. Class A Biosolids Requirements: Biosolids shall meet Class A requirements for application to public contact sites, residential lawns, home gardens or sold and/or given away in a bag or other container.
4. Class B biosolids that are land applied to agricultural and public contact sites shall comply with the following restrictions:
    a. Food crops that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of biosolids.
    b. Food crops below the surface of the land shall not be harvested for 20 months after application of biosolids when the biosolids remain on the land surface for four months or longer prior to incorporation into the soil.
    c. Food crops below the surface of the land shall not be harvested for 38 months after application of biosolids when the biosolids remain on the land surface for less than four months prior to incorporation into the soil.
    d. Animal grazing shall not be allowed for 30 days after application of biosolids.
    e. Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of biosolids.
    f. Turf shall not be harvested for one year after application of biosolids if used for lawns or high public contact sites in close proximity to populated areas such as city parks or golf courses.
    g. After Class B biosolids have been land applied to public contact sites with high potential for public exposure, as defined in 40 CFR § 503.31, such as city parks or golf courses, access must be restricted for 12 months.
    h. After Class B biosolids have been land applied public contact sites with low potential for public exposure as defined in 40 CFR § 503.31, such as a rural land application or reclamation sites, access must be restricted for 30 days.

5. Pollutant limits
    a. Biosolids shall be monitored to determine the quality for regulated pollutants listed in Table 1, below. Limits for any pollutants not listed below may be established in the permit.
    b. The number of samples taken is directly related to the amount of biosolids or sludge produced by the facility (See Section J, below). Samples should be taken only during land application periods. When necessary, it is permissible to mix biosolids with lower concentrations of biosolids as well as other suitable Department approved material to achieve pollutant concentration below those identified in Table 1, below.
    c. Table 1 gives the ceiling concentration for biosolids. Biosolids which exceed the concentrations in Table 1 may not be land applied.

TABLE 1

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

d. Table 2 below gives the low metal concentration for biosolids. Because of its higher quality, biosolids with pollutant concentrations below those listed in Table 2 can safely be applied to agricultural land, forest, public contact sites, lawns, home gardens or be given away without further analysis. Biosolids containing metals in concentrations above the low metals concentrations but below the ceiling concentration limits may be land applied but shall not exceed the annual loading rates in Table 3 and the cumulative loading rates in Table 4. The permittee is required to track polluntant loading onto application sites for parameters that have exceeded the low metal concentration limits.

TABLE 2

Biosolids Low Metal Concentration	
Pollutant	Milligrams per kilogram dry weight
Arsenic	41
Cadmium	39
Copper	1,500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2,800

e. Annual pollutant loading rate.

Table 3

Biosolids Annual Loading Rate	
Pollutant	Kg/ha (lbs./ac) per year
Arsenic	2.0 (1.79)
Cadmium	1.9 (1.70)
Copper	75 (66.94)
Lead	15 (13.39)
Mercury	0.85 (0.76)
Nickel	21 (18.74)
Selenium	5.0 (4.46)
Zinc	140 (124.96)

f. Cumulative pollutant loading rates.

Table 4

Biosolids Cumulative Pollutant Loading Rate	
Pollutant	Kg/ha (lbs./ac)
Arsenic	41 (37)
Cadmium	39 (35)
Copper	1500 (1339)
Lead	300 (268)
Mercury	17 (15)
Nickel	420 (375)
Selenium	100 (89)
Zinc	2800 (2499)

6. Best Management Practices. The permittee shall use the following best management practices during land application activities to prevent the discharge of biosolids to waters of the state.
   a. Biosolids shall not be applied to the land if it is likely to adversely affect a threatened or endangered species listed under § 4 of the Endangered Species Act or its designated critical habitat.
   b. Apply biosolids only at the agronomic rate of nitrogen needed (see 5.c. of this section).
   c. The applicator must document the Plant Available Nitrogen (PAN) loadings, available nitrogen in the soil, and crop

nitrogen removal when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kgTN; or 2) When biosolids are land applied at an application rate greater than two dry tons per acre per year.

i. PAN can be determined as follows:

(Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor[1]).

[1] Volatilization factor is 0.7 for surface application and 1 for subsurface application. Alternative volitalization factors and mineralization rates can be utilized on a case-by-case basis.

ii. Crop nutrient production/removal to be based on crop specific nitrogen needs and realistic yield goals. **NOTE:** There are a number of reference documents on the Missouri Department of Natural Resources website that are informative to implement best management practices in the proper management of biosolids, including crop specific nitrogen needs, realistic yields on a county by county basis and other supporting references.

iii. Biosolids that are applied at agronomic rates shall not cause the annual pollutant loading rates identified in Table 3 to be exceeded.

d. Buffer zones are as follows:

i. 300 feet of a water supply well, sinkhole, water supply reservoir or water supply intake in a stream;

ii. 300 feet of a losing stream, no discharge stream, stream stretches designated for whole body contact recreation, wild and scenic rivers, Ozark National Scenic Riverways or outstandingstate resource waters as listed in the Water Quality Standards, 10 CSR 20-7.031;

iii. 150 feet of dwellings or public use areas;

iv. 100 feet (35 feet if biosolids application is down-gradient or the buffer zone is entirely vegetated) of lake, pond, wetlands or gaining streams (perennial or intermittent);

v. 50 feet of a property line. Buffer distances from property lines may be waived with written permission from neighboring property owner.

vi. For the application of dry, cake or liquid biosolids that are subsurface injected, buffer zones identified in 5.d.i. through 5.d.iii above, may be reduced to 100 feet. The buffer zone may be reduced to 35 feet if the buffer zone is permanently vegetated. Subsurface injection does not include methods or technology reflective of combination surface/shallow soil incorporation.

e. Slope limitation for application sites are as follows:

i. For slopes less than or equal to 6 percent, no rate limitation;

ii. Applied to a slope 7 to 12 percent, the applicator may apply biosolids when soil conservation practices are used to meet the minimum erosion levels;

iii. Slopes > 12 percent, apply biosolids only when grass is vegetated and maintained with at least 80 percent ground cover at a rate of two dry tons per acre per year or less.

iv. Dry, cake or liquid biosolids that are subsurface injected, may be applied on slopes not to exceed 20 percent. Subsurface injection does not include the use of methods or technology reflective of combination surface/shallow soil incorporation.

f. No biosolids may be land applied in an area that it is reasonably certain that pollutants will be transported into waters of the state.

g. Biosolids may be land applied to sites with soil that are snow covered, frozen, or saturated with liquid when site restrictions or other controls are provided to prevent pollutants from being discharged to waters of the state during snowmelt or stormwater runoff. During inclement weather or unfavorable soil conditions use the following management practices:

i. A maximum field slope of 6% and a minimum 300 feet grass buffer between the application site and waters of the state. A 35 feet grass buffer may be utilized for the application of dry, cake or liquid biosolids that are subsurface injected. Subsurface injection does not include the use of mthods or technology refletive of combination surface/shallow soil incorporation;

ii. A maximum field slope of 2% and 100 feet grass buffer between the application site and waters of the state. A 35 feet grass buffer may be used for the application of dry, cake or liquid biosolids that are subsurface injected. Subsurface injection does not included the use of methods or technology refletive of combination surface/shallow soil incorporation;

iii. Other best management practices approved by the Department.

SECTION H – SEPTAGE

1. Haulers that land apply septage must obtain a state permit. An operating permit is not required for septage haulers who transport septage to another permitted treatment facility for disposal.
2. Do not apply more than 30,000 gallons of septage per acre per year or the volume otherwise stipulated in the operating permit.
3. Septic tanks are designed to retain sludge for one to three years which will allow for a larger reduction in pathogens and vectors, as compared to mechanical treatment facilities.
4. Septage must comply with Class B biosolids regarding pathogen and vector attraction reduction requirements before it may be applied to crops, pastures or timberland. To meet required pathogen and vector reduction requirements, mix 50 pounds of hydrated lime for every 1,000 gallons of septage and maintain a septage pH of at least 12 pH standard units for 30 minutes or more prior to application.
5. Lime is to be added to the pump truck and not directly to the septic tanks, as lime would harm the beneficial bacteria of the septic tank.
6. As residential septage contains relatively low levels of metals, the testing of metals in septage is not required.

SECTION I– CLOSURE REQUIREMENTS

1. This section applies to all wastewater facilities (mechanical and lagoons) and sludge or biosolids storage and treatment facilities. It does not apply to land application sites.
2. Permittees of a domestic wastewater facility who plan to cease operation must obtain Department approval of a closure plan which addresses proper removal and disposal of all sludges and/or biosolids. Permittee must maintain this permit until the facility is closed in accordance with the approved closure plan per 10 CSR 20 – 6. 010 and 10 CSR 20 – 6.015.
3. Biosolids or sludge that are left in place during closure of a lagoon or earthen structure or ash pond shall not exceed the agricultural loading rates as follows:
    a. Biosolids and sludge shall meet the monitoring and land application limits for agricultural rates as referenced in Section G, above.
    b. If a wastewater treatment lagoon has been in operation for 15 years or more without sludge removal, the sludge in the lagoon qualifies as a Class B biosolids with respect to pathogens due to anaerobic digestion, and testing for fecal coliform is not required. For other lagoons, testing for fecal coliform is required to show compliance with Class B biosolids limitations. In order to reach Class B biosolids requirements, fecal coliform must be less than 2,000,000 colony forming units or 2,000,000 most probable number. All fecal samples must be presented as geometric mean per gram.
    c. The allowable nitrogen loading that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. For a grass cover crop, the allowable PAN is 300 pounds/acre. Alternative, site-specific application rates may be included in the closure plan for department consideration.
        i. PAN can be determined as follows:
        (Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor[1]).
        [1] Volatilization factor is 0.7 for surface application and 1 for subsurface application. Alternative volitalization factors and mineralization rates can be utilized on a case-by-case basis
4. Domestic wastewater treatment lagoons with a design treatment capacity less than or equal to 150 persons, are "similar treatment works" under the definition of septage. Therefore the sludge within the lagoons may be treated as septage during closure activities. See Section B, above. Under the septage category, residuals may be left in place as follows:
    a. Testing for metals or fecal coliform is not required.
    b. If the wastewater treatment lagoon has been in use for less than 15 years, mix lime with the sludge at a rate of 50 pounds of hydrated lime per 1000 gallons (134 cubic feet) of sludge.
    c. The amount of sludge that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. 100 dry tons/acre of sludge may be left in the basin without testing for nitrogen. If 100 dry tons/acre or more will be left in the lagoon, test for nitrogen and determine the PAN using the calculation above. Allowable PAN loading is 300 pounds/acre.
5. Biosolids or sludge left within the domestic lagoon shall be mixed with soil on at least a 1 to 1 ratio, and unless otherwise approved, the lagoon berm shall be demolished, and the site shall be graded and contain ≥70% vegetative density over 100% of the site so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion. Alternative biosolids or sludge and soil mixing ratios may be included in the closure plan for department consideration.
6. Lagoon and earthen structure closure activities shall obtain a storm water permit for land disturbance activities that equal or exceed one acre in accordance with 10 CSR 20-6.200.
7. When closing a mechanical wastewater plant, all biosolids or sludge must be cleaned out and disposed of in accordance with the Department approved closure plan before the permit for the facility can be terminated.
    a. Land must be stabilized which includes any grading, alternate use or fate upon approval by the Department, remediation, or other work that exposes sediment to stormwater per 10 CSR 20-6.200. The site shall be graded and contain ≥70% vegetative density over 100% of the site, so as to avoid ponding of storm water and provide adequate

surface water drainage without creating erosion.

b. Hazardous Waste shall not be land applied or disposed during mechanical plant closures unless in accordance with Missouri Hazardous Waste Management Law and Regulations pursuant to 10 CSR 25.

c. After demolition of the mechanical plant, the site must only contain clean fill defined in Section 260.200.1(6) RSMo as uncontaminated soil, rock, sand, gravel, concrete, asphaltic concrete, cinderblocks, brick, minimal amounts of wood and metal, and inert solids as approved by rule or policy of the Department for fill, reclamation, or other beneficial use. Other solid wastes must be removed.

8. If biosolids or sludge from the domestic lagoon or mechanical treatment plant exceeds agricultural rates under Section G and/or I, a landfill permit or solid waste disposal permit must be obtained if the permittee chooses to seek authorization for on-site sludge disposal under the Missouri Solid Waste Management Law and regulations per 10 CSR 80, and the permittee must comply with the surface disposal requirements under 40 CFR Part 503, Subpart C.

SECTION J – MONITORING FREQUENCY

1. At a minimum, biosolids or sludge shall be tested for volume and percent total solids on a frequency that will accurately represent sludge quantities produced and disposed. Please see the table below.

TABLE 5

Biosolids or Sludge produced and disposed (Dry Tons per Year)	Monitoring Frequency (See Notes 1, and 2)		
	Metals, Pathogens and Vectors, Total Phosphorus, Total Potassium	Nitrogen TKN, Nitrogen PAN[1]	Priority Pollutants[2]
319 or less	1/year	1 per month	1/year
320 to 1650	4/year	1 per month	1/year
1651 to 16,500	6/year	1 per month	1/year
16,501+	12/year	1 per month	1/year

[1] Calculate plant available nitrogen (PAN) when either of the following occurs: 1) when biosolids are greater than 50,000 mg/kg TN; or 2) when biosolids are land applied at an application rate greater than two dry tons per acre per year.

[2] Priority pollutants (40 CFR 122.21, Appendix D, Tables II and III) are required only for permit holders that must have a pre-treatment program. Monitoring requirements may be modified and incorporated into the operating permit by the Department on a case-by-case basis.

Note 1: Total solids: A grab sample of sludge shall be tested one per day during land application periods for percent total solids. This data shall be used to calculate the dry tons of sludge applied per acre.
Note 2: Table 5 is not applicable for incineration and permit holders that landfill their sludge.

2. Permittees that operate wastewater treatment lagoons, peak flow equalization basins, combined sewer overflow basins or biosolids or sludge lagoons that are cleaned out once a year or less, may choose to sample only when the biosolids or sludge is removed or the lagoon is closed. Test one composite sample for each 319 dry tons of biosolids or sludge removed from the lagoon during the reporting year or during lagoon closure. Composite sample must represent various areas at one-foot depth.
3. Additional testing may be required in the special conditions or other sections of the permit.
4. Biosolids and sludge monitoring shall be conducted in accordance with federal regulation 40 CFR § 503.8, Sampling and analysis.

SECTION K – RECORD KEEPING AND REPORTING REQUIREMENTS

1. The permittee shall maintain records on file at the facility for at least five years for the items listed in Standard Conditions PART III and any additional items in the Special Conditions section of this permit. This shall include dates when the biosolids or sludge facility is checked for proper operation, records of maintenance and repairs and other relevant information.
2. Reporting period
   a. By February 19th of each year, applicable facilities shall submit an annual report for the previous calendar year period for all mechanical wastewater treatment facilities, sludge lagoons, and biosolids or sludge disposal facilities.
   b. Permittees with wastewater treatment lagoons shall submit the above annual report only when biosolids or sludge are removed from the lagoon during the report period or when the lagoon is closed.
3. Report Form. The annual report shall be prepared on report forms provided by the Department or equivalent forms approved by the Department.
4. Reports shall be submitted as follows:
   Major facilities, which are those serving 10,000 persons or more or with a design flow equal to or greater than 1 million gallons per day or that are required to have an approved pretreatment program, shall report to both the Department and EPA if the facility land applied, disposed of biosolids by surface disposal, or operated a sewage sludge incinerator. All other facilities shall maintain their biosolids or sludge records and keep them available to Department personnel upon request. State reports shall be submitted to the address listed as follows:

   DNR regional or other applicable office listed in the
   permit (see cover letter of permit)
   ATTN: Sludge Coordinator

Reports to EPA must be electronically submitted online via the Central Data Exchange at: https://cdx.epa.gov/ Additional information is available at: https://www.epa.gov/biosolids/compliance-and-annual-reporting-guidance-about-clean-water-act-laws

5. Annual report contents. The annual report shall include the following:
    a. Biosolids and sludge testing performed. If testing was conducted at a greater frequency than what is required by the permit, all test results must be included in the report.
    b. Biosolids or sludge quantity shall be reported as dry tons for the quantity produced and/or disposed.
    c. Gallons and % solids data used to calculate the dry ton amounts.
    d. Description of any unusual operating conditions.
    e. Final disposal method, dates, and location, and person responsible for hauling and disposal.
        i. This must include the name and address for the hauler and sludge facility. If hauled to a municipal wastewater treatment facility, sanitary landfill, or other approved treatment facility, give the name of that facility.
        ii. Include a description of the type of hauling equipment used and the capacity in tons, gallons, or cubic feet.
    f. Contract Hauler Activities:
    If using a contract hauler, provide a copy of a signed contract from the contractor. Permittee shall require the contractor to supply information required under this permit for which the contractor is responsible. The permittee shall submit a signed statement from the contractor that he has complied with the standards contained in this permit, unless the contract hauler has a separate biosolids or sludge use permit.
    g. Land Application Sites:
        i. Report the location of each application site, the annual and cumulative dry tons/acre for each site, and the landowners name and address. The location for each spreading site shall be given as a legal description for nearest ¼, ¼, Section, Township, Range, and county, or UTM coordinates. The facility shall report PAN when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kg TN; or 2) when biosolids are land applied at an application rate greater than two dry tons per acre per year.
        ii. If the "Low Metals" criteria are exceeded, report the annual and cumulative pollutant loading rates in pounds per acre for each applicable pollutant, and report the percent of cumulative pollutant loading which has been reached at each site.
        iii. Report the method used for compliance with pathogen and vector attraction requirements.
        iv. Report soil test results for pH and phosphorus. If no soil was tested during the year, report the last date when tested and the results.

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

MAR 23 2015 AP 20885

FORM B2 – APPLICATION FOR AN OPERATING PERMIT FOR FACILITIES THAT RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY

FOR AGENCY USE ONLY	
CHECK NUMBER	
DATE RECEIVED: 3/19/15	FEE SUBMITTED: 0

PART A – BASIC APPLICATION INFORMATION

1. THIS APPLICATION IS FOR:

- ☐ An operating permit for a new or unpermitted facility. Construction Permit # ____
  (Please include completed Antidegradation Review or request to conduct an Antidegradation Review, see instructions)
- ☑ An operating permit renewal: Permit #MO-97837 Expiration Date Sept-2015
- ☐ An operating permit modification: Permit #MO-____ Reason: ____

1.1 Is the appropriate fee included with the application (see instructions for appropriate fee)? N/A ☐ YES ☐ NO

2. FACILITY

NAME		TELEPHONE NUMBER WITH AREA CODE	
Columbia Regional Wastewater Treatment Facility		573-445-9427	
ADDRESS (PHYSICAL)	CITY	STATE	ZIP
4900 W. Gillespie Bridge Road	Columbia	MO	65203

2.1 LEGAL DESCRIPTION (Facility Site): ¼, NE ¼, SW ¼, Sec. 29 , T 48 , R 13 COUNTY: Boone

2.2 UTM Coordinates Easting (X): 551070 Northing (Y): 4308099
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

2.3 Name of receiving stream: Eagle Bluffs Conservation Area

2.4 Number of Outfalls: 1 wastewater outfalls, 4 stormwater outfalls, 2 instream monitoring sites

3. OWNER

NAME	E-MAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
City of Columbia	dasorrel@gocolumbiamo.com	(573) 445-9427	
ADDRESS	CITY	STATE	ZIP
P.O. Box 6015	Columbia	MO	65205

3.1	Request review of draft permit prior to Public Notice?	☑ YES	☐ NO
3.2	Are you a Publically Owned Treatment Works (POTW)?	☑ YES	☐ NO
3.3	Are you a Privately Owned Treatment Facility?	☐ YES	☑ NO
3.4	Are you a Privately Owned Treatment Facility regulated by the Public Service Commission (PSC)?	☐ YES	☑ NO

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

NAME	EMAIL ADDRESS	TELEPHONE WITH AREA CODE	
Same as owner			
ADDRESS	CITY	STATE	ZIP

If the Continuing Authority is different than the Owner, please include a copy of the contract agreement between the two parties and a description of the responsibilities of both parties within the agreement.

5. OPERATOR

NAME	TITLE	CERTIFICATE NUMBER (IF APPLICABLE)
Steve Huebotter	Plant Operator	1292
E-MAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
SGH@gocolumbiamo.com	(573) 445-9427	

6. FACILITY CONTACT

NAME	TITLE		
David Sorrell	Engineering Manager		
E-MAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE		
dasorrel@gocolumbiamo.com	(573) 445-9427		
ADDRESS	CITY	STATE	ZIP CODE
P.O. Box 6015	Columbia	MO	65205

Boone NEKO

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

FORM B2 – APPLICATION FOR OPERATING PERMIT FOR FACILITIES THAT RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY

FACILITY NAME	
Columbia Regional Wastewater Treatment Plant	
PERMIT NO.	COUNTY
MO-0097837	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.
   - iv. Is otherwise required by the permitting authority to provide the information.

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

Geosyntec consultants

2009 E. McCarty, Suite 1
Jefferson City, Missouri 65101
PH 573.443.4100
www.geosyntec.com

March 19, 2015

Mr. Brant Farris
Missouri Department of Natural Resources
Water Protection Division-Engineering Section
PO Box 176
Jefferson City, MO 65102

Tim Bull

Please assign to Brant in MOEWIS

Subject: NDPES Permit Renewal Application f
Wastewater Treatment Plant

Dear Mr. Farris:

On behalf of the City of Columbia Department of Pul
Form B-2 application for the NPDES permit ren
Wastewater Treatment Plant (CRWWTP, MO-0097
application for a CRWWTP permit modification fol
expansion. The expansion increased design avera
(MGD). In August of 2009, the Missouri Department of Natural Resources (MDNR) placed the draft operating permit for the plant expansion on public notice. After reviewing the permit modification application submittal, the MDNR Engineering Section requested that the modification application be combined with the renewal application submitted herein. Therefore, we anticipate that MDNR will use the August 2009 draft operating permit as the primary permit framework.

This application submittal letter contains several important requests (Table 1). In the remainder of this submittal letter, we have provided further details for each of these requests. Several of the requests are unique to the City of Columbia's use of treatment wetlands as well as the discharge of treated effluent to the Eagle Bluffs Conservation Area (Eagle Bluffs). We are available to provide any additional background information that you may need to better understand treatment and effluent discharge conditions as well as any background on the 2009 draft permit.

RECEIVED
MAR 19 2015

Table 1
List of Requests for CRWWTP NPDES Permit Renewal

No.	Aspect	Location	Request	Comments
1.	Instream monitoring requirements	2009 draft permit, pages 2, 6 and 13	Removal of in stream monitoring requirements	MDC has discontinued routine, non-flood discharges from Eagle Bluffs
2.	TSS limits	Page 8 of current permit, Note 1	Request alternative TSS limits during periods of heavy water fowl use at treatment wetlands	Current waterfowl TSS limits are exceeded during heavy waterfowl usage. New approach is provided
3.	Ammonia limits calculations	2009 draft permit, page 3	Apply default CV of 0.6 for ammonia limits derivation.	"Monitoring only" ammonia data was collected during plant startup and experimentation with nitrification process not sufficiently representative for CV
4.	Groundwater well pH limits	Current permit, pages 7 and 8	Request removal of groundwater pH limits	Limits may be typographical error or not included in Missouri Regulations
5.	Stormwater Outfalls	Current permit, page 7	Request removal of Outfalls 003 and 004, which no longer exist.	The one remaining stormwater outfall is not considered an NPDES outfall
6.	Sludge lagoon freeboard measurements	Current permit, page 5, Note 2 on page 7	Request removal of freeboard measurements	Sludge lagoon is not routinely used but remains available as auxiliary unit
7.	Chronic WET Testing Requirements	Potential special condition of renewed permit	Request removal of chronic WET test requirement	CRWTTP ammonia limits are based on acute criteria
8.	Groundwater well metals limits	Current permit, page 7	Remove groundwater well metals limits, where justified	Preliminary RPA provided

Request 1: Removal of Instream Monitoring Requirements

Effluent from the CRWWTP discharges into Eagle Bluffs which drains into the Missouri River through the Eagle Bluffs Slough (Attachment A). During the 2009 water quality/antidegradation review for the CRWWTP expansion, MDNR, the City, and the Missouri Department of Conservation (MDC) extensively discussed if and where ammonia and dissolved oxygen (DO)

limits should be applied for the expanded CRWWTP. At the time of these discussions, MDC frequently released water from Eagle Bluffs to the Missouri River to create shorebird habitat in Eagle Bluffs. MDNR concluded that 1) the chronic ammonia criterion was applicable at the confluence of the Eagle Bluffs Slough and Missouri River, and 2) the DO criterion was applicable in the Missouri River downstream from the Eagle Bluffs Slough confluence. In the 2009 draft operating permit for the plant expansion, MDNR inserted in-stream monitoring requirements for ammonia and DO at locations described above (labeled S-1 and S-2, respectively, in the draft permit).

There are several reasons why the City is requesting removal of the instream monitoring requirements. These reasons are described below.

a. In recent years, MDC has rarely discharged from Eagle Bluffs in the Missouri River.

   When the instream monitoring requirements were added to the 2009 draft permit, MDC frequently released water from Eagle Bluffs to the Slough (and thus, Missouri River) from the junction box and distribution channel (Attachment A) to create shorebird habitat in Eagle Bluffs. At that time, water was released from Eagle Bluffs for weeks and months at a time, especially during the spring and summer months. These frequent releases prompted the instream monitoring requirements in the 2009 draft permit to assess ammonia and DO in or near the Missouri River.

   In recent years, MDC has changed their water management strategy and releases from Eagle Bluffs into the Missouri River have been markedly curtailed. Since 2010, the City has deployed flow meters at Eagle Bluffs to measure water releases into the Missouri River. These flow measurements showed that non-flood water releases from Eagle Bluffs occurred during most of the spring and summer seasons of 2010 and 2011. However, beginning in 2012, non-flood water releases were markedly curtailed and in 2014, there were no water releases measured from Eagle Bluffs. MDC is committed to continuing this water management practice of restricted releases from Eagle Bluffs. This commitment is supported by the following section that describes the agreement between the City and MDC to restrict non-flood water releases from Eagle Bluffs into the Missouri River.

b. Future water releases from Eagle Bluffs will be infrequent and limited to acute exposure periods.

The City has recently established a written, cooperative agreement with MDC to restrict water releases from Eagle Bluffs for the foreseeable future. If, for unseen reasons, non-flood releases must occur from Eagle Bluffs, they will be less than 48 hours in duration which will maintain acute ammonia exposure conditions in the Missouri River.

c. Ammonia standards attainment in the Missouri River can now be assessed using the CRWWTP's effluent limits.

In the 2009 draft permit, ammonia effluent limits were derived using the acute criterion but considerations for attainment of ammonia criteria in the Missouri River were evaluated using the chronic criterion. Under the new Eagle Bluffs water management practice of restricted releases, attainment of acute ammonia criteria in the Missouri River can now be assessed based on the City's compliance with acute-based effluent limits. Therefore, the additional demonstration of chronic criteria attainment (the reason for the ammonia instream monitoring requirements) is no longer substantiated.

d. Instream monitoring sites are challenging to access and pose a safety threat.

To reach the monitoring sites, monitoring staff must hike approximately 1,000 feet through dense woods. Since non-flood discharges rarely occur and few, if any, are expected in the foreseeable future, the City and MDC do not see the practicality of building and maintaining an all-weather trail or road to the Missouri River. Also, a road or path to the River would be obvious to the public and may encourage unwanted public access to a remote site of the Missouri River or Eagle Bluffs.

With the time requirements for DO monitoring, the hike to the River would need to occur during limited daylight. The hike alone poses safety threats of trips, falls, snake bites, and tick/mosquito-borne illnesses.

Once arriving at the monitoring sites, the monitoring staff would need to scale down a steep river bank (with sampling equipment in tow) to make it to the River. Depending on the recent weather and River conditions, the bank could be muddy and very slippery. Falling into the Missouri River while sampling poses a serious and potentially fatal drowning risk.

Considering MDC's commitment to infrequently release water from Eagle Bluffs, monitoring activities would be conducted infrequently if the current instream monitoring

requirement remains. This infrequency creates added safety concerns that the sampling crew would not have the necessary experience working with the site to fully anticipate the safety threats.

e. The DO monitoring requirement in the Missouri River appears unwarranted.

As stated earlier, non-flood water releases from Eagle Bluffs will be infrequent. Any non-flood water released from Eagle Bluffs would be expected to readily disperse into the Missouri River without a threat to aquatic life due to low DO. Considering the expected infrequency of monitoring, as well as the effort, resources, and safety hazards involved in conducting the monitoring when it does occur, it appears that the DO monitoring requirement in the 2009 draft permit is now unwarranted.

f. The instream monitoring requirement language provided the opportunity to reassess the need for instream monitoring after one year.

The 2009 draft permits includes language that the instream monitoring requirement could be reassessed after one year and discontinued if justified. Flow data collected between 2012 and 2014 demonstrate that non-flood water releases from Eagle Bluffs have been infrequent, with no water releases in 2014. As evidenced by the absence of water releases in 2014, MDC is capable of never releasing water to the Eagle Bluffs Slough or Missouri River during an annual cycle. These data, combined with MDC's commitment to restrict water releases in the future, should provide sufficient justification that the instream monitoring requirements are no longer needed to evaluate water quality standards attainment in the Missouri River.

g. Instream monitoring poses operational challenges.

The existing instream monitoring requirements would need to occur outside of normal working hours (early morning), requiring deployment of a special crew. This deployment creates operational challenges to both anticipate and conduct the instream monitoring.

In summary, there is no longer an impetus for continuing the instream monitoring requirements in the 2009 draft permit because non-flood water releases are not anticipated. If non-flood releases do occur, MDC has agreed to restrict them to less than 48 hours in duration. Therefore, the City's ammonia effluent limits will reflect attainment of acute ammonia criteria in the Missouri River without the need for redundant monitoring in Eagle Bluffs. The instream monitoring requirements pose a very significant safety hazard as well as a scheduling and training burden. There are no identified threats to aquatic life in the Missouri River posed by

low DO conditions resulting from non-flood Eagle Bluffs water releases. Given MDNR's commitment to review the instream monitoring requirements after one year and the information presented in this letter, we request they be removed from the permit.

Request 2: Alternate Total Suspended Solids Limits during Heavy Waterfowl Use

Each winter, large numbers of migratory birds temporarily inhabit the City's treatment wetlands. The birds agitate solids from the wetlands sediments, causing high total suspended solids (TSS) in the CRWWTP effluent which discharges from the Unit 3 Treatment Wetlands. In the current NPDES permit, a waterfowl TSS allowance is given by increasing the Outfall 001 TSS limits to a weekly average of 100 mg/L and a monthly average of 70 mg/L during periods of heavy waterfowl usage. The heavy waterfowl use must be confirmed by MDC.

The waterfowl TSS limits do not allow CRWWTP to consistently attain TSS compliance during periods of heavy waterfowl usage. Since January 2010, Outfall 001 has exceeded the 70 mg/L TSS monthly average six times, with measurements ranging from 79 mg/L to 142 mg/L TSS. City staff (Dave Sorrell) has had preliminary discussions with MDNR (Chris Wieberg) about alternative approaches to regulating TSS during periods of heavy waterfowl usage. MDNR suggested that the City calculate a typical TSS removal rate through the treatment wetlands and develop a TSS removal multiplier. This multiplier could then be used to convert a TSS measurement from the secondary clarifiers to an estimated Outfall 001 TSS value for the discharge monitoring report.

The City has developed a TSS multiplier to convert secondary clarifier effluent to an estimated Outfall 001 TSS value. The multiplier (0.43) was calculated using 74 monthly average TSS removal rates (October 2006 to December 2014) through the treatment wetlands during the months where waterfowl usage did not increase TSS above typical effluent limits. The typical removal rate, based on the 75th percentile of the treatment wetlands TSS removal calculations, was 0.57 (57%). The TSS multiplier was then determined to be the remaining fraction of TSS that would not be removed through the treatment wetlands, which is 0.43 (43%). This approach is reflected in the revised NPDES permit TSS language as follows:

Page 8, Note 1- Total Suspended Solids (TSS) may be exceeded periodically due to heavy use by waterfowl. During these periods, an alternative TSS value shall be used for the reported Outfall 001 TSS measurement. ~~The~~ The alternative effluent ~~limits for~~ TSS value reported during these periods shall be the plant effluent TSS measurement multiplied by 0.43, which is 1.0 minus ~~the~~ the calculated typical TSS percent removal fraction of the City's treatment wetlands. The calculated typical TSS percent removal fraction of the City's treatment wetlands is 0.57 (57%)~~. a weekly average of 100 mg/L and monthly average of 70 mg/L.~~ The multiplier of 0.43 shall be used for both average monthly and average weekly TSS determinations. Each instance of heavy waterfowl usage shall be documented by the City and confirmed by the Missouri Department of Conservation.

Request 3: Default Coefficient of Variation for Ammonia Effluent Limits

The City requests that the default coefficient of variation (CV) of 0.6 continue to be used to derive ammonia limits for the renewed permit. A CV of 0.6 would maintain a 6.0 mg/L average monthly ammonia limit in the renewed permit, which is consistent with the draft 2009 permit. The "monitoring only" ammonia data collected to date by the City includes data that was collected during startup and experimentation of the CRWWTP nitrification processes. If needed, the City can provide additional data review to further substantiate this request. The City requests that the permit writer contact the City in advance of developing draft permit limits if a CV other than the default CV is being considered by the Department.

Request 4: Removal of pH limits for On-site Sludge Application and Wetlands Cells Area

The current and draft 2009 CRWWTP permits include pH limits for both the On-site Sludge Land Application and Wetlands Cells Area groundwater wells. The pH is limited to a range of 6.0 to 9.0. In the monitoring wells, pH measurements are often measured on the lower side of this range, and are occasionally measured slightly below 6.0 which results in non-compliance with the permit limit. The lower pH measurements are attributed to natural groundwater conditions, which the City cannot control. No land application activity has occurred on the area since the 1990's.

The City requests that MDNR reassess the regulatory basis for pH limits for all groundwater wells and change the pH limits to "monitoring only" requirements. Also, please note that all parameters for the Wetland Cells Area Wells are already "monitoring only", except for pH (page 8 of current permit). We expect that these pH limits may have been mistakenly carried over from a previous table used for effluent limits.

Request 5: Removal of Stormwater Outfalls 003 and 004

The City has redirected stormwater flows in the treatment plant process area and has removed the two previous NPDES outfalls (Outfall 003 and 004). Stormwater from these areas is now collected in an on-site basin and treated through the wastewater treatment plant. Therefore, the Form B-2 that accompanies this submittal does not include forms for process area stormwater outfalls. There is one remaining stormwater outfall on the northeast corner of the plant property (shown in Attachment A, Map 5 of the Form B-2 application). This outfall is located beyond the plant fence line and drains a parking lot and a grassy area. With no plant process activities occurring in this outfall drainage area, we conclude that the outfall should not be considered an NPDES outfall. The outfall is included in the CRWWTP stormwater pollution prevention plan (SWPPP) for routine visual inspection, but is not considered applicable for NPDES monitoring. Please let us know if additional information is needed on this item.

Request 6: Omitting chronic WET test requirement in renewed permit

We understand that MDNR is now broadly including chronic WET testing, once per permit cycle, for municipal wastewater treatment plant permits. Please recognize that the ammonia effluent limits for the CRWWTP are based on acute rather than chronic criteria. Chronic WET testing might trigger unnecessary regulatory action. Therefore, we request the chronic WET test be omitted in the CRWWTP permit renewal.

Request 7: Removing sludge lagoon freeboard measurement requirement from Table A., Effluent Limitations and Monitoring Requirements for Outfall 001

Due to sludge processing improvements from the recent CRWWTP upgrade, the plant sludge lagoon is now operated as an auxiliary unit. The lagoon is being emptied over time and will remain empty during normal operating conditions. Therefore, the requirement to monitoring lagoon freeboard is no longer applicable. We request that the requirement to measure lagoon freeboard in Table A., Effluent Limitations and Monitoring Requirements for Outfall 001 be removed.

Request 8: Information from Preliminary Reasonable Potential Analysis on Groundwater Testing

We recognize that MDNR typically assesses "reasonable potential to exceed" for permitted parameters with numeric effluent limits. Geosyntec conducted a preliminary reasonable potential analysis (RPA) for groundwater wells at the sludge application area and found that several parameters did not show reasonable potential to exceed criteria, based on the data evaluated (Attachment B of this letter). We wanted to provide our preliminary findings for your information.

Lastly we wanted to confirm discussions with the MDNR Engineering Section that the $200 permit modification fee check submitted by the City in January 2015 was to be applied as a credit to the City's annual NDPES permit fee payment. Please let us know if there have been any changes you are aware of on the $200 credit.

Brant, thank you for processing the permit renewal application and please contact me with any additional information you may need. I can be reached at 573-499-5451, twallace@gesoyntec.com.

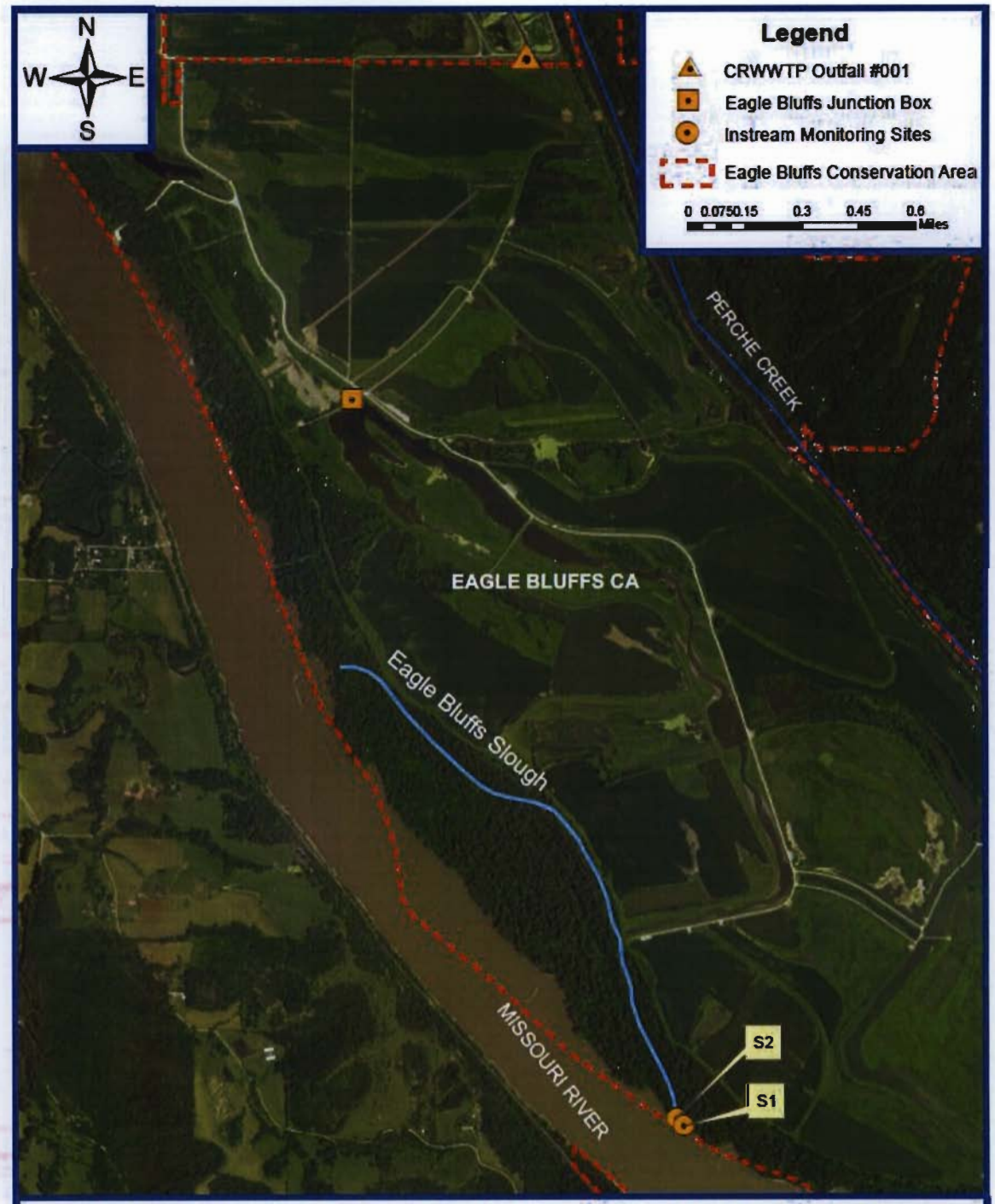
Sincerely,

Tom Wallace
Senior Consultant

Copies to: David Sorrell, PE - City of Columbia

Attachment A

Aerial Photo of Eagle Bluffs Conservation Area



Attachment A: City of Columbia Regional Wastewater Treatment Plant Instream Montiroing Sites

Attachment B

Preliminary Reasonable Potential Analysis Table

Reasonable Potential Threshold Values For Groundwater Monitoring Wells in Sludge Application Area

Parameter	Units	Sludge App Area GW wells				Metals Translator[4]		Sample Count	RPA Multiplier	Max GW Concentration	Reasonable Potential?	Comment
		Use	Criteria[1]	Draft Permit Limit[2]	Sample Max Concentration[3]	Chronic	Acute					
Total Suspended Solids	mg/L	--	--	*	19			59	--	--		
Total Dissolved Solids	mg/L	--	--	*	942			59	--	--		
Nitrate Nitrogen as N	mg/L	GRW	10	10	9			59	2.3	21.2	Yes	No Violations
Ammonia Nitrogen as N	mg/L	AQL	6.1	*	1			59	1.7	2.5	No	
pH	SU		--	*	7			59	--	--		
Aluminum, Total Recoverable	µg/L	AQL (acute)	750	*	18,080			9	3.2	57856.0	Yes	Monitoring Only
Antimony, Total Recoverable	µg/L	GRW	6	--		1	--		3.2	0.0	No	
Arsenic, Total Recoverable	µg/L	GRW	50	50	45	1	1	9	3.2	143.1	Yes	No Violations
Beryllium, Total Recoverable	µg/L	GRW	4	--		1	--		3.2	0.0	No	
Cadmium, Total Recoverable	µg/L	GRW	5	5	1	1	1	9	3.2	3.6	No	All Non-detect
Chromium III, Total Recoverable	µg/L	GRW	100	--	33	1	0		3.2	89.9	No	
Chromium VI, Dissolved	µg/L	AQL	10	--		1	1		3.2	0.0	No	
Copper, Total Recoverable	µg/L	GRW	1300	1000	42	1	1	9	3.2	129.9	No	
Cyanide, Total Recoverable	µg/L	AQL		50	3			9	3.2	8.0	No	RPA uses limit
Iron, Total Recoverable	µg/L	GRW	300	--		1	--		3.2	0.0	No	
Lead, Total Recoverable	µg/L	GRW	15	15	11	1	1	9	3.2	26.5	Yes	No Violations
Mercury, Total Recoverable	µg/L	GRW	2	2	0	1	1	9	3.2	0.3	No	All Non-detect
Manganese, Total Recoverale	ug/L	GRW	50	*	2,032			9	3.2	6502.4	Yes	Monitoring Only
Molybdenum, Total Recoverable	ug/L	--	--	*	1			9	3.2	--		All Non-detect
Nickel, Total Recoverable	µg/L	GRW	100	100	80	1	1	9	3.2	255.4	Yes	No Violations
Selenium, Total Recoverable	µg/L	GRW	50	10	3			9	3.2	9.7	No	
Silver, Total Recoverable	µg/L	GRW	50	50	1.3	1	0.850	9	3.2	3.6	No	All Non-detect
Thallium, Total Recoverable	µg/L	GRW	2	--		1	--		3.2	0.0	No	
Zinc, Total Recoverable	µg/L	GRW	5000	5000	25	0.980	0.980	9	3.2	80	No	

[1] Criteria are expressed as dissolved concentrations. Where no criteria are available for "GRW", AQL, DWS, IRR or LWW were applied. Except GRW, criteria are chronic unless otherwise noted.

[2] * denotes "Monitoring Only"

[3] Sample maximum concentration is the maximum value from all three GW monitoring well data. Where all data were non-detect half of the detection limit was used for analysis.

[4] Default metals translator values where available.

[6] Maximum groundwater concentration is the product of the maximum sample concentration*the RPA Multiplier*metals translater (if applicable).

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Colunbia Regional WWTP	MO- MO-0097837	001

PART A – BASIC APPLICATION INFORMATION

7. FACILITY INFORMATION

7.1 Process Flow Diagram or Schematic. Provide a diagram showing the processes of the treatment plant. Show all of the treatment units, including disinfection (e.g. – Chlorination and Dechlorination), influents, and outfalls. Indicate any treatment process changes in the routing of wastewater during dry weather and peak wet weather. Include a brief narrative description of the diagram. Attach sheets as necessary.

Flow diagrams for liquid and solid processes are attached to this application.

Narrative Description of the Treatment

The Columbia Regional Wastewater Treatment Plant consists of a raw wastewater pumping station, two mechanical bar screens, a grit removal facility, flow distribution structure, four primary basins, four aeration basins, four final clarifiers, a blower facility, two peak flow clarifiers, four constructed wetland treatment units, a peak flow holding lagoon, two gravity thickeners, two thickening centrifuges, three primary anaerobic digesters, a secondary anaerobic digester, sludge holding lagoon, two dewatering centrifuges, a biosolids cake storage pad, a sludge holding tank and pump station and land application fields (no longer in use). The treated effluent is discharged to the Eagle Bluffs Conservation area. Attached are two process schematics which graphically depict the process, one for the liquid process and one for solids process.

Wastewater flows to the plant via three main interceptor sewers, the 36 inch Meredith Branch interceptor, the 72 inch Lower Perche Creek interceptor and the 60 inch Lower Hinkson Creek interceptor. These sewers tie together and a single 72 inch sewer conveys the waste water to the raw wastewater pumping station. Preliminary treatment begins at this facility with the flow passing through one of two mechanically cleaned bar screens. The pump station houses six 9,700 gpm vertical non-clog centrifugal pumps with variable frequency drive which pump the screened wastewater to the grit removal facility or to the peak flow clarifiers. Once the wastewater has been processed through the grit removal facility, the flow distribution structure divides the flow between the four process trains for primary and secondary treatment. Treatment Trains 1 and 2 are designed to remove BOD and TSS. Treatment Trains 3 and 4 are designed to remove BOD, TSS and provide nitrification and denitrification to remove ammonia and nitrates. Diffused air is supplied to the aeration basins in each train from aeration blowers located in the blower facility. Flow in excess of what these four trains can effectively treat is diverted to the peak flow clarifiers.

The effluent from the four treatment trains and the peak flow clarifiers is sent to the diversion structure and then discharged to the wetland treatment units. The four wetland treatment units have a total effective treatment area of 130 acres. The units provide additional secondary treatment and reduce the BOD, TSS and fecal coliform levels in the mechanical plant effluent. The effluent from the wetlands is discharged to the Eagle Bluffs Conservation Area via the wetlands pump station.

Primary sludge from trains 1 through 4 is pumped directly from the primary clarifiers to the primary digesters. Primary sludge from the peak flow clarifiers is pumped directly to the gravity thickeners where it is either directed back to the head of the plant or thickened and pumped to the primary digesters. Waste activated sludge is pumped from the secondary clarifiers to the thickening centrifuges and then to the primary digesters. The sludge from the primary digesters is transferred to the secondary digester and is then either stored in the sludge storage lagoon or pumped to the dewatering centrifuges and the cake stored on a storage pad and then land applied or landfilled.

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Colunbia Regional WWTP	MO- MO-0097837	001

PART A – BASIC APPLICATION INFORMATION

7. FACILITY INFORMATION (continued)

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.

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 (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 Facility SIC Code:	Discharge SIC Code:
4952 .	4952 .

7.4 Number of people presently connected or population equivalent (P.E.): 154,000 PE Design P.E. 252,000

7.5 Connections to the facility: 42,354 residential connections and 4,314 non-residential connections.

Number of units presently connected:

Homes _____ Trailers _____ Apartments _____ Other (including industrial) _____

Number of Commercial Establishments: _____

7.6 Design Flow	Actual Flow
25.2 MGD	15.4 MGD

7.7 Will discharge be continuous through the year? Yes ■ No ☐

Discharge will occur during the following months: How many days of the week will discharge occur?

7.8 Is industrial waste discharged to the facility? Yes ■ No ☐

If yes, please describe the number and types of industries that discharge to your facility.

Three categorical industrial users and two non-categorical SIU's.

Refer to the APPLICATION OVERVIEW to determine whether additional information is needed for Part F.

7.9 Does the facility accept or process leachate from landfills?: Yes ■ No ☐

7.10 Is wastewater land applied? Yes ☐ No ■

If yes, is Form I attached? Yes ☐ No ☐

7.11 Does the facility discharge to a losing stream or sinkhole? Yes ☐ No ■

7.12 Has a wasteload allocation study been completed for this facility? Yes ☐ No ■

8. LABORATORY CONTROL INFORMATION

LABORATORY WORK CONDUCTED BY PLANT PERSONNEL

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

FACILITY NAME	PERMIT NO.	OUTFALL NO.
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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 1,937

9.3 Sludge storage provided: _____ Cubic feet; _____ Days of storage; _____ Average percent solids of sludge;

☐ No sludge storage is provided. ☐

Information for 9.3 and 9.4 provided in Appendix C.

9.4 Type of storage:

☐ [illegible] ☐ [illegible]
☐ Basin ☐ Lagoon
☐ Concrete Pad ☐ Other (Please describe) _____

9.5 Sludge Treatment:

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

9.6 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) _____

9.7 Person responsible for hauling sludge to disposal facility:

✓ By Applicant | By Others (complete below)

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

9.8 Sludge use or disposal facility:

■ By Applicant ☐ By Others (Please complete below)

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

9.9 Does the sludge or biosolids disposal comply with Federal Sludge Regulation 40 CFR 503?

☑ Yes ☐ No (Please explain)

END OF PART A

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Colunbia Regional WWTP	MO- MO-0097837	001

PART B – ADDITIONAL APPLICATION INFORMATION

10. COLLECTION SYSTEM

10.1 Length of sanitary sewer collection system in miles
697

10.2 Does significant infiltration occur in the collection system? ☑ Yes ☐ No
If yes, briefly explain any steps underway or planned to minimize inflow and infiltration:

The City initiated a system wide inflow and infiltration reduction program in 2010. Columbia voters passed a $33.5 million bond issue in November 2013. $25 million of the $33.5 million will be used to fund annual projects over the next five years in order to reduce the inflow and infiltration that enters the City's wastewater collection system.

11. BYPASSING

Does any bypassing occur anywhere in the collection system or at the treatment facility? Yes ☑ No ☐
If yes, explain:

The City's wastewater collection system experiences sanitary sewer overflows during wet weather events. The City has an ongoing system wide inflow and infiltration reduction program in order to reduce wet weather sanitary sewer overflows. See section 10.2 for more details.

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

NAME	
MAILING ADDRESS	
TELEPHONE NUMBER WITH AREA CODE	EMAIL ADDRESS
RESPONSIBILITIES OF CONTRACTOR	

13. 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.

No planned improvements that affect design capacity.

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Columbia Regional WWTP	MO- MO-0097837	001

PART B – ADDITIONAL APPLICATION INFORMATION

14. EFFLUENT TESTING DATA

Applicants 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. At a minimum, effluent testing data must be based on at least **three samples** and must be no more than four and one-half years apart.

Outfall Number

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	6.5	S.U.	7.7	S.U.	1117
pH (Maximum)	8.7	S.U.	7.7	S.U.	1117
Flow Rate	39.6	MGD	13.5	MGD	1627

*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	Number of Samples		
Conventional and Nonconventional Compounds								
BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD_5	50.5	mg/L	11.2	mg/L	1103	SM 5210 B-1997	2.0 mg/L
	$CBOD_5$	74.6	mg/L	5.6	mg/L	1107	SM 5210 B-1997	2.0 mg/L
E. COLI		*	#/100 mL	*	#/100 mL	*	*	*
TOTAL SUSPENDED SOLIDS (TSS)		344.0	mg/L	29.2	mg/L	1116	SM 2540 D-1997	1.0 mg/L
AMMONIA (as N)		34.0	mg/L	9.2	mg/L	46	SM 4500 NH3 F 1	0.1 mg/L
CHLORINE* (TOTAL RESIDUAL, TRC)		*	mg/L	*	mg/L	*	*	*
DISSOLVED OXYGEN		**	mg/L	**	mg/L	**	**	**
OIL and GREASE		3.2	mg/L	2.7	mg/L	52	EPA 1664A 1999	5.0 mg/L
OTHER			mg/L		mg/L			

*Report only if facility chlorinates

END OF PART B

*Facility is not required to disinfect.

** Dissolved oxygen monitoring not required.

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Columbia Regional WWTP	MO- MO-0097837	001

PART C – CERTIFICATION

15. 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	OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL)
John Glascock, PE	Director of Public Works

SIGNATURE: John Glascock

TELEPHONE NUMBER WITH AREA CODE: (573) 874-7250

DATE SIGNED: March 17, 2015

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.

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 PARTS OF FORM B2 YOU MUST COMPLETE.

Do not complete the remainder of this application, unless at least one of the following statements applies to your facility:

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.

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Columbia Regional Wastewater Treatment	MO- MO-0097837	001

PART D – EXPANDED EFFLUENT TESTING DATA

16. EXPANDED EFFLUENT TESTING DATA

Refer to the APPLICATION OVERVIEW to determine whether Part D applies to the treatment works.

If the treatment works has a design flow greater than or equal to 1 million gallons per day or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information **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. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. 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. Indicate in the blank rows provided below any data you may have on pollutants not specifically listed in this form. At a minimum, effluent testing data must be based on at least **three pollutant scans** and must be no more than four and one-half years apart.

Outfall Number (Complete Once for Each Outfall Discharging Effluent to Waters of the State.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS AND HARDNESS											
ANTIMONY	5.00	µg/L	1.0	lb/day	3.51	µg/L	0.71	lb/day	3	EPA 200.8 R5.4	****
ARSENIC	8.83	µg/L	1.87	lb/day	2.84	µg/L	0.44	lb/day	52	EPA 200.7 4.4 1994	2.5 µg/L
BERYLLIUM	0.50	µg/L	0.11	lb/day	0.35	µg/L	0.10	lb/day	3	EPA 200.8 R5.5	****
CADMIUM	1.25	µg/L	0.28	lb/day	0.33	µg/L	0.07	lb/day	52	EPA 200.7 4.4 1994	0.5 µg/L
CHROMIUM III	12.12	µg/L	1.35	lb/day	2.10	µg/L	0.36	lb/day	52	EPA 200.7 4.4 1994	2.5 µg/L
CHROMIUM VI	2.50	µg/L	1.28	lb/day	2.50	µg/L	0.48	lb/day	53	SM 3500 Cr D 18th ED 1990	5 µg/L
COPPER	37.73	µg/L	9.13	lb/day	7.17	µg/L	1.39	lb/day	52	EPA 200.7 4.4 1994	10 µg/L
LEAD	5.67	µg/L	0.71	lb/day	1.56	µg/L	0.31	lb/day	52	EPA 200.7 4.4 1994	2.5 µg/L
MERCURY	0.29	µg/L	0.05	lb/day	0.11	µg/L	0.02	lb/day	53	EPA 245.1 3 1994	0.02 µg/L
NICKEL	10	µg/L	5.11	lb/day	10	µg/L	2.33	lb/day	52	EPA 200.7 4.4 1994	20 µg/L
SELENIUM	8.02	µg/L	1.54	lb/day	1.79	µg/L	0.34	lb/day	52	EPA 200.7 4.4 1994	10 µg/L
SILVER	1.25	µg/L	0.64	lb/day	1.25	µg/L	0.29	lb/day	52	EPA 200.7 4.4 1994	2.5 µg/L
THALLIUM	10	µg/L	2	lb/day	6.68	µg/L	1.38	lb/day	3	EPA 200.8 R5.6	****
ZINC	109.20	µg/L	11.81	lb/day	13.34	µg/L	2.61	lb/day	52	EPA 200.7 4.4 1994	20 µg/L
CYANIDE	5.0	µg/L	2.55	lb/day	1.28	µg/L	0.55	lb/day	48	SM 4500-CN- G 18th ED 1990	5 µg/L
TOTAL PHENOLIC COMPOUNDS	***5.0	µg/L	0.676	lb/day	5.0	µg/L	0.533	lb/day	3	EPA 625	10 µg/L
HARDNESS (as $CaCO_3$)	304.00	mg/L	57.61	lb/day	240.57	mg/L	27.95	lb/day	49	SM 2340 B 18th ED 1990	4 mg/L
VOLATILE ORGANIC COMPOUNDS											
ACROLEIN	25.0	µg/L	2.315	lb/day	16.667	µg/L	1.719	lb/day	3	EPA 608	****
ACRYLONITRILE	12.5	µg/L	1.155	lb/day	7.5	µg/L	0.764	lb/day	3	EPA 624	****
BENZENE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
BROMOFORM	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
CARBON TETRACHLORIDE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
CHLOROBENZENE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L

***Calculated value, sum of all acid-extractable phenolic compounds measured with EPA 625. All individual values were below detection limits.

****Varied by sampling date. With the exception of antimony (5/19/14, 0.54 ug/L), all results below respective detection limit.

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Columbia Regional Wastewater Treatment Plant	MO- MO-0097837	001

PART D – EXPANDED EFFLUENT TESTING DATA

16. EXPANDED EFFLUENT TESTING DATA

Complete Once for Each Outfall Discharging Effluent to Waters of the State

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
CHLORODIBROMO-METHANE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
CHLOROETHANE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 624	10.0 µg/L
2-CHLORO-ETHYLVINYL ETHER	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
CHLOROFORM	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
DICHLOROBROMO-METHANE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
1,1-DICHLORO-ETHANE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
1,2-DICHLORO-ETHANE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
TRANS-1,2-DICHLOROETHYLENE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
1,1-DICHLORO-ETHYLENE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
1,2-DICHLORO-PROPANE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
1,3-DICHLORO-PROPYLENE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
ETHYLBENZENE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
METHYL BROMIDE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 624	10.0 µg/L
METHYL CHLORIDE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 624	10.0 µg/L
METHYLENE CHLORIDE	11.0	µg/L	1.486	lb/day	5.33	µg/L	0.649	lb/day	3	EPA 624	5.0 µg/L
1,1,2,2-TETRA-CHLOROETHANE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
TETRACHLORO-ETHANE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
TOLUENE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
1,1,1-TRICHLORO-ETHANE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
1,1,2-TRICHLORO-ETHANE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
TRICHLORETHYLENE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
VINYL CHLORIDE	<5	µg/L	0.338	lb/day	<5	µg/L	0.267	lb/day	3	EPA 624	5.0 µg/L
ACID-EXTRACTABLE COMPOUNDS											
P-CHLORO-M-CRESOL	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
2-CHLOROPHENOL	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
2,4-DICHLOROPHENOL	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
2,4-DIMETHYLPHENOL	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
4,6-DINITRO-O-CRESOL	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
2,4-DINITROPHENOL	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
2-NITROPHENOL	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
4-NITROPHENOL	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Columbia Regional Wastewater Treatment Plant	MO- MO-0097837	001

PART D – EXPANDED EFFLUENT TESTING DATA

16. EXPANDED EFFLUENT TESTING DATA

Complete Once for Each Outfall Discharging Effluent to Waters of the State.

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
PENTACHLOROPHENOL	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
PHENOL	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
2,4,6-TRICHLOROPHENOL	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
BASE-NEUTRAL COMPOUNDS											
ACENAPHTHENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
ACENAPHTHYLENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
ANTHRACENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
BENZIDINE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
BENZO(A)ANTHRACENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
BENZO(A)PYRENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
3,4-BENZO-FLUORANTHENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
BENZO(GH) PHERYLENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
BENZO(K) FLUORANTHENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
BIS (2-CHLOROTHOXY) METHANE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
BIS (2-CHLOROETHYL) – ETHER	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
BIS (2-CHLOROISO-PROPYL) ETHER	<10	µg/L	0.676	lb/day	<10	µg/L	0.569	lb/day	2	EPA 625	10.0 µg/L
BIS (2-ETHYLHEXYL) PHTHALATE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
4-BROMOPHENYL PHENYL ETHER	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
BUTYL BENZYL PHTHALATE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
2-CHLORONAPH-THALENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
4-CHLORPHENYL PHENYL ETHER	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
CHRYSENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
DI-N-BUTYL PHTHALATE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
DI-N-OCTYL PHTHALATE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
DIBENZO (A,H) ANTHRACENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
1,2-DICHLORO-BENZENE	<5	µg/L	0.337	lb/day	<5	µg/L	0.267	lb/day	3	EPA 625	5.0 µg/L
1,3-DICHLORO-BENZENE	<5	µg/L	0.337	lb/day	<5	µg/L	0.267	lb/day	3	EPA 625	5.0 µg/L
1,4-DICHLORO-BENZENE	<5	µg/L	0.337	lb/day	<5	µg/L	0.267	lb/day	3	EPA 625	5.0 µg/L
3,3-DICHLORO-BENZIDINE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
DIETHYL PHTHALATE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
DIMETHYL PHTHALATE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Columbia Regional Wastewater Treatment Plant	MO- MO-0097837	001

PART D – EXPANDED EFFLUENT TESTING DATA

16. EXPANDED EFFLUENT TESTING DATA

Complete Once for Each Outfall Discharging Effluent to Waters of the State.

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
2,4-DINITRO-TOLUENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
2,6-DINITRO-TOLUENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
1,2-DIPHENYL-HYDRAZINE	<10	µg/L	0.676	lb/day	<10	µg/L	0.569	lb/day	2	EPA 625	10.0 µg/L
FLUORANTHENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
FLUORENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
HEXACHLOROBENZENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
HEXACHLOROBUTADIENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
HEXACHLOROCYCLO-PENTADIENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
HEXACHLOROETHANE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
INDENO (1,2,3-CD) PYRENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
ISOPHORONE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
NAPHTHALENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
NITROBENZENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
N-NITROSODI-PROPYLAMINE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
N-NITROSODI-METHYLAMINE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
N-NITROSODI-PHENYLAMINE	<10	µg/L	.676	lb/day	<10	µg/L	0.533	lb/day	2	EPA 625	10.0 µg/L
PHENANTHRENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
PYRENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L
1,2,4-TRICHLOROBENZENE	<10	µg/L	0.676	lb/day	<10	µg/L	0.533	lb/day	3	EPA 625	10.0 µg/L

Use this space (or a separate sheet) to provide information on other pollutants not specifically listed in this form.

END OF PART D

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL		
FACILITY NAME Columbia Regional Wastewater Treatment Plant	PERMIT NO. MO- MO-0097837	OUTFALL NO. 001

PART E – TOXICITY TESTING DATA

17. TOXICITY TESTING DATA

Refer to the APPLICATION OVERVIEW to determine whether Part E applies to the treatment works.

Publicly owned treatment works, or POTWs, meeting one or more of the following criteria must provide the results of whole effluent toxicity tests for acute or chronic toxicity for each of the facility's discharge points.

A. POTWs with a design flow rate greater than or equal to 1 million gallons per day

B. POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403)

C. POTWs required by the permitting authority to submit data for these parameters

- At a minimum, these results must include quarterly testing for a 12-month period within the past one year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute or chronic toxicity, depending on the range of receiving water dilution. Do not include information about 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.
- If EPA methods were not used, report the reason for using alternative methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E. If no biomonitoring data is required, do not complete Part E. Refer to the application overview for directions on which other sections of the form to complete.

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years: _____chronic 5 acute

Complete the following chart **for the last three whole effluent toxicity tests.** Allow one column per test. Copy this page if more than three tests are being reported.

WET Test Results for 2012, 2013 and 2014 Provided in Appendix D

			Most Recent
A. Test Information			
Test Method Number			
Final Report Number			
Outfall Number			
Dates Sample Collected			
Date Test Started			
Duration			
B. Toxicity Test Methods Followed			
Manual Title			
Edition Number and Year of Publication			
Page Number(s)			
C. Sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used			
24-Hour Composite			
Grab			
D. Indicate where the sample was taken in relation to disinfection (Check all that apply for each)			
Before Disinfection			
After Disinfection			
After Dechlorination			
E. Describe the point in the treatment process at which the sample was collected			
Sample Was Collected:			
F. Indicate whether the test was intended to assess chronic toxicity, acute toxicity, or both			
Chronic Toxicity			
Acute Toxicity			
G. Provide the type of test performed			
Static			
Static-renewal			
Flow-through			
H. Source of dilution water. If laboratory water, specify type; if receiving water, specify source			
Laboratory Water			
Receiving Water			

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Columbia Regional Wastewater Treatment Plant	MO- MO-0097837	001

PART E – TOXICITY TESTING DATA

17. TOXICITY TESTING DATA (continued)

	Most Recent	2ND Most Recent	3RD Most Recent
I. Type of dilution water. If salt water, specify "natural" or type of artificial sea salts or brine used.			
Fresh Water			
Salt Water			
J. Percentage of effluent used for all concentrations in the test series			
K. Parameters measured during the test (State whether parameter meets test method specifications)			
pH			
Salinity			
Temperature			
Ammonia			
Dissolved Oxygen			
L. Test Results			
Acute:			
Percent Survival in 100% Effluent			
LC_{50}			
95% C.I.			
Control Percent Survival			
Other (Describe)			
Chronic:			
NOEC			
IC_{25}			
Control Percent Survival			
Other (Describe)			
M. Quality Control/ Quality Assurance			
Is reference toxicant data available?			
Was reference toxicant test within acceptable bounds?			
What date was reference toxicant test run (MM/DD/YYYY)?			
Other (Describe)			

Is the treatment works involved in a toxicity reduction evaluation? ☐ Yes ☑ No

If yes, describe:

If you have submitted biomonitoring test information, or information regarding the cause of toxicity, within the past four and one-half years, provide the dates the information was submitted to the permitting authority and a summary of the results.

Date Submitted (MM/DD/YYYY)

Summary of Results (See Instructions)

END OF PART E

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Columbia Regional Wastewater Treatment I	MO- MO-0097837	001

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

Refer to the APPLICATION OVERVIEW to determine whether Part F applies to the treatment works.

18. GENERAL INFORMATION

18.1 Does the treatment works have, or is it subject to, an approved pretreatment program?

☑ Yes ☐ No

18.2 Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works:

Number of non-categorical SIUs 2

Number of CIUs 3

19. INDUSTRIES CONTRIBUTING MORE THAN 5 PERCENT OF THE ACTUAL FLOW TO THE FACILITY OR OTHER SIGNIFICANT INDUSTRIAL USERS INFORMATION

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, provide the information requested for each. Submit additional pages as necessary.

NAME

Gates Corporation

MAILING ADDRESS	CITY	STATE	ZIP
3015 LeMone Industrial Blvd.	Columbia	MO	65201

19.1 Describe all of the industrial processes that affect or contribute to the SIU's discharge

No discharge facility.

19.2 Describe all of the principle processes and raw materials that affect or contribute to the SIU's discharge.

Principal Product(s): Rubber slab, coated cord.

Raw Material(s): carbon black, cord, natural and synthetic rubber stock, toluene.

19.3 Flow Rate

a. PROCESS WASTEWATER FLOW RATE. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.

0 gpd ☐ Continuous ☐ Intermittent

b. NON-PROCESS WASTEWATER FLOW RATE. Indicate the average daily volume of non-process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.

4,800 gpd ☑ Continuous ☐ Intermittent

19.4 Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local Limits ☐ Yes ☐ No

b. Categorical Pretreatment Standards ☑ Yes ☐ No

If subject to categorical pretreatment standards, which category and subcategory?

428 - Rubber manufacturing

19.5 Problems at the Treatment Works attributed to waste discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☑ No

If Yes, describe each episode

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Columbia Regional Wastewater Treatment I	MO- MO-0097837	001

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

Refer to the APPLICATION OVERVIEW to determine whether Part F applies to the treatment works.

18. GENERAL INFORMATION

18.1 Does the treatment works have, or is it subject to, an approved pretreatment program?

☑ Yes ☐ No

18.2 Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works:

Number of non-categorical SIUs 2

Number of CIUs 3

19. INDUSTRIES CONTRIBUTING MORE THAN 5 PERCENT OF THE ACTUAL FLOW TO THE FACILITY OR OTHER SIGNIFICANT INDUSTRIAL USERS INFORMATION

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, provide the information requested for each. Submit additional pages as necessary.

NAME			
3M Columbia Plant			
MAILING ADDRESS	**CITY**	**STATE**	**ZIP**
5400 Route B, P.O. Box 1228	Columbia	MO	65203-1228

19.1 Describe all of the industrial processes that affect or contribute to the SIU's discharge

Metal stamping,electroplating, molding, assembly, laminating, reagent spotting, coating, high temperature rinse, machine lathing.

19.2 Describe all of the principle processes and raw materials that affect or contribute to the SIU's discharge.

Principal Product(s): connectors for the electronics industry, filtration products, specialty film products, medical products and lenses.

Raw Material(s): Nickel compounds, Copper compounds, sulfuric acid, proprietary cyanide compounds.

19.3 Flow Rate

a. PROCESS WASTEWATER FLOW RATE. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.

12,300 gpd ☑ Continuous ☐ Intermittent

b. NON-PROCESS WASTEWATER FLOW RATE. Indicate the average daily volume of non-process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.

85,400 gpd ☑ Continuous ☐ Intermittent

19.4 Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local Limits ☐ Yes ☐ No

b. Categorical Pretreatment Standards ☑ Yes ☐ No

If subject to categorical pretreatment standards, which category and subcategory?

433 - metal finishing

19.5 Problems at the Treatment Works attributed to waste discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☑ No

If Yes, describe each episode

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Columbia Regional Wastewater Treatment	MO- 0097837	001

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

Refer to the APPLICATION OVERVIEW to determine whether Part F applies to the treatment works.

18. GENERAL INFORMATION

18.1 Does the treatment works have, or is it subject to, an approved pretreatment program?

☑ Yes ☐ No

18.2 Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works:

Number of non-categorical SIUs 2

Number of CIUs 3

19. INDUSTRIES CONTRIBUTING MORE THAN 5 PERCENT OF THE ACTUAL FLOW TO THE FACILITY OR OTHER SIGNIFICANT INDUSTRIAL USERS INFORMATION

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, provide the information requested for each. Submit additional pages as necessary.

NAME

Kraft Foods Group, Inc.

MAILING ADDRESS	CITY	STATE	ZIP
4600 Waco Road	Columbia	MO	65202

19.1 Describe all of the industrial processes that affect or contribute to the SIU's discharge

Cleaning and sanitizing process lines.

19.2 Describe all of the principle processes and raw materials that affect or contribute to the SIU's discharge.

Principal Product(s): Hot Dogs

Raw Material(s): Meat scraps, seasonings

19.3 Flow Rate

a. PROCESS WASTEWATER FLOW RATE. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.

733,000 gpd ☑ Continuous ☐ Intermittent

b. NON-PROCESS WASTEWATER FLOW RATE. Indicate the average daily volume of non-process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.

53,000 gpd ☑ Continuous ☐ Intermittent

19.4 Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local Limits ☑ Yes ☐ No

b. Categorical Pretreatment Standards ☐ Yes ☑ No

If subject to categorical pretreatment standards, which category and subcategory?

19.5 Problems at the Treatment Works attributed to waste discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☑ No

If Yes, describe each episode

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Columbia Regional Wastewater Treatment	MO- 0097837	001

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

Refer to the APPLICATION OVERVIEW to determine whether Part F applies to the treatment works.

18. GENERAL INFORMATION

18.1 Does the treatment works have, or is it subject to, an approved pretreatment program?

☑ Yes ☐ No

18.2 Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works:

Number of non-categorical SIUs 2

Number of CIUs 3

19. INDUSTRIES CONTRIBUTING MORE THAN 5 PERCENT OF THE ACTUAL FLOW TO THE FACILITY OR OTHER SIGNIFICANT INDUSTRIAL USERS INFORMATION

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, provide the information requested for each. Submit additional pages as necessary.

NAME: University of Missouri Power Plant

MAILING ADDRESS	CITY	STATE	ZIP
417 South Fifth Street	Columbia	MO	65211-2030

19.1 Describe all of the industrial processes that affect or contribute to the SIU's discharge

Cooling tower discharge

19.2 Describe all of the principle processes and raw materials that affect or contribute to the SIU's discharge.

Principal Product(s): Electricity and steam.

Raw Material(s): Coal, water

19.3 Flow Rate

a. PROCESS WASTEWATER FLOW RATE. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.

54,600 gpd ☑ Continuous ☐ Intermittent

b. NON-PROCESS WASTEWATER FLOW RATE. Indicate the average daily volume of non-process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.

110,400 gpd ☑ Continuous ☐ Intermittent

19.4 Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local Limits ☑ Yes ☐ No

b. Categorical Pretreatment Standards ☐ Yes ☑ No

If subject to categorical pretreatment standards, which category and subcategory?

19.5 Problems at the Treatment Works attributed to waste discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☑ No

If Yes, describe each episode

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Columbia Regional Wastewater Treatment	MO- 0097837	001

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

Refer to the APPLICATION OVERVIEW to determine whether Part F applies to the treatment works.

18. GENERAL INFORMATION

18.1 Does the treatment works have, or is it subject to, an approved pretreatment program?

☑ Yes ☐ No

18.2 Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works:

Number of non-categorical SIUs 2

Number of CIUs 3

19. INDUSTRIES CONTRIBUTING MORE THAN 5 PERCENT OF THE ACTUAL FLOW TO THE FACILITY OR OTHER SIGNIFICANT INDUSTRIAL USERS INFORMATION

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, provide the information requested for each. Submit additional pages as necessary.

NAME			
Watlow Missouri, Inc.			
MAILING ADDRESS	**CITY**	**STATE**	**ZIP**
2101 Pennsylvania Drive	Columbia	MO	65202

19.1 Describe all of the industrial processes that affect or contribute to the SIU's discharge

Chemical etching

19.2 Describe all of the principle processes and raw materials that affect or contribute to the SIU's discharge.

Principal Product(s): Flexible heaters

Raw Material(s): Copper, ferric chloride, sulfuric acid, hydrochloric acid, sodium hydroxide.

19.3 Flow Rate

a. PROCESS WASTEWATER FLOW RATE. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.

2,000 gpd ☐ Continuous ☑ Intermittent

b. NON-PROCESS WASTEWATER FLOW RATE. Indicate the average daily volume of non-process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.

19,100 gpd ☑ Continuous ☐ Intermittent

19.4 Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local Limits ☐ Yes ☐ No

b. Categorical Pretreatment Standards ☑ Yes ☐ No

If subject to categorical pretreatment standards, which category and subcategory?

433 - Metal finishing.

19.5 Problems at the Treatment Works attributed to waste discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☑ No

If Yes, describe each episode

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Columbia Regional Wastewater Treatment	MO- 0097837	001

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

20. RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE

20.1 Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail or dedicated pipe? ☐ Yes ☑ No

20.2 Method by which RCRA waste is received. (Check all that apply)
☐ Truck ☐ Rail ☐ Dedicated Pipe

20.3 Waste Description

EPA Hazardous Waste Number	Amount (volume or mass)	Units

21. CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER

21.1 Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?
☐ Yes ☑ No
Provide a list of sites and the requested information for each current and future site.

21.2 Waste Origin. Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years).

21.3 List the hazardous constituents that are received (or are expected to be received). Included data on volume and concentration, if known. (Attach additional sheets if necessary)

21.4 Waste Treatment

a. Is this waste treated (or will it be treated) prior to entering the treatment works?
☐ Yes ☐ No

If Yes, describe the treatment (provide information about the removal efficiency):

b. Is the discharge (or will the discharge be) continuous or intermittent?
☐ Continuous ☐ Intermittent

If intermittent, describe the discharge schedule:

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

Part G Not Applicable

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Columbia Regional Wastewater Treatment I	MO- MO-0097837	001

PART G – COMBINED SEWER SYSTEMS

Refer to the APPLICATION OVERVIEW to determine whether Part G applies to the treatment works.

22. GENERAL INFORMATION

22.1 System Map. Provide a map indicating the following: (May be included with basic application information.)

A. All CSO Discharges.

B. Sensitive Use Areas Potentially Affected by CSOs. (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems and Outstanding Natural Resource Waters.)

C. Waters that Support Threatened and Endangered Species Potentially Affected by CSOs.

22.2 System Diagram. Provide a diagram, either in the map provided above or on a separate drawing, of the Combined Sewer Collection System that includes the following information:

A. Locations of Major Sewer Trunk Lines, Both Combined and Separate Sanitary.

B. Locations of Points where Separate Sanitary Sewers Feed into the Combined Sewer System.

C. Locations of In-Line or Off-Line Storage Structures.

D. Locations of Flow-Regulating Devices.

E. Locations of Pump Stations.

22.3 Percent of collection system that is combined sewer

22.4 Population served by combined sewer collection system

22.5 Name of any satellite community with combined sewer collection system

23. CSO OUTFALLS. COMPLETE THE FOLLOWING ONCE FOR EACH CSO DISCHARGE POINT

23.1 Description of Outfall

a. Outfall Number

b. Location

c. Distance from Shore (if applicable) _____ ft

d. Depth Below Surface (if applicable) _____ ft

e. Which of the following were monitored during the last year for this CSO?

☐ Rainfall ☐ CSO Pollutant Concentrations ☐ CSO

☐ CSO Flow Volume ☐ Receiving Water Quality

f. How many storm events were monitored last year?

23.2 CSO Events

a. Give the Number of CSO Events in the Last Year Events ☐ Actual ☐ Approximate

b. Give the Average Duration Per CSO Event

Hours ☐ Actual ☐ Approximate

c. Give the Average Volume Per CSO Event

Million Gallons ☐ Actual ☐ Approximate

d. Give the minimum rainfall that caused a CSO event in the last year _____ inches of rainfall

23.3 Description of Receiving Waters

a. Name of Receiving Water

b. Name of Watershed/River/Stream System

c. U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)

d. Name of State Management/River Basin

e. U.S. Geological Survey 8- Digit Hydrologic Cataloging Unit Code (If Known)

23.4 CSO Operations

Describe any known water quality impacts on the receiving water caused by this CSO (e.g., permanent or intermittent beach closings, permanent or intermittent shellfish bed closings, fish kills, fish advisories, other recreational loss, or violation of any applicable state water quality standard.)

END OF PART G

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2 YOU MUST COMPLETE.

INSTRUCTIONS FOR COMPLETING FORM B2
APPLICATION FOR OPERATING PERMIT FOR FACILITIES THAT RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY. Form 780-1805
(Facilities less than or equal to 100,000 gallons per day of domestic waste must use Form B - 780-1512.)

PART A – BASIC APPLICATION INFORMATION

1. Check the appropriate box. **Do not check more than one item.** Operating permits refer to permits issued by the Department of Natural Resources, Water Protection Program. If an Antidegradation Review has not been conducted, please submit the application located at the following link to the Missouri Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, MO 65102: dnr.mo.gov/forms/780-1893-f.pdf.

1.1 **Fees Information:**

DOMESTIC OPERATING PERMIT FEES – PRIVATE

Annual operating permit fees are based on flow.

Annual fee/Design flow	Annual fee/Design flow	Annual fee/Design flow
$100.....<5,000 gpd	$375.....10,000-10,999 gpd	$650.....16,000-16,999 gpd
$150.....5,000-5,999 gpd	$400.....11,000-11,999 gpd	$800.....17,000-19,999 gpd
$175.....6,000-6,999 gpd	$450.....12,000-12,999 gpd	$1,000.....20,000-22,999 gpd
$200.....7,000-7,999 gpd	$500.....13,000-13,999 gpd	$2,000.....23,000-24,999 gpd
$225.....8,000-8,999 gpd	$550.....14,000-14,999 gpd	$2,500.....25,000-29,999 gpd
$250.....9,000-9,999 gpd	$600.....15,000-15,999 gpd	$3,000.....30,000 gpd -1 mgd

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. 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 – $100 each.

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/.

2.3-2.4 Self-explanatory.

3. Owner – Provide the legal name, mailing address, phone number, and e-mail address of the owner.

3.1 Prior to submitting a permit to public notice, the Department of Natural Resources shall provide the permit applicant 15 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.

3.2-3.4 Self-explanatory.

4. Continuing Authority -- Provide information for 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 or contact the Department of Natural Resources Water Protection Program (see contact information below).

5. Operator – Provide the name, certificate number, title, mailing address, phone number, and e-mail address of the operator of the facility.

6. Provide the name, title, mailing address, work phone number, and e-mail address 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.

INSTRUCTIONS FOR COMPLETING FORM B2
APPLICATION FOR OPERATING PERMIT FOR FACILITIES THAT RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY
(continued)

PART B – ADDITIONAL APPLICATION INFORMATION
10.-14. Self-explanatory

PART C – CERTIFICATION
15. Signature – All applications must be signed as follows and the signatures must be original:
   a. For a corporation, by an officer having responsibility for the overall operation of the regulated facility or activity or for environmental matters.
   b. For a partnership or sole proprietorship, by a general partner or the proprietor.
   c. For a municipal, state, federal or other public facility, by either a principal executive officer or by an individual having overall responsibility for environmental matters at the facility.

PART D – EXPANDED EFFLUENT TESTING DATA
16. Self-explanatory. ML/MDL means minimum limit or minimum detection limit.

PART E – TOXICITY TESTING DATA
17. Self- explanatory.

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES
18. Federal regulations are available through the U.S. Government Printing Office at www.gpoaccess.gov/cfr/index.html.
18.1 Self – explanatory
18.2 A non-categorical significant industrial user is an industrial user that is not a CIU and 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.
19.-21.4 Self-explanatory.

PART G – COMBINED SEWER SYSTEMS
22.-23.4 Self-explanatory.

Submittal of an incomplete application may result in the application being returned.

This completed form and any attachments along with the applicable permit fees, should be submitted to:

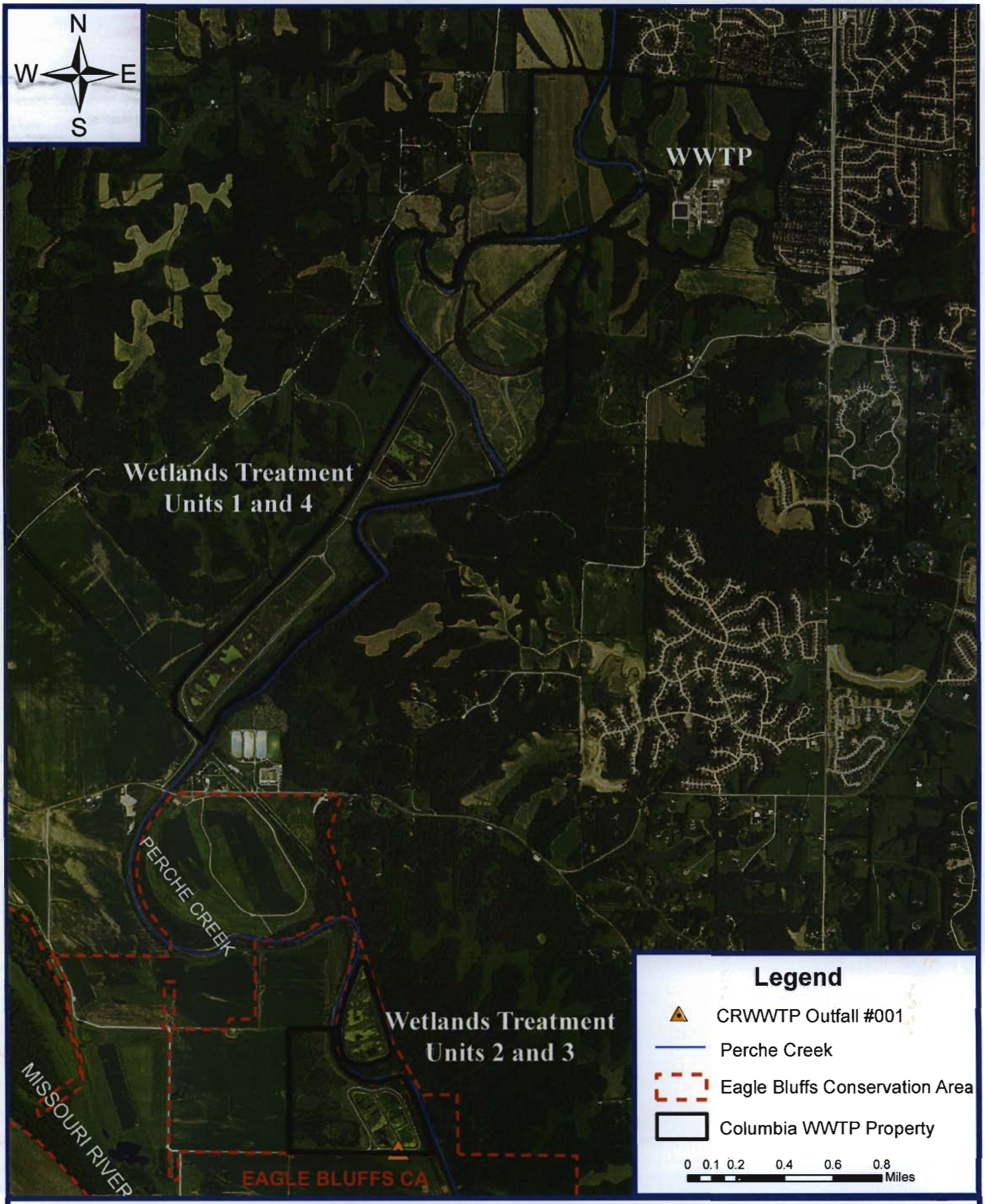
Department of Natural Resources
Water Protection Program
ATTN: NPDES Permits and Engineering Section
P.O. Box 176
Jefferson City, MO 65102

If there are any questions concerning this form, contact the appropriate Department of Natural Resources regional office or the Water Protection Program at 573-751-6825. A map of the department's regional offices with addresses and phone numbers is available at www.dnr.mo.gov/regions/ro-map.pdf .

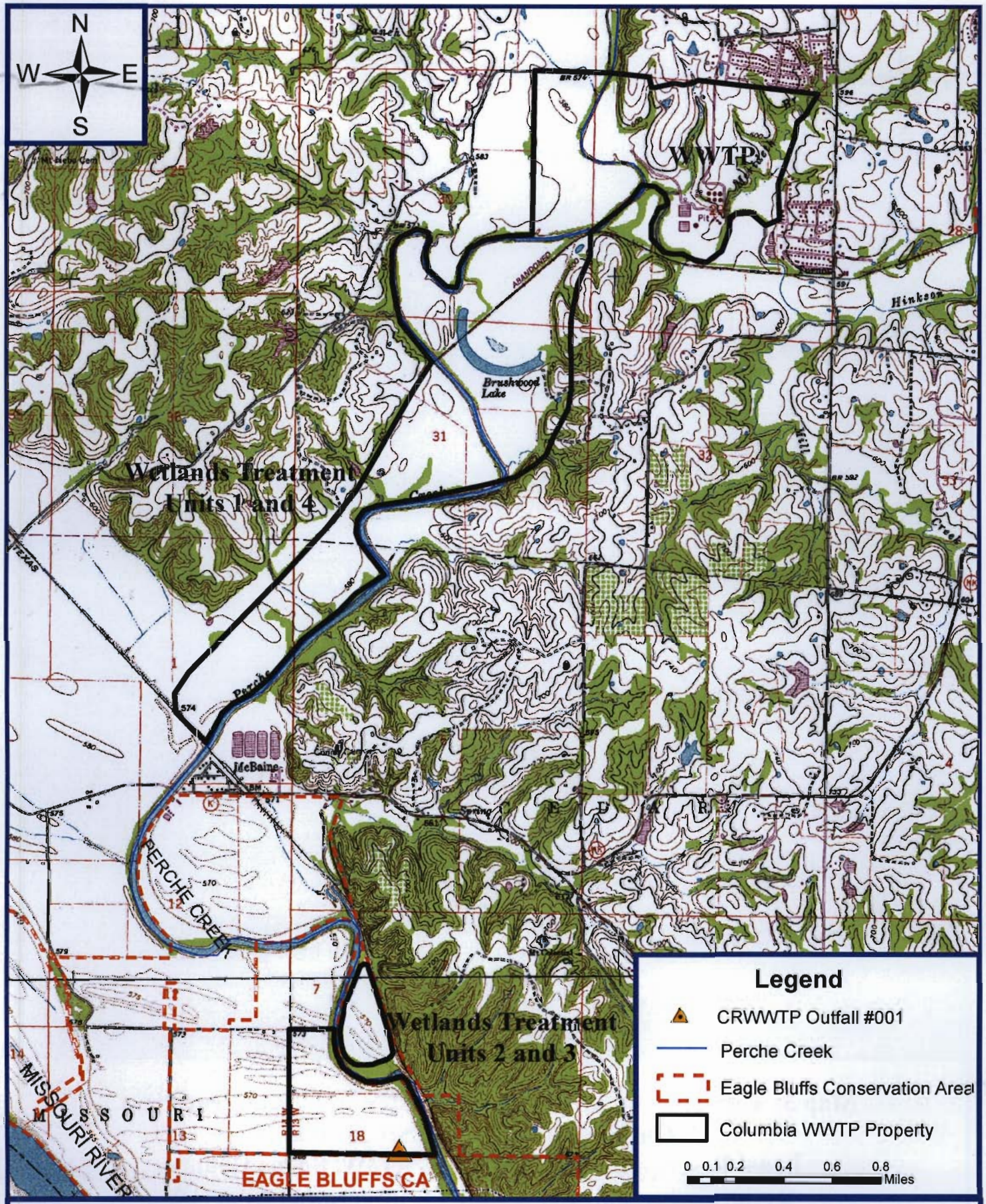
ATTACHMENT A

FORM B2
APPLICATION FOR OPERATING PERMIT RENEWAL
MO-0097837

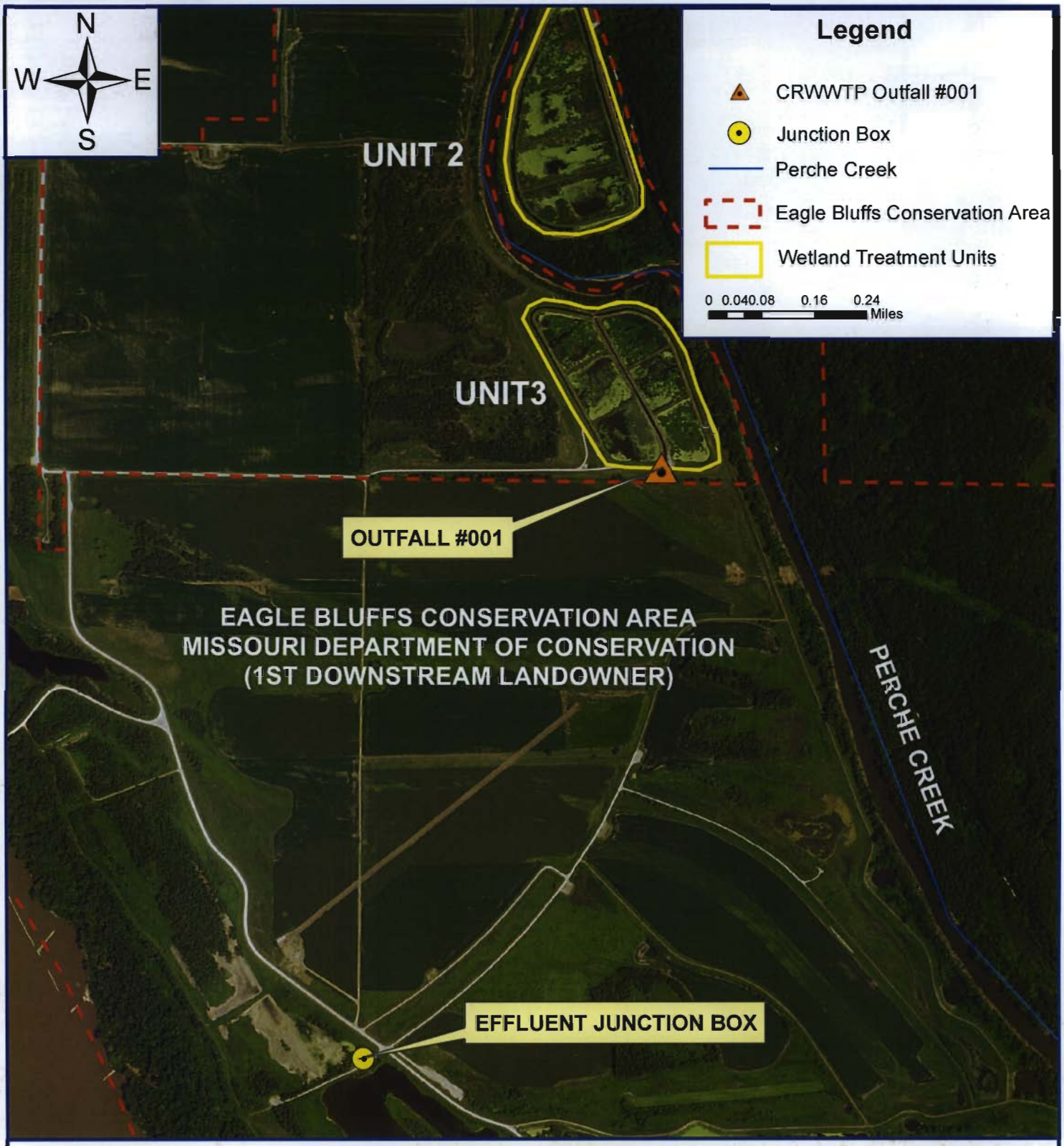
7.2 TOPOGRAPHIC AND AERIAL MAPS



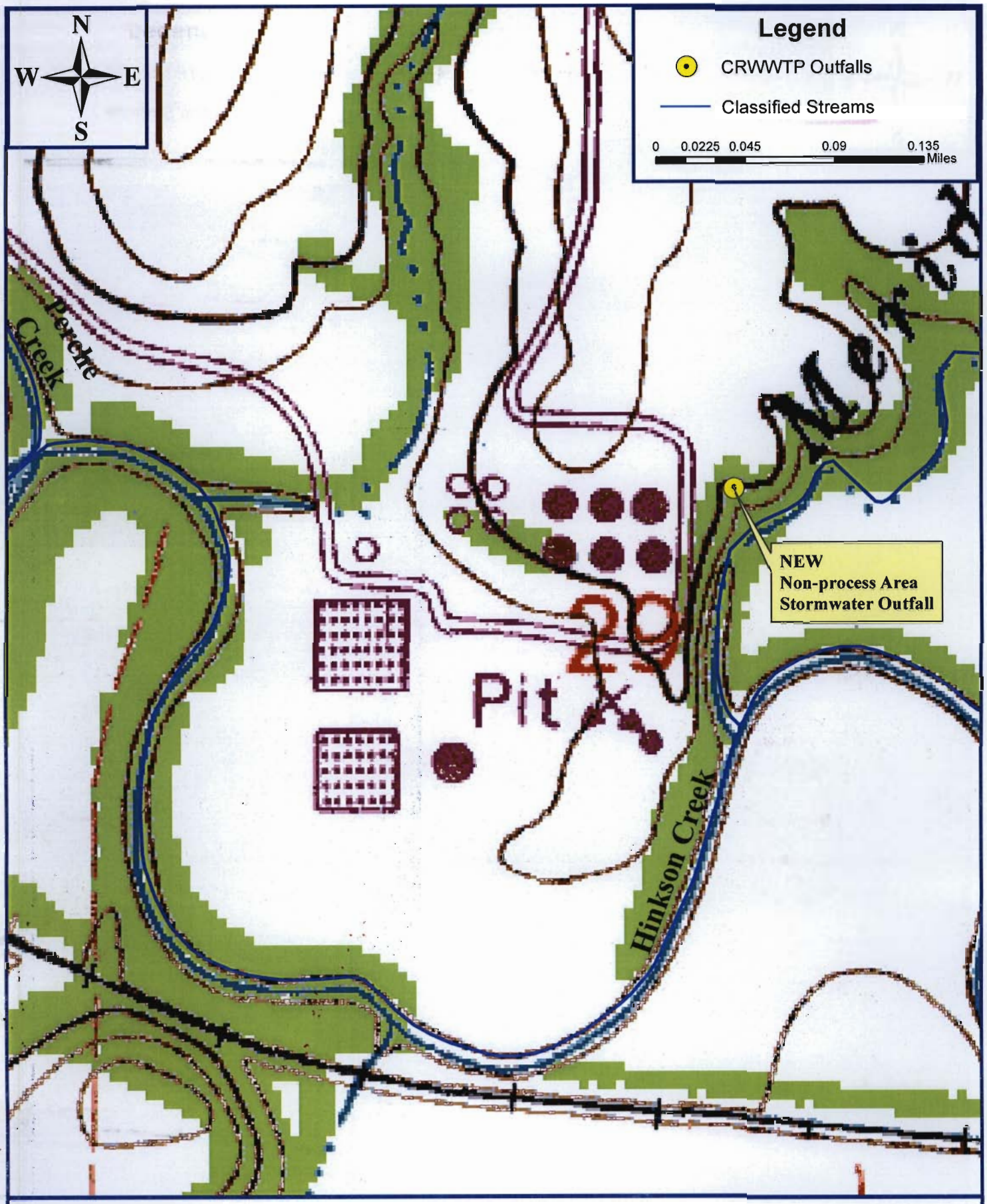
Map 1: City of Columbia Regional Wastewater Treatment Plant and Wetland Treatment Properties



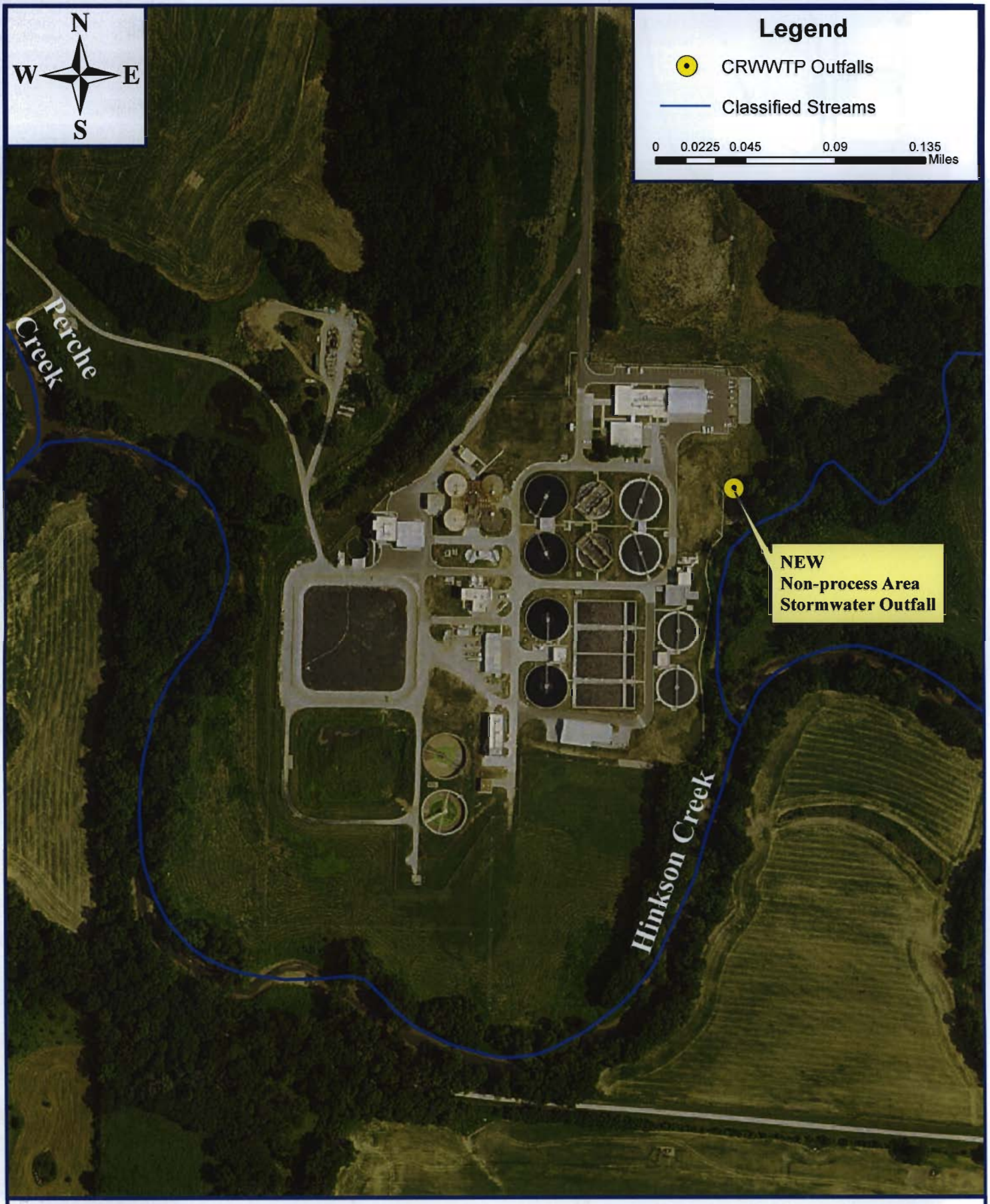
Map 2: City of Columbia Regional Wastewater Treatment Plant and Wetland Treatment Properties



Map 3: City of Columbia Regional Wastewater Treatment Plant
Outfall #001- POTW - SIC #4952
Legal Description: Sec. 18, T47N, R13W, Boone County
Recieving Stream: Eagle Bluffs Conservation Area (U)
First Classified Stream & ID: Missouri (P) (00704)
USGS Basin and Subwatershed: 10300102-32008



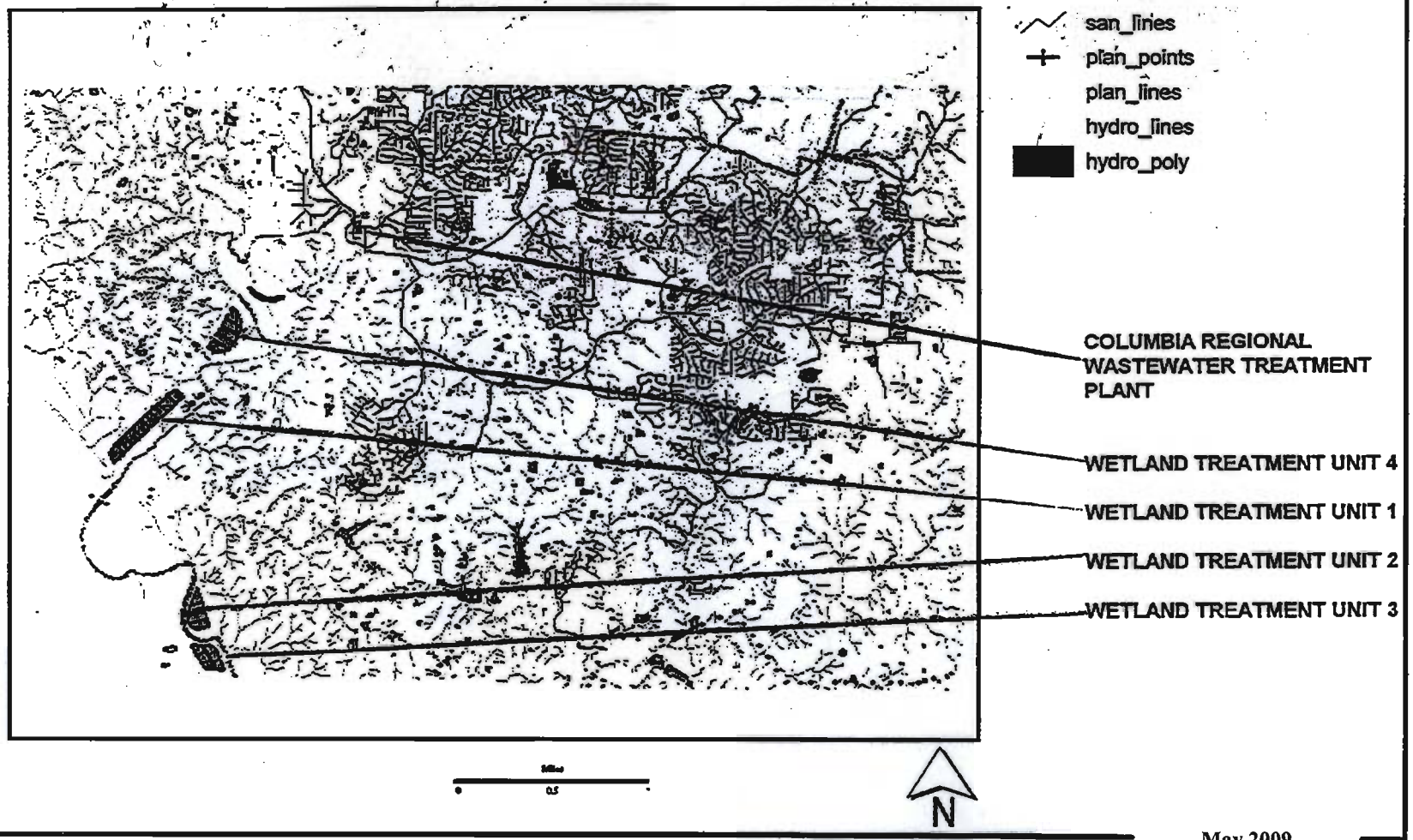
Map 4: City of Columbia Regional Wastewater Treatment Plant



Map 5: City of Columbia Regional Wastewater Treatment Plant

ESRI ArcExplorer 2.0

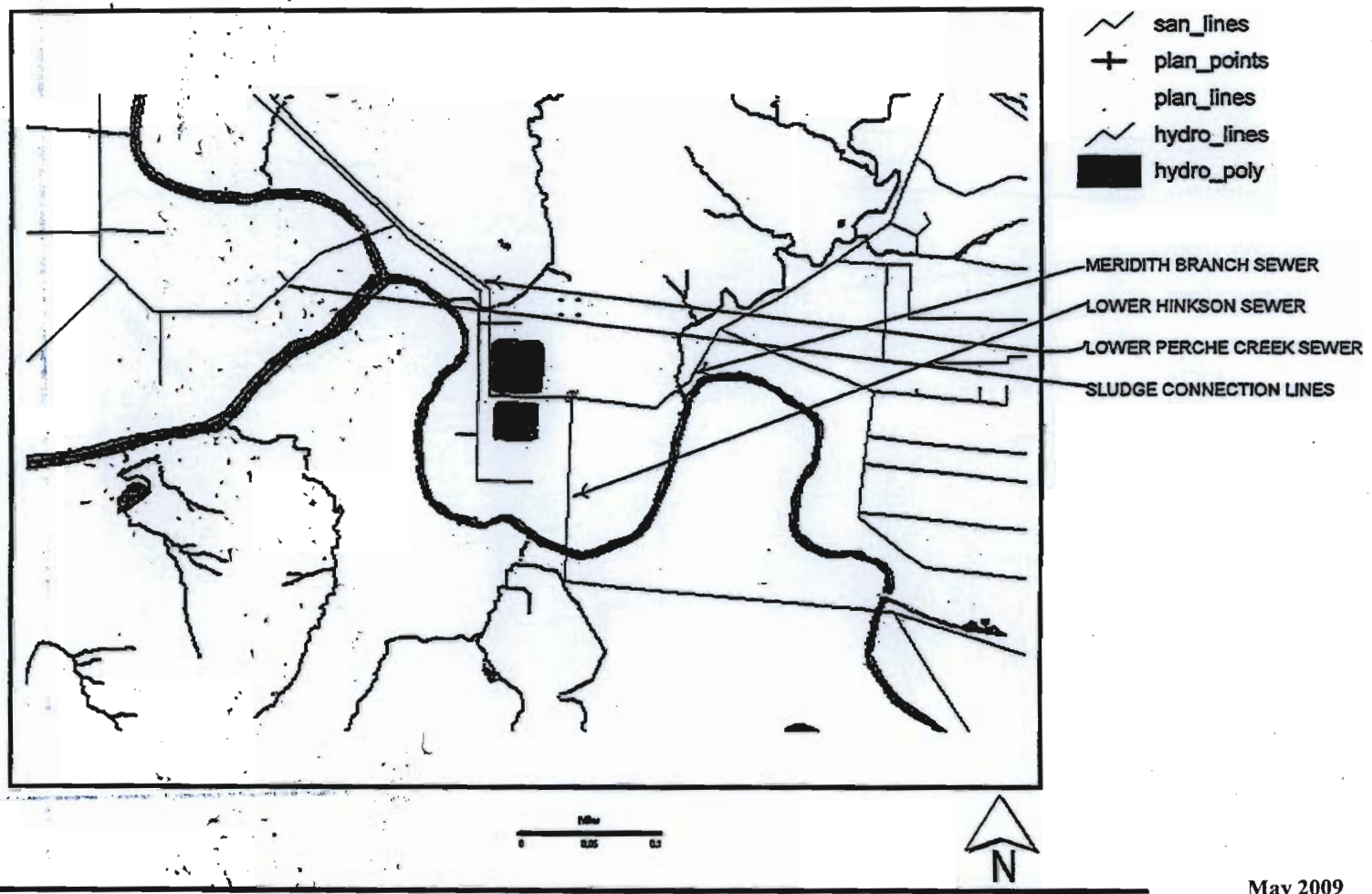
Map 6: City of Columbia Regional Wastewater Treatment Plant
Sanitary Sewer Collection Lines



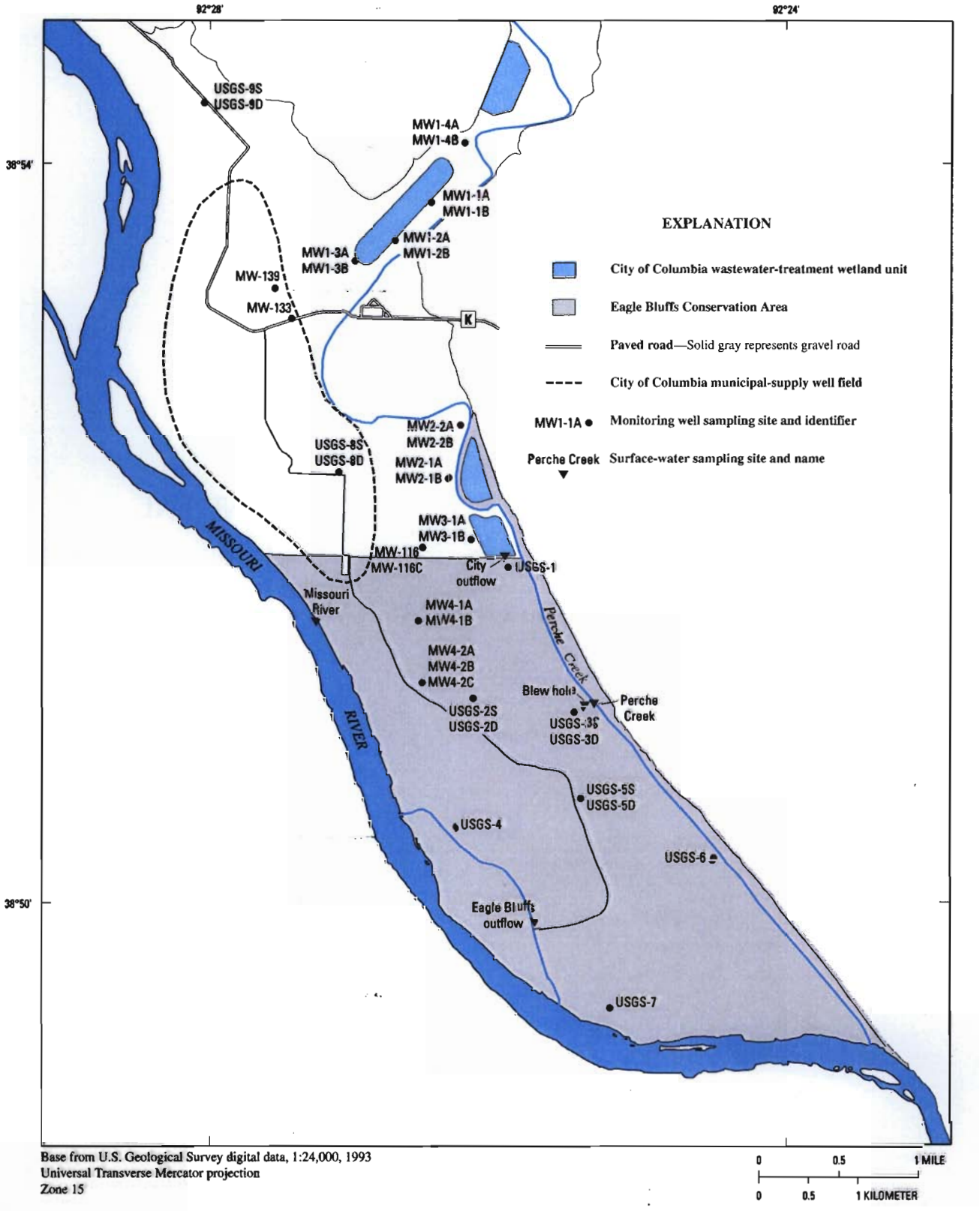
May 2009

ESRI ArcExplorer 2.0

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



May 2009



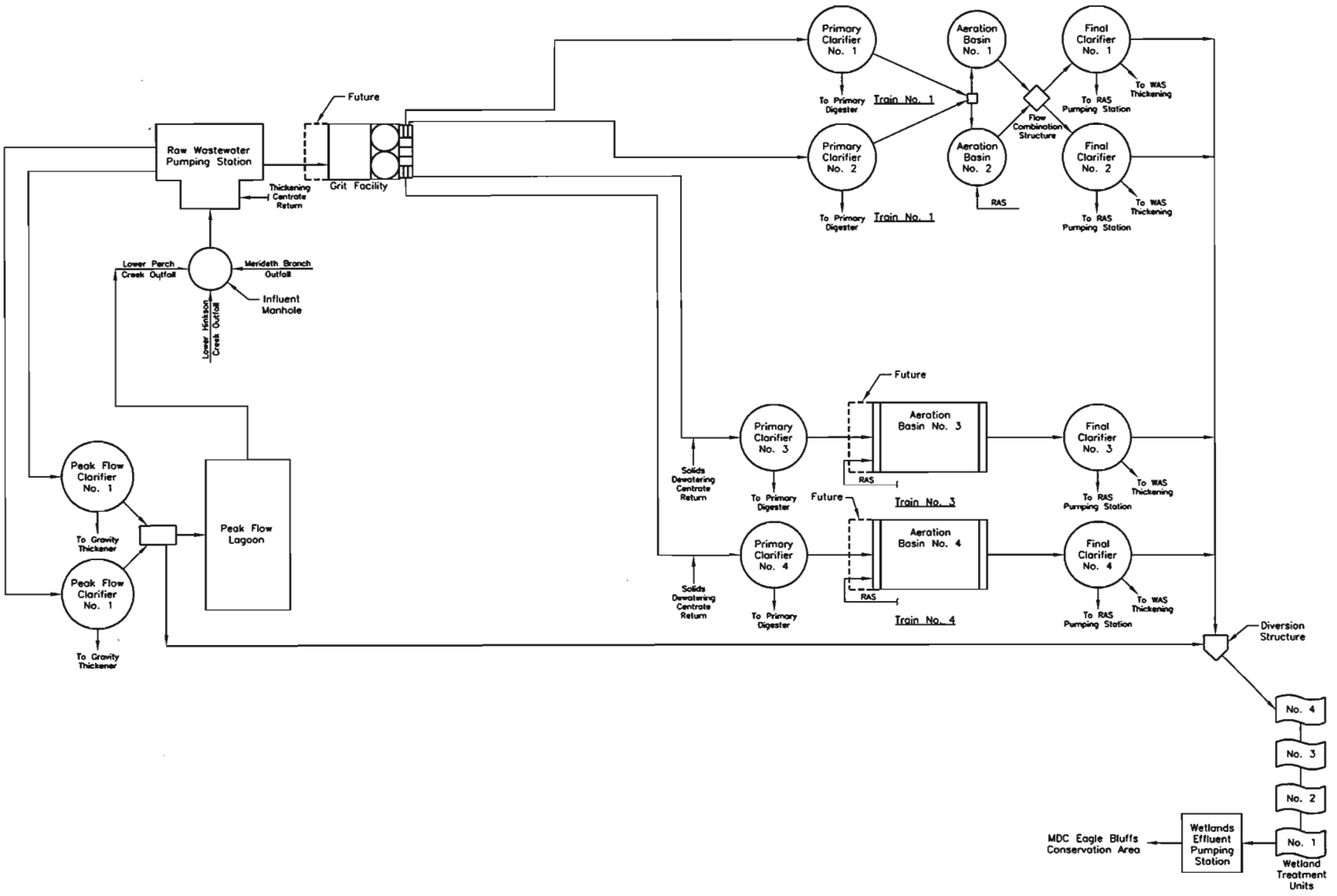
Map 8: Location of City of Columbia Municipal-Drinking Water Supply Field

ATTACHMENT B

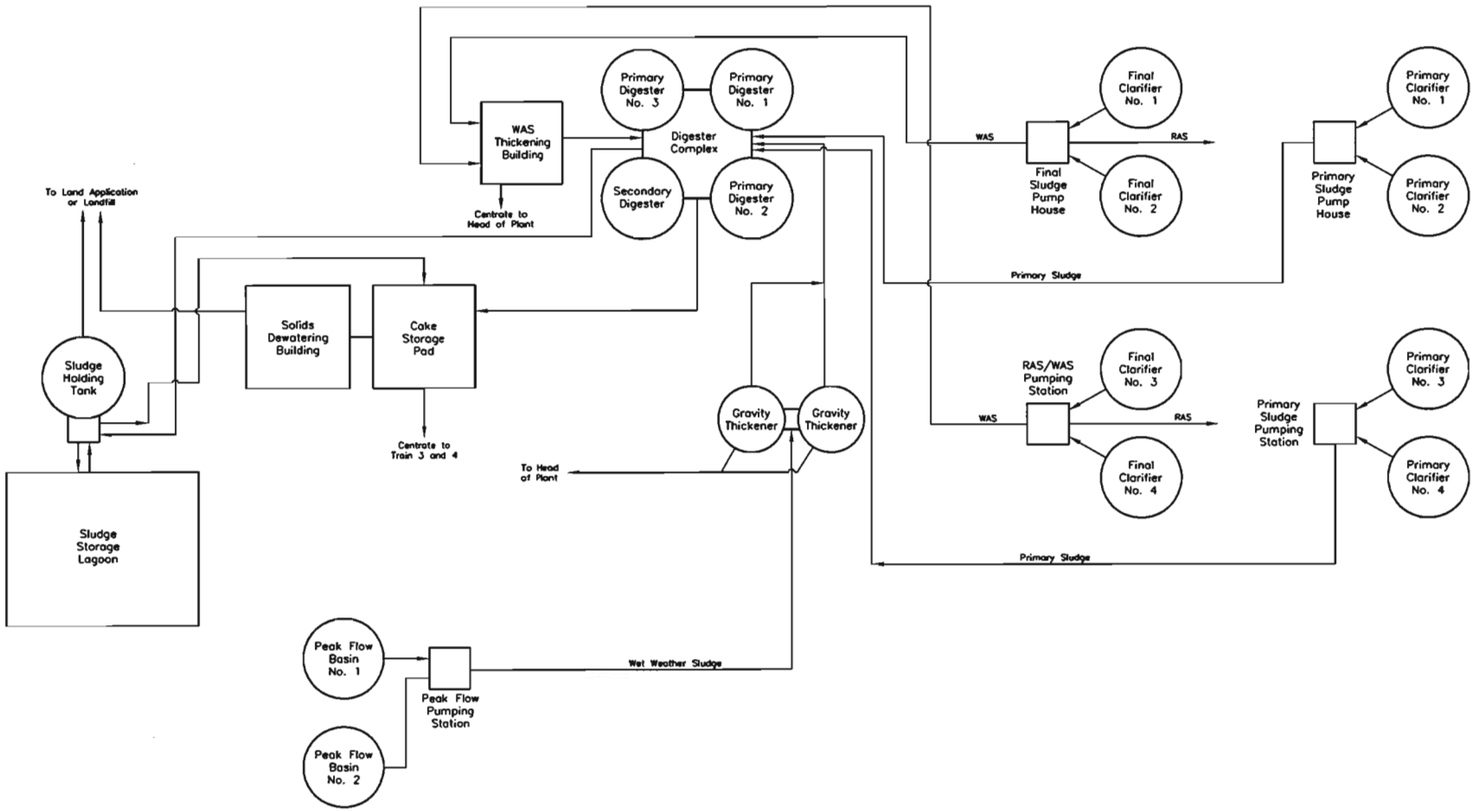
FORM B2
APPLICATION FOR OPERATING PERMIT RENEWAL
MO-0097837

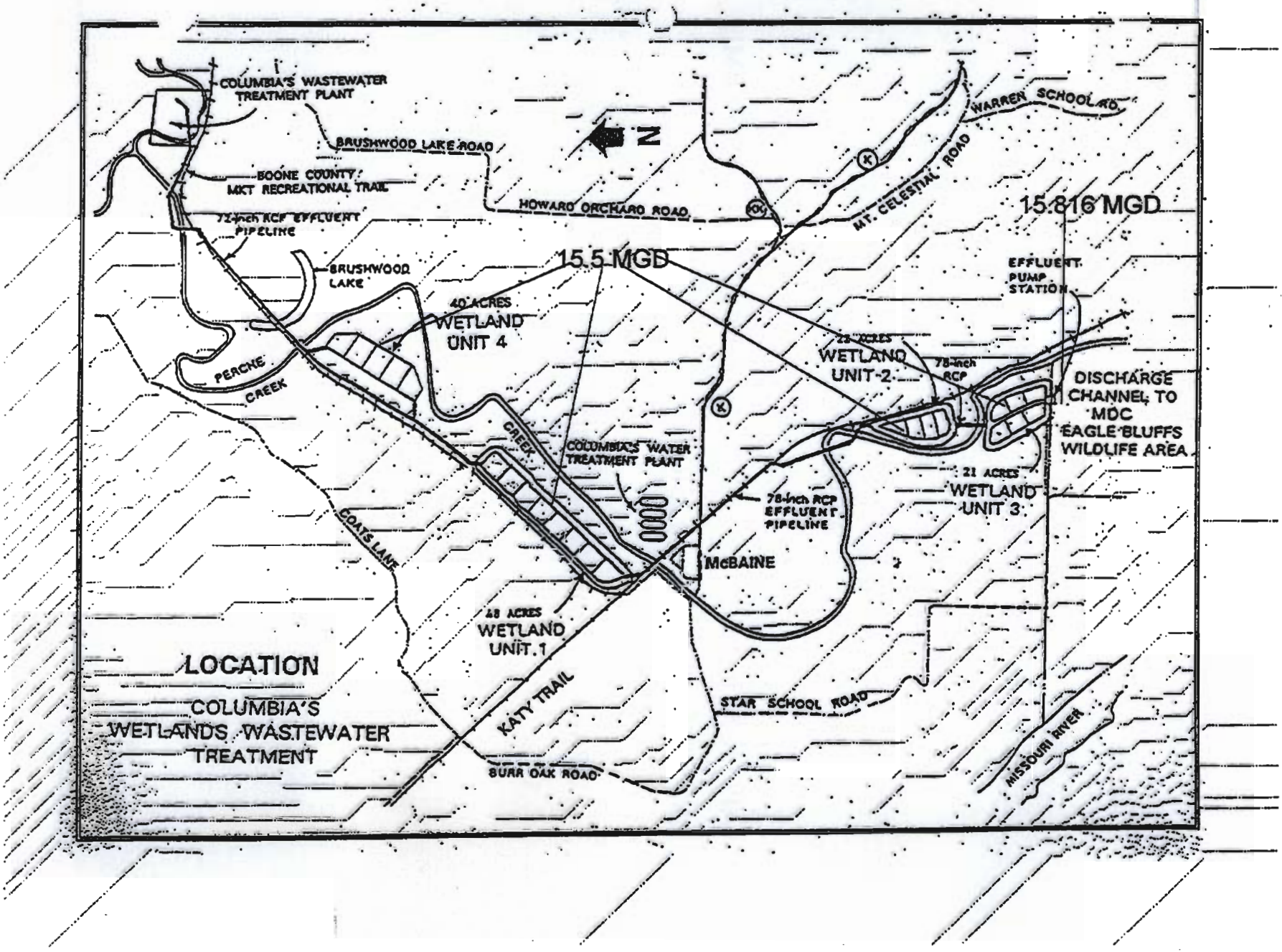
7.3 PROCESS FLOW DIAGRAM

Columbia WWTP
Liquids Process Schematic



Columbia WWTP
Solids Process Schematic




COLUMBIA'S WASTEWATER TREATMENT PLANT
BRUSHWOOD LAKE ROAD
N
BOONE COUNTY MKT RECREATIONAL TRAIL
HOWARD ORCHARD ROAD
MT. CELESTIAL ROAD
WARREN SCHOOL RD
15.816 MGD
72-inch RCP EFFLUENT PIPELINE
15.5 MGD
BRUSHWOOD LAKE
40 ACRES WETLAND UNIT 4
EFFLUENT PUMP STATION
23 ACRES WETLAND UNIT 2
78-inch RCP
DISCHARGE CHANNEL TO MDC EAGLE BLUFFS WILDLIFE AREA
PERCHE CREEK
COLUMBIA'S WATER TREATMENT PLANT
21 ACRES WETLAND UNIT 3
78-inch RCP EFFLUENT PIPELINE
McBAINE
COATS LANE
28 ACRES WETLAND UNIT 1
LOCATION
COLUMBIA'S WETLANDS WASTEWATER TREATMENT
KATY TRAIL
STAR SCHOOL ROAD
BURR OAK ROAD
MISSOURI RIVER

ATTACHMENT C

FORM B2

APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT

MO-0097837

PART A (9.3 and 9.4) – SLUDGE STORAGE PROVIDED

Columbia Regional WWTP

Sludge Storage Description

Sludge Injection Tank Storage

Onsite Digested Sludge Storage Volume- 274,000 gallons / 36,738 cu.ft.

(This is calculated at 13 ft. liquid depth at 21,138 gallons/ft.

Days of digested sludge storage at average design condition- 2.4 days

(This is calculated on 2014 avg. feed rate to the dewatering centrifuges – 77gpm)

Digested Sludge average percent solids – 1.5% (2014 avg.)

Dewatered Sludge Pad Storage

A 60 ft. x 50 ft. covered pad, of which 10,350 cu. ft. is available for storage of dewatered sludge.

Days of dewatered sludge storage at average design conditions- 8 days

Dewatered Sludge average design percent solids – 25%

Notes:

Based on 1 full year of dewatered sludge data our average storage time would be 12 days and our average percent solids are at 28%.

Old storage lagoon from liquid process is available in an emergency and would provide an additional 70 days of storage.

ATTACHMENT D

FORM B2
MO-0097837

PART E – TOXICITY TESTING DATA

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME: Columbia Regional Wastewater Treatment Plant	DATE AND TIME COLLECTED: EFFLUENT 07/17/12 08:35 UPSTREAM 07/17/12 09:00
PERMIT NUMBER: MO-0097837	PERMIT OUTFALL NUMBER: #001
COLLECTOR'S NAME: Craig Cuvellier	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION: Eagle Bluffs Conservation Area, Missouri River access	
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC): 100%	EFFLUENT SAMPLE TYPE (CHECK ONE): ☒ 24 HR COMPOSITE ☐ GRAB ☐ OTHER ____
SAMPLE NUMBER: EFFLUENT ____ UPSTREAM ____	UPSTREAM SAMPLE TYPE (CHECK ONE): ☐ 24 HR COMPOSITE ☒ GRAB ☐ OTHER ____
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR: CHLORINE N/A mg/L	PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR: AMMONIA N/A mg/L

PART B – TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY: Empirical Laboratories, LLC	TEST TYPE: Acute Screen Non-renewal	
FINAL REPORT NUMBER: 1207119	TEST DURATION: 48 hours	
DATE OF LAST REFERENCE TOXICANT TESTING: C. dubia 04/23/12, p. promelas 04/23/12	TEST METHOD: EPA-821-R-02-012	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY: 07/18/12 09:00	TEST START DATE AND TIME: C. dubia 07/18/12 15:30 hrs; p. promelas 07/18/12 14:30 hrs	TEST END DATE AND TIME: C. dubia 07/20/12 15:43 hrs; p. promelas 07/20/12 14:15 hrs
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? ☐ YES ☒ NO; EFFLUENT ____ UPSTREAM ____	TEST ORGANISM #1 AND AGE: C. dubia <24 hrs	TEST ORGANISM #2 AND AGE: p. promelas 10 days
SAMPLE FILTERED[1] PRIOR TO ANALYSIS? ☐ YES ☒ NO; EFFLUENT ____ UPSTREAM ____	90 PERCENT OR GREATER SURVIVAL IN SYNTHETIC CONTROL? ☒ YES ☐ NO	DILUTION WATER USED TO ACHIEVE AEC: Lab Recon & Missouri River
FILTER MESH SIEVE SIZE [2]	EFFLUENT ORGANISM #1 PERCENT MORTALITY AT AEC: 10	EFFLUENT ORGANISM #2 PERCENT MORTALITY AT AEC: 5
SAMPLE AERATED DURING TESTING? ☐ YES ☒ NO	UPSTREAM ORGANISM #1 PERCENT MORTALITY: 0	UPSTREAM ORGANISM #2 PERCENT MORTALITY: 0
pH ADJUSTED? ☐ YES ☒ NO; EFFLUENT ____ UPSTREAM ____	TEST RESULT AT AEC FOR ORGANISM #1: ☒ PASS ☐ FAIL	TEST RESULT AT AEC FOR ORGANISM #2: ☒ PASS ☐ FAIL

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	25.0	SM2550B	07/18/12
pH Standard Units	7.87	SM4500H+B	07/18/12
Conductance µMohs	1,666	SM2510B	07/18/12
Dissolved Oxygen mg/L	9.0	SM4500OG	07/18/12
Total Residual Chlorine mg/L	<0.02	SM4500CL F	07/18/12
Unionized Ammonia mg/L	N/A	N/A	N/A
* Total Alkalinity mg/L	243	SM2320B	07/18/12
* Total Hardness mg/L	218	SM2340C	07/18/12

* Recommended by EPA guidance, not a required analysis.

[1] Samples shall only be filtered if indigenous organisms are present that may be confused with, or attack the test organisms.
[2] Filters shall have a sieve size of 60 microns or greater.

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT (Continued)

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100 PERCENT UPSTREAM SAMPLE[3]

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	25.8	SM2550B	07/18/12
pH Standard Units	8.52	SM4500H+B	07/18/12
Conductance µMohs	831	SM2510B	07/18/12
Dissolved Oxygen mg/L	9.8	SM4500OG	07/18/12
Total Residual Chlorine mg/L	<0.02	SM4500CL F	07/18/12
Unionized Ammonia mg/L	N/A	N/A	N/A
* Total Alkalinity mg/L	180	SM2320B	07/18/12
* Total Hardness mg/L	242	SM2340C	07/18/12

* Recommended by EPA guidance, not a required analysis.

PRELIMINARY TEST ACCEPTABILITY MATRIX (FOR USE BY PERMITTEE IN DETERMINING TEST VALIDITY)
MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100 PERCENT UPSTREAM SAMPLE[3]

PERMIT ALLOWABLE EFFLUENT CONCENTRATION, or AEC: As indicated on permit. Test is invalid otherwise.

EFFLUENT SAMPLE TYPE: As indicated on permit. Test is invalid otherwise.

TEST TYPE: Acute Static Non-Renewal Test or other as indicated on permit. Test is invalid otherwise.

TEST DURATION: Forty-eight hours or as indicated on permit. Test is invalid otherwise.

TEST ORGANISMS: As indicated on permit. Test is invalid otherwise.

DILUTION WATER USED TO ACHIEVE AEC: Upstream receiving water required if available.

TEST METHOD: The only acceptable method is the **most current edition** of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, or other as specifically assigned by EPA for determining National Pollutant Discharge Elimination System, or NPDES, compliance. Test is invalid otherwise.

TEST START DATE AND TIME: Unless otherwise specified in writing by EPA, if >36 hours lapse between collection and initiation, test is invalid.

FILTER MESH SIEVE SIZE: Unless otherwise specified in writing by EPA, if sieve size is smaller than 60 microns, test is invalid.

90 PERCENT OR GREATER SURVIVAL IN LABORATORY CONTROL(S) (Y/N): If no, test is invalid.

PARAMETER	RESULT	NOTES	WHEN ANALYZED
Temperature °C	0 – 6	Unless received by the laboratory on the same day as collected, values outside this range invalidate the test.	Upon receipt.

[3] Where no upstream control is available, enter results from laboratory or synthetic control.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME Columbia Regional Wastewater Treatment Plant	DATE AND TIME COLLECTED EFFLUENT 08/06/13 0845 UPSTREAM ____
PERMIT NUMBER MO-0097837	PERMIT OUTFALL NUMBER #001
COLLECTOR'S NAME	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION Missouri River	
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC) 100%	EFFLUENT SAMPLE TYPE (CHECK ONE) ☑ 24 HR COMPOSITE ☐ GRAB ☐ OTHER ____
SAMPLE NUMBER EFFLUENT N/A UPSTREAM N/A	UPSTREAM SAMPLE TYPE (CHECK ONE) ☐ 24 HR COMPOSITE ☑ GRAB ☐ OTHER ____
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR CHLORINE N/A mg/L	PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR AMMONIA N/A mg/L

PART B – TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY ESC Lab Sciences	TEST TYPE 48-hr static acute	
FINAL REPORT NUMBER L650319-01 (effluent); -02 (upstream)	TEST DURATION 48 hours	
DATE OF LAST REFERENCE TOXICANT TESTING 07/10/2013	TEST METHOD EPA Method 2002 and EPA Method 2000	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY 8/7/2013 09:00	TEST START DATE AND TIME 8/7/2013 16:30	TEST END DATE AND TIME 8/9/2013 15:27
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? ☐ YES ☑ NO EFFLUENT <0.2 UPSTREAM 0.92	TEST ORGANISM #1 AND AGE Ceriodaphnia dubia <24 hrs old	TEST ORGANISM #2 AND AGE Pimephales promelas 9 days old
SAMPLE FILTERED1 PRIOR TO ANALYSIS? ☐ YES ☑ NO EFFLUENT ____ UPSTREAM ____	90 PERCENT OR GREATER SURVIVAL IN SYNTHETIC CONTROL? ☑ YES ☐ NO	DILUTION WATER USED TO ACHIEVE AEC 20% DMW
FILTER MESH SIEVE SIZE 2	EFFLUENT ORGANISM #1 PERCENT MORTALITY AT AEC 0% mortality at AEC	EFFLUENT ORGANISM #2 PERCENT MORTALITY AT AEC 0% mortality at AEC
SAMPLE AERATED DURING TESTING? ☐ YES ☑ NO	UPSTREAM ORGANISM #1 PERCENT MORTALITY 0% mortality in upstream sample	UPSTREAM ORGANISM #2 PERCENT MORTALITY 5% mortality in upstream sample
pH ADJUSTED? ☐ YES ☑ NO EFFLUENT 7.8 UPSTREAM 8.1	TEST RESULT AT AEC FOR ORGANISM #1 ☑ PASS ☐ FAIL	TEST RESULT AT AEC FOR ORGANISM #2 ☑ PASS ☐ FAIL

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	25	SOP 350323	08/07/2013
pH Standard Units	7.8	SM4500H+B	08/07/2013
Conductance µMohs	1160	SOP 350328	08/07/2013
Dissolved Oxygen mg/L	8.4	SM4500OG	08/07/2013
Total Residual Chlorine mg/L	<0.2	SOP 350321	08/07/2013
Unionized Ammonia mg/L	N/A	350.1	08/07/2013
* Total Alkalinity mg/L	191	2320 B-2011	08/07/2013
* Total Hardness mg/L	290	EPA 130.1	08/07/2013

* Recommended by EPA guidance, not a required analysis.

[1] Samples shall only be filtered if indigenous organisms are present that may be confused with, or attack the test organisms.
[2] Filters shall have a sieve size of 60 microns or greater.

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT (Continued)

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100 PERCENT UPSTREAM SAMPLE[3]

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	25	SOP 350323	08/07/2013
pH Standard Units	8.1	SM4500H+B	08/07/2013
Conductance µMohs	774	SOP 350328	08/07/2013
Dissolved Oxygen mg/L	8.4	SM4500OG	08/07/2013
Total Residual Chlorine mg/L	0.92	SOP 350321	08/07/2013
Unionized Ammonia mg/L	N/A	350.1	08/07/2013
* Total Alkalinity mg/L	152	2320 B-2011	08/07/2013
* Total Hardness mg/L	270	EPA 130.1	08/07/2013

* Recommended by EPA guidance, not a required analysis.

PRELIMINARY TEST ACCEPTABILITY MATRIX (FOR USE BY PERMITTEE IN DETERMINING TEST VALIDITY)
MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100 PERCENT UPSTREAM SAMPLE[3]

PERMIT ALLOWABLE EFFLUENT CONCENTRATION, or AEC: As indicated on permit. Test is invalid otherwise.

EFFLUENT SAMPLE TYPE: As indicated on permit. Test is invalid otherwise.

TEST TYPE: Acute Static Non-Renewal Test or other as indicated on permit. Test is invalid otherwise.

TEST DURATION: Forty-eight hours or as indicated on permit. Test is invalid otherwise.

TEST ORGANISMS: As indicated on permit. Test is invalid otherwise.

DILUTION WATER USED TO ACHIEVE AEC: Upstream receiving water required if available.

TEST METHOD: The only acceptable method is the **most current edition** of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, or other as specifically assigned by EPA for determining National Pollutant Discharge Elimination System, or NPDES, compliance. Test is invalid otherwise.

TEST START DATE AND TIME: Unless otherwise specified in writing by EPA, if >36 hours lapse between collection and initiation, test is invalid.

FILTER MESH SIEVE SIZE: Unless otherwise specified in writing by EPA, if sieve size is smaller than 60 microns, test is invalid.

90 PERCENT OR GREATER SURVIVAL IN LABORATORY CONTROL(S) (Y/N): If no, test is invalid.

PARAMETER	RESULT	NOTES	WHEN ANALYZED
Temperature °C	0 – 6	Unless received by the laboratory on the same day as collected, values outside this range invalidate the test.	Upon receipt.

[3] Where no upstream control is available, enter results from laboratory or synthetic control.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME: Columbia Regional Wastewater Treatment Plant	DATE AND TIME COLLECTED: EFFLUENT 08/05/14 08:10 UPSTREAM 08/05/14 08:30
PERMIT NUMBER: MO-0097837	PERMIT OUTFALL NUMBER: #001
COLLECTOR'S NAME: Craig Cuvellier & Tami Hansen	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION: Missouri River	
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC): 100%	EFFLUENT SAMPLE TYPE (CHECK ONE): ☑ 24 HR COMPOSITE ☐ GRAB ☐ OTHER ____
SAMPLE NUMBER: EFFLUENT N/A UPSTREAM N/A	UPSTREAM SAMPLE TYPE (CHECK ONE): ☐ 24 HR COMPOSITE ☑ GRAB ☐ OTHER ____
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR: CHLORINE N/A mg/L	PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR: AMMONIA N/A mg/L

PART B – TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY: ESC Lab Sciences	TEST TYPE: 48-hr static acute	
FINAL REPORT NUMBER: L713950-01 (effluent); -02 (upstream)	TEST DURATION: 48 hours	
DATE OF LAST REFERENCE TOXICANT TESTING: 07/02/2014	TEST METHOD: EPA Method 2002 and EPA Method 2000	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY: 8/6/2014 @ 09:00	TEST START DATE AND TIME: 8/6/2014 @ 15:43	TEST END DATE AND TIME: 8/8/2014 @ 16:06
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? ☐ YES ☑ NO EFFLUENT <0.2 UPSTREAM 0.06	TEST ORGANISM #1 AND AGE: Ceriodaphnia dubia < 24 hrs old	TEST ORGANISM #2 AND AGE: Pimephales promelas 9 days old
SAMPLE FILTERED[1] PRIOR TO ANALYSIS? ☐ YES ☑ NO EFFLUENT ____ UPSTREAM ____	90 PERCENT OR GREATER SURVIVAL IN SYNTHETIC CONTROL? ☑ YES ☐ NO	DILUTION WATER USED TO ACHIEVE AEC: Moderately Hard SDW
FILTER MESH SIEVE SIZE[2]	EFFLUENT ORGANISM #1 PERCENT MORTALITY AT AEC: 0% mortality at AEC	EFFLUENT ORGANISM #2 PERCENT MORTALITY AT AEC: 20% mortality at AEC
SAMPLE AERATED DURING TESTING? ☐ YES ☑ NO	UPSTREAM ORGANISM #1 PERCENT MORTALITY: 0% mortality in upstream sample	UPSTREAM ORGANISM #2 PERCENT MORTALITY: 25% mortality in upstream sample
pH ADJUSTED? ☐ YES ☑ NO EFFLUENT 7.7 UPSTREAM 8.4	TEST RESULT AT AEC FOR ORGANISM #1: ☑ PASS ☐ FAIL	TEST RESULT AT AEC FOR ORGANISM #2: ☑ PASS ☐ FAIL

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature •C	24.7 to 25.3 degrees C	SOP 350323	daily
pH Standard Units	7.7	SM4500H+B	at test initiation
Conductance µMohs	1528	SOP 350328	at test initiation
Dissolved Oxygen mg/L	7.9	SM4500OG	at test initiation
Total Residual Chlorine mg/L	<0.2	SOP 350321	at test initiation
Unionized Ammonia mg/L		350.1	
* Total Alkalinity mg/L	190	2320 B-2011	08/09/14 12:23
* Total Hardness mg/L	230	EPA 130.1	08/08/14 19:16

* Recommended by EPA guidance, not a required analysis.

1 Samples shall only be filtered if indigenous organisms are present that may be confused with, or attack the test organisms.
2 Filters shall have a sieve size of 60 microns or greater.

CONTINUED ON PAGE 2

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT (Continued)

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100 PERCENT UPSTREAM SAMPLE[3]

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	24.8 to 25.2 degrees C	SOP 350323	daily
pH Standard Units	8.4	SM4500H+B	at test initiation
Conductance µMohs	886	SOP 350328	at test initiation
Dissolved Oxygen mg/L	7.9	SM4500OG	at test initiation
Total Residual Chlorine mg/L	0.06	SOP 350321	at test initiation
Unionized Ammonia mg/L		350.1	
* Total Alkalinity mg/L	195	2320 B-2011	08/09/14 12:24
* Total Hardness mg/L	250	EPA 130.1	08/08/14 19:16
* Recommended by EPA guidance, not a required analysis.			

PRELIMINARY TEST ACCEPTABILITY MATRIX (FOR USE BY PERMITTEE IN DETERMINING TEST VALIDITY)
MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100 PERCENT UPSTREAM SAMPLE[3]

PERMIT ALLOWABLE EFFLUENT CONCENTRATION, or AEC: As indicated on permit. Test is invalid otherwise.

EFFLUENT SAMPLE TYPE: As indicated on permit. Test is invalid otherwise.

TEST TYPE: Acute Static Non-Renewal Test or other as indicated on permit. Test is invalid otherwise.

TEST DURATION: Forty-eight hours or as indicated on permit. Test is invalid otherwise.

TEST ORGANISMS: As indicated on permit. Test is invalid otherwise.

DILUTION WATER USED TO ACHIEVE AEC: Upstream receiving water required if available.

TEST METHOD: The only acceptable method is the **most current edition** of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, or other as specifically assigned by EPA for determining National Pollutant Discharge Elimination System, or NPDES, compliance. Test is invalid otherwise.

TEST START DATE AND TIME: Unless otherwise specified in writing by EPA, if >36 hours lapse between collection and initiation, test is invalid.

FILTER MESH SIEVE SIZE: Unless otherwise specified in writing by EPA, if sieve size is smaller than 60 microns, test is invalid.

90 PERCENT OR GREATER SURVIVAL IN LABORATORY CONTROL(S) (Y/N): If no, test is invalid.

PARAMETER	RESULT	NOTES	WHEN ANALYZED
Temperature °C	0 – 6	Unless received by the laboratory on the same day as collected, values outside this range invalidate the test.	Upon receipt.

[3] Where no upstream control is available, enter results from laboratory or synthetic control.

ATTACHMENT E

FORM B2

APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT

MO-0097837

PLANT EXPANSION STATEMENT OF WORK COMPLETED FORM

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

STATEMENT OF WORK COMPLETED

1. PROJECT INFORMATION

CONSTRUCTION PERMIT #	DEPARTMENT FUNDED PROJECT #
CP0000490	C295361-08ARRA

NAME OF THE PROJECT
City of Columbia, MO Wastewater Treatment Plant Improvements Phase 1

LOCATION OF THE PROJECT
Columbia, Missouri

BRIEF DESCRIPTION OF THE PROJECT
This 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 or process control and monitoring equipment.

2. AS BUILTS

☑ An electronic copy of the as builts are required and included with this application.

3. PROJECT OWNER

NAME	TELEPHONE NUMBER WITH AREA CODE
Mr. Mike Matthes, City Manager	(573) 874-7214

ADDRESS	CITY	STATE	ZIP CODE
701 E. Broadway, P.O. Box 6015	Columbia	MO	65205

4. CONTRACTOR COMPANY

CONTRACT NUMBER
20/2009

NAME	TELEPHONE NUMBER WITH AREA CODE
KCI Construction, Inc.	(314) 894-8888

ADDRESS	CITY	STATE	ZIP CODE
10315 Lake Bluff Drive	St. Louis	MO	63123

5. INSPECTIONS CONDUCTED BY CONSULTANT

DATES OF CONSTRUCTION INSPECTIONS DURING CONSTRUCTION
Full-time inspections:February 1, 2010 through March 30, 2013
Periodic inspections thereafter: April 25, 2013, May 23, 2013, June 6, 2013, June 13, 2013, June 27, 2013, July 25, 2013, August 22, 2013, September 19, 2013, December 17, 2013, February 6, 2014, February 18, 2014, March 4, 2014, March 14, 2014, April 10, 2014

DATE OF FINAL INSPECTION
04/10/2014

6. ADDENDA APPROVAL

ISSUED ADDENDUM #	DEPARTMENT APPROVAL DATE
1	November 30, 2009
2	November 30, 2009
3	November 30, 2009
4	November 30, 2009

7. CHANGE ORDER APPROVAL	
EXECUTED CHANGE ORDER #	DEPARTMENT APPROVAL DATE
See attached	See attached

8. CONSULTANT: I hereby affirm, to the best of my knowledge and belief, based on inspections, observations, testing of the construction and upon reports submitted by others, that this project is complete. The construction was completed in accordance with the approved plans and specifications and the above listed and approved Addenda and Change Order(s).

SIGNATURE Alan C Ringhausen			
PRINT NAME Alan C. Ringhausen			DATE December 16, 2014
CONSULTING FIRM NAME Black & Veatch Corporation			LICENSE # MO E-2000150062
ADDRESS 8400 Ward Parkway	CITY Kansas City	STATE MO	ZIP CODE 64114
NAME OF THE PROJECT Columbia, MO Wastewater Treatment Plant Improvements Phase 1			TELEPHONE NUMBER WITH AREA CODE (913) 458-3237

Mail completed copy to:
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
P.O. BOX 176
JEFFERSON CITY, MO 65102-0176

MO 780-2155 (12-11)

Attachment to Statement of Work Completed for the Columbia, Missouri Wastewater Treatment Plant Phase 1 Project.

Construction Permit No. CP0000490

7. Change Order Approval	
Executed Change Order #	Department Approval Date
CO 1	July 27, 2010
CO 2	December 16, 2010
CO 3	March 15, 2011
CO 4	June 15, 2011
CO 5	September 20, 2011
CO 6	February 9, 2012
CO 7	May 16, 2012
CO 8	August 24, 2012
CO 9	September 7, 2012
CO 10	February 4, 2013
CO 11	In progress