

STATE OF MISSOURI  
**DEPARTMENT OF NATURAL RESOURCES**  
MISSOURI CLEAN WATER COMMISSION



**MISSOURI STATE OPERATING PERMIT**

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

Permit No. MO-0094846

Owner: City of Jefferson  
Address: 320 East McCarty Street, Jefferson City, MO 65101

Continuing Authority: Same as above  
Address: Same as above

Facility Name: Jefferson City Regional Water Reclamation Facility (RWRf)  
Facility Address: 401 Mokane Road, Jefferson City, MO 65101

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.

August 1, 2020  
Effective Date

April 1, 2022  
Modification Date

March 31, 2025  
Expiration Date

Chris Wieberg, Director, Water Protection Program

**FACILITY DESCRIPTION (continued):**

**Outfall #001** - POTW

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

Three (3) fine mechanical bar screens / grit removal / four (4) sequencing batch reactor basins / UV disinfection / high water effluent pump station / two (2) solids thickening basins / two (2) solids storage basins / solids belt filter presses / biosolids are land applied.

Design population equivalent is 110,000.

Design flow is 11 MGD.

Actual flow is 8.08 MGD.

Design biosolids production is 5,200 dry tons/year.

Legal Description:	Sec. 16, T44N, R11W, Callaway County
UTM Coordinates:	X = 572348, Y = 4271013
Receiving Stream:	Missouri River (P) (701)
First Classified Stream and ID:	Missouri River (P) (701)
USGS Basin & Sub-watershed No.:	(10300102-1305)

**Permitted Feature INF** – Influent Monitoring Location – Headworks

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 in <b>Table A-1</b> shall become effective on <b>August 1, 2020</b> 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 ( <b>Note 1</b> )	MGD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand <sub>5</sub>	mg/L		45	30	once/week	composite**
Total Suspended Solids	mg/L		45	30	once/week	composite**
<i>E. coli</i> ( <b>Note 2</b> )	#/100mL		1,030	206	once/week	grab
Ammonia as N	mg/L	*		*	once/month	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**
Nitrite + Nitrate	mg/L	*		*	once/month	composite**
EFFLUENT PARAMETER(S)	UNITS	MINIMUM		MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
pH – Units***	SU	6.0		9.0	once/month	grab
EFFLUENT PARAMETER(S)			UNITS	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Biochemical Oxygen Demand <sub>5</sub> – Percent Removal ( <b>Note 3</b> )			%	85	once/month	calculated
Total Suspended Solids – Percent Removal ( <b>Note 3</b> )			%	85	once/month	calculated
MONITORING REPORTS SHALL BE SUBMITTED <b>MONTHLY</b> ; THE FIRST REPORT IS DUE <b>SEPTEMBER 28, 2020</b> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

\* Monitoring requirement only.

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

\*\*\* pH is measured in pH units and is not to be averaged.

**Note 1** – Either Influent or Effluent flow may be reported.

**Note 2** – Effluent limitations and monitoring requirements for *E. coli* are applicable only during the recreational season from April 1 through October 31. The Monthly Average Limit for *E. coli* is expressed as a geometric mean. The Weekly Average for *E. coli* will be expressed as a geometric mean if more than one (1) sample is collected during a calendar week (Sunday through Saturday).

**Note 3** – Influent sampling for BOD<sub>5</sub> and TSS is not required when the facility does not discharge effluent during the reporting period. Samples are to be collected following preliminary treatment. Calculate Percent Removal by using the following formula:  

$$[(\text{Average Influent} - \text{Average Effluent}) / \text{Average Influent}] \times 100\% = \text{Percent Removal}$$
Influent and effluent samples are to be taken during the same month. The Average Influent and Average Effluent values are to be calculated by adding the respective values together and dividing by the number of samples taken during the month. Influent samples are to be collected as a 24-hour composite sample, composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

OUTFALL #001	TABLE A-2. 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 <b>Table A-2</b> shall become effective on <u>August 1, 2020</u> and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
	EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
DAILY MAXIMUM			WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE	
Limit Set: WA							
Acute Whole Effluent Toxicity ( <b>Note 4</b> )	TU <sub>a</sub>	*				once/year	composite**
ACUTE WET TEST MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE JANUARY 28, 2021.							
Limit Set: WC							
Chronic Whole Effluent Toxicity ( <b>Note 5</b> )	TU <sub>c</sub>	*				once/permit cycle	composite**
CHRONIC WET TEST REPORTS SHALL BE SUBMITTED <u>ONCE PER PERMIT CYCLE</u> ; THE FIRST REPORT IS DUE JANUARY 28, 2025.							

\* 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 4** – The Acute WET test shall be conducted once per year. See Special Condition #14 for additional requirements.

**Note 5** –The Chronic WET test shall be conducted once per permit cycle. An Acute WET test is not required during the year of the Chronic test. See Special Condition #15 for additional requirements.

PERMITTED FEATURE INF	TABLE B-1. INFLUENT MONITORING REQUIREMENTS					
	The monitoring requirements in <b>Table B-1</b> shall become effective <u><b>August 1, 2020</b></u> and remain in effect until expiration of the permit. The influent wastewater shall be monitored by the permittee as specified below:					
	PARAMETER(S)	UNITS	MONITORING REQUIREMENTS			
DAILY MAXIMUM			WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	
Limit Set: IM						
Biochemical Oxygen Demand <sub>5</sub> ( <b>Note 3</b> )	mg/L			*	once/month	composite**
Total Suspended Solids ( <b>Note 3</b> )	mg/L			*	once/month	composite**
Ammonia as N	mg/L	*		*	once/month	composite**
Total Phosphorus	mg/L	*		*	once/month	composite**
Total Kjeldahl Nitrogen	mg/L	*		*	once/month	composite**
Nitrite + Nitrate	mg/L	*		*	once/month	composite**
MONITORING REPORTS SHALL BE SUBMITTED <u><b>MONTHLY</b></u> ; THE FIRST REPORT IS DUE <u><b>SEPTEMBER 28, 2020</b></u> .						

\* 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 3** – Influent sampling for BOD<sub>5</sub> and TSS is not required when the facility does not discharge effluent during the reporting period. Samples are to be collected following preliminary treatment. Calculate Percent Removal by using the following formula:  

$$[(\text{Average Influent} - \text{Average Effluent}) / \text{Average Influent}] \times 100\% = \text{Percent Removal}$$
Influent and effluent samples are to be taken during the same month. The Average Influent and Average Effluent values are to be calculated by adding the respective values together and dividing by the number of samples taken during the month. Influent samples are to be collected as a 24-hour composite sample, composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

### **C. STANDARD CONDITIONS**

In addition to specified conditions stated herein, this permit is subject to the attached Parts I, II, & III standard conditions dated August 1, 2014, May 1, 2013, and August 1, 2019, and hereby incorporated as though fully set forth herein.

### **D. 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) 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/>).
    - (3) Pretreatment Program Reports; and
    - (4) 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 Termination (NOTs);
    - (2) No Exposure Certifications (NOEs); and
    - (3) 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 submit compliance monitoring data and reports electronically. The Department may grant a waiver to a permittee 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.
2. 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.
3. All outfalls must be clearly marked in the field.
4. Report as no-discharge when a discharge does not occur during the report period.
5. Reporting of Non-Detects:
  - (a) An analysis conducted by the permittee or their contracted laboratory shall be conducted in such a way that the precision and accuracy of the analyzed result can be enumerated.
  - (b) The permittee shall not report a sample result as "Non-Detect" without also reporting the detection limit of the test. Reporting as "Non Detect" without also including the detection limit will be considered failure to report, which is a violation of this permit.
  - (c) The permittee shall provide the "Non-Detect" sample result using the less than sign and the minimum detection limit (e.g. <10).

**D. SPECIAL CONDITIONS (continued)**

- (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.
6. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
7. 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). Operational monitoring does not need to occur on City holidays. During periods where the sequencing batch reactors are not aerating due to high flows, the mixed liquor does not need to be sampled. This approval is limited to operational monitoring and does not apply to the certified operator requirements of 10 CSR 20-9.020.
8. The permittee shall develop and implement a program for maintenance and repair of its collection system. 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 a report to the Northeast Regional Office via the Electronic Discharge Monitoring Report (eDMR) Submission System annually, by January 28<sup>th</sup>, for the previous calendar year. The report shall contain the following information:
- (a) A summary of the efforts to locate and eliminate specific 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 any planned maintenance and repairs to the collection system serving the facility for the upcoming calendar year. This list shall include locations (GPS, 911 address, manhole number, etc.) and actions to be taken.
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. Bypasses are to be reported to the Northeast Regional Office during normal business hours or by using the online Sanitary Sewer Overflow/Facility Bypass Application located at: <https://dnr.mo.gov/mogem/> or the Environmental Emergency Response spill-line at 573-634-2436 outside of normal business hours. Once an electronic reporting system compliant with 40 CFR Part 127, the National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, is available all bypasses must be reported electronically via the new system. 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 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. An all-weather access road to the treatment facility shall be maintained.
13. The outfall sewer shall be protected and maintained against the effects of floodwater, ice, or other hazards as to reasonably insure its structural stability, freedom from stoppage, and that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters.

**D. SPECIAL CONDITIONS (continued)**

14. 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:
    - i. The fathead minnow, *Pimephales promelas* (Acute Toxicity EPA Test Method 2000.0).
    - ii. 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 laboratory shall not chemically dechlorinate the sample.
  - (e) The Allowable Effluent Concentration (AEC) is 9%; the dilution series is: 4.5%, 9%, 18%, 36%, and 72%.
  - (f) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
  - (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.
15. Chronic 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 chronic toxicity of NPDES effluents are found in the most recent edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA/821/R-02/013; Table IA, 40 CFR Part 136). The permittee shall concurrently conduct 7-day, static renewal toxicity tests with the following species:
    - i. The fathead minnow, *Pimephales promelas* (Survival and Growth Test Method 1000.0).
    - ii. The daphnid, *Ceriodaphnia dubia* (Survival and Reproduction Test Method 1002.0).
  - (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 laboratory shall not chemically dechlorinate the sample.
  - (e) The Allowable Effluent Concentration (AEC) is 0.4%, the dilution series is: 0.08%, 0.04%, 2%, 10%, and 50%.
  - (f) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
  - (g) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of chronic toxic units ( $TU_c = 100/IC_{25}$ ) reported according to the *Methods for Measuring the Chronic Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* chapter on report preparation and test review. The 25 percent Inhibition Effect Concentration ( $IC_{25}$ ) is the toxic or effluent concentration that would cause 25 percent reduction in mean young per female or in growth for the test populations.
16. Expanded Effluent Testing  
Permittee must sample and analyze for the pollutants listed in 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 (MO-780-1805 dated 02-19), Part D – Expanded Effluent Testing Data, #18. The permittee shall provide this data with the permit renewal application. A minimum of three samples taken within four and one-half years prior to the date of the permit application must be provided. Samples must be representative of the seasonal variation in the discharge from each outfall. Approved and sufficiently sensitive testing methods listed in 40 CFR 136.3 must be utilized. 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 measured pollutant or pollutant parameter; or 2) the method minimum level is above the applicable water quality criterion, but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge; or 3) the method has the lowest minimum level of the analytical methods approved under 40 CFR part 136. These methods are also required for parameters listed as monitoring only, as the data collected may be used to determine if numeric limitations need to be established.

**D. SPECIAL CONDITIONS (continued)**

17. Stormwater Pollution Prevention Plan (SWPPP): A SWPPP must be implemented upon permit issuance. Through implementation of the SWPPP, the permittee shall minimize the release of pollutants in stormwater from the facility to the waters of the state. The SWPPP shall be developed in consultation with the concepts and methods described in the following document: 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 June 2015.
- (a) The SWPPP must identify any stormwater outfall from the facility and Best Management Practices (BMPs) used to prevent or reduce the discharge of contaminants in stormwater. The stormwater outfalls shall either be marked in the field or clearly marked on a map and maintained with the SWPPP.
  - (b) The SWPPP must include a schedule and procedures for a once per month routine site inspection.
    - (1) The monthly routine inspection shall be documented in a brief written report, which shall include:
      - i. The person(s) conducting the inspection.
      - ii. The inspection date and time.
      - iii. Weather information for the day of the inspection.
      - iv. Precipitation information for the entire period since the last inspection.
      - v. Description of the discharges observed, including visual quality of the discharges (sheen, turbid, etc.).
      - vi. Condition of BMPs
      - vii. If BMPs were replaced or repaired.
      - viii. Observations and evaluations of BMP effectiveness.
    - (2) Any deficiency observed during the routine inspection must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report.
    - (3) The routine inspection reports must be kept onsite with the SWPPP and maintained for a period of five (5) years.
    - (4) The routine inspection reports shall be made available to Department personnel upon request.
  - (c) The SWPPP must include a schedule and procedures for a once per year comprehensive site inspection.
    - (1) The annual comprehensive inspection shall be documented in a written report, which shall include:
      - i. The person(s) conducting the inspection.
      - ii. The inspection date and time.
      - iii. Findings from the areas of your facility that were examined;
      - iv. All observations relating to the implementation of your control measures including:
        - 1. Previously unidentified discharges from the site,
        - 2. Previously unidentified pollutants in existing discharges,
        - 3. Evidence of, or the potential for, pollutants entering the drainage system;
        - 4. Evidence of pollutants discharging to receiving waters at all facility outfall(s), and the condition of and around the outfall, and
        - 5. Additional control measures needed to address any conditions requiring corrective action identified during the inspection.
      - v. Any required revisions to the SWPPP resulting from the inspection;
      - vi. Any incidence of noncompliance observed or a certification stating that the facility is in compliance with Special Condition D.17.
    - (2) Any deficiency observed during the comprehensive inspection must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report.
    - (3) The comprehensive inspection reports must be kept onsite with the SWPPP and maintained for a period of five (5) years.
    - (4) The comprehensive inspection reports shall be made available to Department personnel upon request.
  - (d) The SWPPP must be kept on-site and should not be sent to the Department unless specifically requested.
  - (e) The SWPPP must be reviewed and updated at a minimum once per permit cycle, as site conditions or control measures change.
18. The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP.
- (a) Permittee shall adhere to the following minimum Best Management Practices (BMPs):
    - (1) Minimize the exposure of industrial material storage areas, loading and unloading areas, dumpsters and other disposal areas, maintenance activities, and fueling operations to rain, snow, snowmelt, and runoff, by locating industrial materials and activities inside or protecting them with storm resistant coverings, if warranted and practicable.
    - (2) Provide good housekeeping practices on the site to prevent potential pollution sources from coming into contact with stormwater and provide collection facilities and arrange for proper disposal of waste products, including sludge.
    - (3) Implement a maintenance program to ensure that the structural control measures and industrial equipment is kept in good operating condition and to prevent or minimize leaks and other releases of pollutants.
    - (4) Prevent or minimize the spillage or leaks of fluids, oil, grease, fuel, etc. from equipment and vehicle maintenance, equipment and vehicle cleaning, or activities.



**D. SPECIAL CONDITIONS (continued)**

- (5) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property. This could include the use of straw bales, silt fences, or sediment basins, if needed.
- (6) Provide stormwater runoff controls to divert, infiltrate, reuse, contain, or otherwise minimize pollutants in the stormwater discharge.
- (7) Enclose or cover storage piles of salt or piles containing salt, used for deicing or other commercial or industrial purposes.
- (8) Provide training to all employees who; work in areas where industrial materials or activities are exposed to stormwater, are responsible for stormwater inspections, are members of the Pollution Prevention Team. Training must cover the specific control measures and monitoring, inspection, planning, reporting and documentation requirements of this permit. Training is recommended annually for any applicable staff and whenever a new employee is hired who meets the description above.
- (9) Eliminate and prevent unauthorized non-stormwater discharges at the facility.
- (10) Minimize generation of dust and off-site tracking of raw, final, or waste materials by implementing appropriate control measures.

19. **Sewer Extension Authority Supervised Program**

The Department approved the Sewer Extension Authority Supervised Program for the City of Jefferson to regulate and approve construction of sanitary sewers and pump stations, which are tributary to this wastewater treatment facility on **June 12, 2017**. The City of Jefferson 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 January 28<sup>th</sup> 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.

20. **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 31<sup>st</sup> 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 **February 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.

**Missouri Department of Natural Resources**  
**Factsheet Addendum**  
**For Pretreatment Program Modification**  
**MO-0094846, Jefferson City Regional Water Reclamation Facility**

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 Jefferson City 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 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 was required to public notice this program modification.

The public notice of the Department of Natural Resources' intent to approve the city of Jefferson City's pretreatment program modification has ended as of March 7, 2022. The pretreatment program is hereby approved pursuant to 40 CFR 403.18 (adopted in 10 CSR 20-6.100) and the city of Jefferson City should proceed to implement the pretreatment program requirements upon receipt of this letter.

The City is proposing to 1) adopt the language related to the Dental Amalgam Rule, 2) clarify requirements for the grease and oil interceptor equipment and maintenance, and 3) clarify record keeping requirements. See City's Statement of Basis letter in the Appendix for other changes to the sewer use ordinance. Jefferson City will also adopt in city ordinance a less stringent iron limit than the previous program limit. The less stringent limit is 25 mg/L, and the previous limit, 1 mg/l. The pretreatment program changes were designated substantial modifications because the changes could have a significant impact on the operation of the program, pursuant to 40 CFR 403.18(b)(7). The City plans to complete further local limit development under 40 CFR 403.5(c)(1) at a later date to satisfy the requirements of the April 7, 2021, and October 27, 2021, Department letters.

See Factsheet **Appendix** for POTW's December 16, 2021, Statement of Basis letter for the program modification.

**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 and with part 124 draft permit and public notice as required in § 122.62. Minor modifications include:

(g) Incorporate 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:** 03/25/2022

Completed by:

Todd Blanc,

Industrial Pretreatment Coordinator

Water Protection Program

314-416-2064

[todd.blanc@dnr.mo.gov](mailto:todd.blanc@dnr.mo.gov)

**MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**FACT SHEET**  
**FOR THE PURPOSE OF RENEWAL**  
**OF**  
**MO-0094846**  
**JEFFERSON CITY REGIONAL WATER RECLAMATION FACILITY (RWRF)**

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollutant 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)(A)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 facility.

**Part I – Facility Information**

Facility Type: POTW

Facility Description: The use or operation of this facility shall be by or under the supervision of a Certified "A" Operator. Three (3) fine mechanical bar screens / grit removal / four (4) sequencing batch reactor basins / UV disinfection / high water effluent pump station / two (2) solids thickening basins / two (2) solids storage basins / solids belt filter presses / biosolids are land applied.

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

✓ No.

Application Date: 9/30/2019

Expiration Date: 3/31/2020

**OUTFALL(S) TABLE:**

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
#001	17.05	Secondary	Municipal

**Facility Performance History:**

This facility was last inspected on December 2, 12, and 20, 2018. The conditions of the facility at the time of inspection were found to be satisfactory.

A review of discharge monitoring data submitted by the permittee over the last five (5) years indicated the following:

- Flood Disaster Reported: June 2019
- Final Effluent Exceedances:
  - E. coli: May 2017 and June 2015.
  - pH: August 2017

**Comments:**

Changes in this permit for Outfall #001 include the addition of influent monitoring for Total Phosphorus and Total Nitrogen (Speciated) and the removal of instream monitoring for Total Phosphorus and Total Nitrogen. Sampling and Reporting Frequencies for effluent Total Phosphorus and Total Nitrogen (Speciated) have been increased from once per quarter to once per month per 10 CSR 20-7.015(9)(D)8. See Part VI of the Fact Sheet for further information regarding the addition, revision, and removal of effluent parameters. Updates to special conditions included sewer extension authority supervised program and pretreatment.

## **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 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

☐ - County

☐ - Public Sewer District

☐ - State agency

☐ - Public Water Supply Districts

☐ - Private Sewer Company regulated by the Public Service Commission

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

This facility currently requires a chief operator with a(n) 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: Clara Haenchen

Certification Number: 4924

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 Control Testing Requirements**

Missouri Clean Water Commission regulation 10 CSR 20-9.010 requires certain publicly 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 publicly 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's 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. These operational monitoring reports are to be submitted to the Department along with the MSOP discharge monitoring reports.
- ✓ The Department has approved alternative monitoring frequencies to the Operational Monitoring testing requirements in 10 CSR 20-9.010(5)(B) for the facility. Operational monitoring does not need to occur on City Holidays. During periods where the sequencing batch reactors are not aerating due to high flows the mixed liquor does not need to be sampled.

Operational Monitoring Parameter	Frequency
Precipitation	Daily (M-F)
Flow – Influent or Effluent	Daily (M-F)
pH – Influent	Daily (M-F)
Temperature (Aeration basin)	Daily (M-F)
TSS – Influent	Weekly
TSS – Mixed Liquor	Weekly
Settleability – Mixed Liquor	Daily (M-F)
Dissolved Oxygen – Mixed Liquor	Daily (M-F)

## Part IV – Receiving Stream Information

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

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
Missouri River	P	701	AQL, WBC-B, SCR, HHP, IRR, LWW, DWS, IND	10300102-1305	0.0

\*As per 10 CSR 20-7.031 Missouri Water Quality Standards, the Department defines the Clean Water Commission's water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and 1<sup>st</sup> classified receiving stream's beneficial water uses to be maintained are in the receiving stream table in accordance with [10 CSR 20-7.031(1)(C)].

Uses found in the receiving streams table, above:

10 CSR 20-7.031(1)(C)1.:

**AQL** = Protection of aquatic life (Current narrative use(s) are defined to ensure the protection and propagation of fish shellfish and wildlife, which is further subcategorized as: **WWH** = Warm Water Habitat; **CDF** = Cold-water fishery (Current narrative use is cold-water habitat.); **CLF** = Cool-water fishery (Current narrative use is cool-water habitat); **EAH** = Ephemeral Aquatic Habitat; **MAH** = Modified Aquatic Habitat; **LAH** = Limited Aquatic Habitat. This permit uses AQL effluent limitations in 10 CSR 20-7.031 Table A for all habitat designations unless otherwise specified.)

10 CSR 20-7.031(1)(C)2.: Recreation in and on the water

**WBC** = Whole Body Contact recreation where the entire body is capable of being submerged;

**WBC-A** = Whole body contact recreation that supports swimming uses and has public access;

**WBC-B** = Whole body contact recreation that supports swimming;

**SCR** = Secondary Contact Recreation (like fishing, wading, and boating).

10 CSR 20-7.031(1)(C)3. to 7.:

**HHP** (formerly HHF) = Human Health Protection as it relates to the consumption of fish;

**IRR** = Irrigation for use on crops utilized for human or livestock consumption;

**LWW** = Livestock and wildlife watering (Current narrative use is defined as LWP = Livestock and Wildlife Protection);

**DWS** = Drinking Water Supply;

**IND** = Industrial water supply

10 CSR 20-7.031(1)(C)8-11.: Wetlands (10 CSR 20-7.031 Table A currently does not have corresponding habitat use criteria for these defined uses)

**WSA** = Storm- and flood-water storage and attenuation; **WHP** = Habitat for resident and migratory wildlife species;

**WRC** = Recreational, cultural, educational, scientific, and natural aesthetic values and uses; **WHC** = Hydrologic cycle maintenance.

10 CSR 20-7.031(6): **GRW** = Groundwater

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

RECEIVING STREAM	LOW-FLOW VALUES (CFS)*		
	1Q10	7Q10	30Q10
Missouri River	33,473	34,639	36,988

\* Data from USGS Gauge Station 06910450 located on the Missouri River at Jefferson City, MO (Data obtained 2/21/2020).

**MIXING CONSIDERATIONS TABLE:**

MIXING ZONE (CFS) [10 CSR 20-7.031(5)(A)4.B.(II)(a)]			ZONE OF INITIAL DILUTION (CFS) [10 CSR 20-7.031(5)(A)4.B.(II)(b)]		
1Q10	7Q10	30Q10	1Q10	7Q10	30Q10
8368.25	8659.75	9247	170.5	170.5	170.5

### 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.
  - Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.
  - **Instream Total Phosphorus and Total Nitrogen Monitoring.** The previous permit contained upstream instream monitoring requirements for Total Phosphorus and Total Nitrogen. The Department has made a determination that monitoring of background nutrients is not needed. This permit is still protective of water quality and this determination will be reassessed at the time of renewal.

### **ANTIDEGRADATION:**

In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(3)], for domestic wastewater discharge with new, altered, or expanding discharges, the Department is to document by means of Antidegradation Review that the use of a water body's available assimilative capacity is justified. In accordance with Missouri's water quality regulations for antidegradation [10 CSR 20-7.031(3)], degradation may be justified by documenting the socio-economic importance of a discharge after determining the necessity of the discharge. Facilities must submit the antidegradation review request to the Department prior to establishing, altering, or expanding discharges. See <http://dnr.mo.gov/env/wpp/permits/antideg-implementation.htm>

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

For stormwater discharges, the stormwater BMP chosen for the facility, through the antidegradation analysis performed by the facility, must be implemented and maintained at the facility. Failure to implement and maintain the chosen BMP alternative is a permit violation; see SWPPP.

- ✓ The facility must review and maintain stormwater BMPs as appropriate.

### **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, when a higher level authority is available, must submit information to the Department for review and approval, provided it 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.

**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. In an effort to aid facilities in the reporting of applicable information electronically, the Department has created several new forms including operational control monitoring forms and an I&I location and reduction form. These forms are optional and found on the Department's website at the following locations:

Operational Monitoring Lagoon: <http://dnr.mo.gov/forms/780-2801-f.pdf>

Operational Monitoring Mechanical: <http://dnr.mo.gov/forms/780-2800-f.pdf>

I&I Report: <http://dnr.mo.gov/forms/780-2690-f.pdf>

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>. Each facility must make a request. If a single entity owns or operates more than one facility, 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.

- ✓ An 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<sub>5</sub>) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals.

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

**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 calendar 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) or the Departments' CMOM Model located at <http://dnr.mo.gov/env/wpp/permits/docs/cmom-template.doc>. 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.



**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 may include 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), 10 CSR 20-7.031(11), and 10 CSR 20-7.015(9), 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 that may result in site-specific criteria or alternative effluent limits. A facility is not prohibited from conducting these activities, but a SOC may not be granted for conducting these activities.

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

✓ This permit does not contain an SOC.

**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 June 2015], 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 purpose of a SWPPP is to comply with all applicable stormwater regulations by creating an adaptive management plan to control and mitigate stream pollution from stormwater runoff. Developing a SWPPP provides opportunities to employ appropriate BMPs to minimize the risk of pollutants being discharged during storm events. The following paragraph outlines the general steps the permittee should take to determine which BMPs will work to achieve the benchmark values or limits in the permit. This section is not intended to be all encompassing or restrict the use of any physical BMP or operational and maintenance procedure assisting in pollution control. Additional steps or revisions to the SWPPP may be required to meet the requirements of the permit.

Areas which should be included in the SWPPP are identified in 40 CFR 122.26(b)(14). Once the potential sources of stormwater pollution have been identified, a plan should be formulated to best control the amount of pollutant being released and discharged by each activity or source. This should include, but is not limited to, minimizing exposure to stormwater, good housekeeping measures,

proper facility and equipment maintenance, spill prevention and response, vehicle traffic control, and proper materials handling. Once a plan has been developed the facility will employ the control measures determined to be adequate to achieve the benchmark values discussed above. The facility will conduct monitoring and inspections of the BMPs to ensure they are working properly and re-evaluate any BMP not achieving compliance with permitting requirements. For example, if sample results from an outfall show values of TSS above the benchmark value, the BMP being employed is deficient in controlling stormwater pollution. Corrective action should be taken to repair, improve, or replace the failing BMP. This internal evaluation is required at least once per month but should be continued more frequently if BMPs continue to fail. If failures do occur, continue this trial and error process until appropriate BMPs have been established.

For new, altered, or expanded stormwater discharges, the SWPPP shall identify reasonable and effective BMPs while accounting for environmental impacts of varying control methods. The antidegradation analysis must document why no discharge or no exposure options are not feasible. The selection and documentation of appropriate control measures shall serve as an alternative analysis of technology and fulfill the requirements of antidegradation [10 CSR 20-7.031(3)]. For further guidance, consult the antidegradation implementation procedure (<http://dnr.mo.gov/env/wpp/docs/AIP050212.pdf>).

Alternative Analysis (AA) evaluation of the BMPs is a structured evaluation of BMPs that are reasonable and cost effective. The AA evaluation should include practices that are designed to be: 1) non-degrading; 2) less degrading; or 3) degrading water quality. The glossary of AIP defines these three terms. The chosen BMP will be the most reasonable and effective management strategy while ensuring the highest statutory and regulatory requirements are achieved and the highest quality water attainable for the facility is discharged. The AA evaluation must demonstrate why “no discharge” or “no exposure” is not a feasible alternative at the facility. This structured analysis of BMPs serves as the antidegradation review, fulfilling the requirements of 10 CSR 20-7.031(3) Water Quality Standards and *Antidegradation Implementation Procedure* (AIP), Section II.B.

If parameter-specific numeric exceedances continue to occur and the permittee feels there are no practicable or cost-effective BMPs which will sufficiently reduce a pollutant concentration in the discharge to the benchmark values established in the permit, the permittee can submit a request to re-evaluate the benchmark values. This request needs to include 1) a detailed explanation of why the facility is unable to comply with the permit conditions and unable to establish BMPs to achieve the benchmark values; 2) financial data of the company and documentation of cost associated with BMPs for review and 3) the SWPPP, which should contain adequate documentation of BMPs employed, failed BMPs, corrective actions, and all other required information. This will allow the Department to conduct a cost analysis on control measures and actions taken by the facility to determine cost-effectiveness of BMPs. The request shall be submitted in the form of an operating permit modification; the application is found at: <http://dnr.mo.gov/forms/index.html>.

- ✓ 10 CSR 20-6.200 and 40 CFR 122.26(b)(14)(ix) includes treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that is located within the confines of the facility, with a design flow of 1.0 MGD or more, or are required to have an approved pretreatment program under 40 CFR part 403, as an industrial activity in which permit coverage is required. In lieu of requiring sampling in the site-specific permit, the facility is required to develop and implement a Stormwater Pollution Prevention Plan (SWPPP).

A facility can apply for conditional exclusion for “no exposure” of industrial activities and materials to stormwater by submitting a permit modification via Form B2 (<http://dnr.mo.gov/forms/780-1805-f.pdf>) appropriate application filing fees and a completed No Exposure Certification for Exclusion from NPDES Stormwater Permitting under Missouri Clean Water Law (<https://dnr.mo.gov/forms/780-2828-f.pdf>) to the Department’s Water Protection Program, Operating Permits Section. Upon approval of the No Exposure Certification, the permit will be modified and the Special Condition to develop and implement a SWPPP will be removed.

#### **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:

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

Where C = downstream concentration      C<sub>e</sub> = effluent concentration  
Cs = upstream concentration            Q<sub>e</sub> = effluent flow  
Q<sub>s</sub> = 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. For Total Ammonia as Nitrogen, "n = 30" is used.

#### WLA MODELING:

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

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

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

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

Under the federal Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System (NPDES). WET testing is also required by 40 CFR 122.44(d)(1). WET testing ensures that the provisions in the 10 CSR 20-6.010(8)(A) 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 continuously or routinely exceeds its design flow.
- ☐ Facility that exceeds its design population equivalent (PE) for BOD<sub>5</sub> whether or not its design flow is being exceeded.
- ☐ Facility (whether primarily domestic or industrial) that alters its production process throughout the year.
- ☐ Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
- ☐ Facility has Water Quality-based Effluent Limitations for toxic substances (other than NH<sub>3</sub>)
- ☒ Facility is a municipality with a Design Flow ≥ 22,500 gpd.
- ☐ Other – please justify.

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

**40 CFR 122.41(M) - BYPASSES:**

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

✓ 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 does not discharge to a 303(d) listed stream.

✓ This facility discharges to a stream with an EPA approved TMDL. The Missouri River (P) (701) has a Total Daily Maximum Load (TMDL) for Chlordanes and PCBs in fish tissue; however, this facility is not a source of the impairment.

## Part VI – Effluent Limits Determination

### OUTFALL #001 – MAIN FACILITY OUTFALL

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

#### EFFLUENT LIMITATIONS TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
Flow	MGD	1	*		*	*/*	1/day	monthly	T
BOD <sub>5</sub>	mg/L	1		45	30	45/30	1/week	monthly	C
TSS	mg/L	1		45	30	45/30	1/week	monthly	C
<i>Escherichia coli</i> **	#/100mL	1, 3		1,030	206	1,030/206	1/week	monthly	G
Ammonia as N	mg/L	2, 3	*		*	*/*	1/month	monthly	C
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
Nitrite + Nitrate	mg/L	1	*		*	*/*	1/month	monthly	C
Acute Whole Effluent Toxicity	TUa	1, 9	*			*	1/year	annually	C
Chronic Whole Effluent Toxicity	TUc	1, 9	*			*	1/permit cycle	1/permit cycle	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	1/month	monthly	G
PARAMETER	Unit	Basis for Limits	Daily Minimum		Monthly Avg. Min	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
BOD <sub>5</sub> Percent Removal	%	1			85	85	1/month	monthly	M
TSS Percent Removal	%	1			85	85	1/month	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

E = 24-hr. estimate

M = Measured/calculated

#### Basics for Limitations Codes:

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

### 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. The permittee may record either the influent or effluent flow to determine compliance with permitted design flow guidelines.
- Biochemical Oxygen Demand (BOD<sub>5</sub>).** Operating permit retains 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average from the previous permit. Effluent limits were established in accordance with 10 CSR 20-7.015(2) for discharges to the Missouri or Mississippi Rivers.
- Total Suspended Solids (TSS).** Operating permit retains 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average from the previous permit. Effluent limits were established in accordance with 10 CSR 20-7.015(2) for discharges to the Missouri or Mississippi Rivers.

- **Escherichia coli (E. coli)**. Monthly average of 206 per 100 mL as a geometric mean and Weekly Average of 1,030 per 100 mL as a geometric mean during the recreational season (April 1 – October 31), for discharges within two miles upstream of segments or lakes with Whole Body Contact Recreation (B) designated use of the receiving stream, as per 10 CSR 20-7.015(9)(B). An effluent limit for both monthly average and weekly average is required by 40 CFR 122.45(d). The Geometric Mean is calculated by multiplying all of the data points and then taking the nth root of this product, where n = # of samples collected. For example: Five *E. coli* samples were collected with results of 1, 4, 6, 10, and 5 (#/100mL). Geometric Mean = 5<sup>th</sup> root of (1)(4)(6)(10)(5) = 5<sup>th</sup> root of 1,200 = 4.1 #/100mL.
- **Total Ammonia Nitrogen**. Effluent limitations were re-calculated for Ammonia based on new information derived from discharge monitoring reports and on the current Missouri Water Quality Standards for Ammonia. Monitoring only. The reasonable potential analysis determined that Ammonia in this facility's discharge is unlikely to exceed water quality standards for Ammonia. The newly established limitations are still protective of water quality and this determination will be reassessed at the time of renewal.
- **Oil & Grease**. Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Total Phosphorus and Total Nitrogen (Speciated)**. Effluent monitoring for Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrite + Nitrate are required per 10 CSR 20-7.015(9)(D)8.
- **pH**. 6.0-9.0 SU. pH limitations [10 CSR 20-7.015] are protective of the water quality standard [10 CSR 20-7.031(5)(E)], due to the assimilative capacity of the receiving stream.
- **Biochemical Oxygen Demand (BOD<sub>5</sub>) Percent Removal**. 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 BOD<sub>5</sub> and TSS for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for BOD<sub>5</sub>.
- **Total Suspended Solids (TSS) Percent Removal**. 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 BOD<sub>5</sub> and TSS for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for TSS.

#### Whole Effluent Toxicity

- **Acute Whole Effluent Toxicity**. Monitoring requirement only. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards.
  - ✓ Classified P with other than default Mixing Considerations, the AEC% is determined as follows:
$$\text{Acute AEC\%} = \{[(\text{design flow}_{\text{cfs}} + \text{ZID}_{7\text{Q}10}) / \text{design flow}_{\text{cfs}}]^{-1}\} \times 100 = \#\%$$
$$\text{Acute AEC\%} = \{[(17.05 + 170.2) / 17.05]^{-1}\} \times 100 = 9.1\%$$
- **Chronic Whole Effluent Toxicity**. Monitoring requirement only. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards.
  - ✓ Classified P with other than default Mixing Considerations, the AEC% is determined as follows:
$$\text{Chronic AEC\%} = \{[(\text{design flow}_{\text{cfs}} + \text{MZ}_{7\text{Q}10}) / \text{design flow}_{\text{cfs}}]^{-1}\} \times 100 = \#\%$$
$$\text{Chronic AEC\%} = \{[(17.05 + 8659.75) / 17.05]^{-1}\} \times 100 = 9.1\%$$

#### Parameters Removed.

- **Instream Total Phosphorus and Total Nitrogen Monitoring**. The previous permit contained upstream instream monitoring requirements for Total Phosphorus and Total Nitrogen. The Department has made a determination that monitoring of background nutrients is not needed. This permit is still protective of water quality and this determination will be reassessed at the time of renewal.

**Sampling Frequency Justification**: The Department has determined that previously established sampling and reporting frequency is sufficient to characterize the facility's effluent and be protective of water quality. Sampling and reporting for Total Phosphorus and Total Nitrogen (Speciated) have been reduced from once per quarter to once per month per 10 CSR 20-7.015(9)(D)8. Weekly sampling is required for *E. coli*, per 10 CSR 20-7.015(9)(D)7.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  $\geq 1.0$  MGD.
  - Facility incorporates a pretreatment program.

**Chronic Whole Effluent Toxicity**

- ✓ **No less than ONCE/PERMIT CYCLE:**
  - POTW facilities with a design flow of greater than 1.0 million gallons per day, but less than 10 million gallons per day, shall conduct and submit to the Department a chronic WET test no less than once per five years.

**Sampling Type Justification:** As per 10 CSR 20-7.015, samples collected for mechanical plants shall be a 24 hour modified 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.

**PERMITTED FEATURE INF – INFLUENT MONITORING**

The monitoring requirements established in the below Monitoring Requirements 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 the monitoring requirements listed in this table.

**INFLUENT MONITORING TABLE:**

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
BOD <sub>5</sub>	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 = Composite

G = Grab

**Basis for Limitations Codes:**

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

**Influent Parameters**

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

**OUTFALL #001 – GENERAL CRITERIA CONSIDERATIONS:**

In accordance with 40 CFR 122.44(d)(1), effluent limitations shall be placed into the permit for those pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. The rule further states that pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above a narrative criterion within an applicable State water quality standard, the permit shall contain a numeric effluent limitation to protect that narrative criterion. In order to comply with this regulation, the permit writer will complete reasonable potential determinations on whether the discharge will violate any of the general criteria listed in 10 CSR 20-7.031(4). These specific requirements are listed below followed by derivation and discussion (the lettering matches that of the rule itself, under 10 CSR 20-7.031(4)). It should also be noted that Section 644.076.1, RSMo as well as Section D – Administrative Requirements of Standard Conditions Part I of this permit states that it shall be unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri that is 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.

- (A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses. The discharge from this facility is made up of treated domestic wastewater. Based upon review of the Report of Compliance Inspection for the inspection conducted on December 20, 2018, no evidence of an excursion of this criterion has been observed by the Department in the past and the facility has not disclosed any other information related to the characteristics of the discharge on their permit application which has the potential to cause or contribute to an excursion of this narrative criterion. Additionally, this facility utilizes secondary treatment technology and is currently in compliance with secondary treatment technology based effluent limits established in this permit and there has been no indication to the Department that the stream has had issues maintaining beneficial uses as a result of this discharge. Based on the information reviewed during the drafting of this permit, these final effluent limitations appear to have protected against the excursion of this criterion in the past. Therefore, the discharge does not have the reasonable potential to cause or contribute to an excursion of this criterion.
- (B) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses. Please see (A) above as justification is the same.
- (C) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses. Please see (A) above as justification is the same.
- (D) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life. This permit contains final effluent limitations which are protective of both acute and chronic toxicity for various pollutants that are either expected to be discharged by domestic wastewater facilities or that were disclosed by this facility on the application for permit coverage. Based on the information reviewed during the drafting of this permit, it has been determined if the facility meets final effluent limitations established in this permit, there is no reasonable potential for the discharge to cause an excursion of this criterion.
- (E) Waters shall provide for the attainment and maintenance of water quality standards downstream including waters of another state. Please see (D) above as justification is the same.
- (F) There shall be no significant human health hazard from incidental contact with the water. Please see (D) above as justification is the same.
- (G) There shall be no acute toxicity to livestock or wildlife watering. Please see (D) above as justification is the same.
- (H) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community. Please see (A) above as justification is the same.
- (I) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247. The discharge from this facility is made up of treated domestic wastewater. No evidence of an excursion of this criterion has been observed by the Department in the past and the facility has not disclosed any other information related to the characteristics of the discharge on their permit application which has the potential to cause or contribute to an excursion of this narrative criterion. Additionally, any solid wastes received or produced at this facility are wholly contained in appropriate storage facilities, are not discharged, and are disposed of offsite. This discharge is subject to Standard Conditions Part III, which contains requirements for the management and disposal of sludge to prevent its discharge. Therefore, this discharge does not have reasonable potential to cause or contribute to an excursion of this criterion.



## **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 publicly-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 Jefferson**

New Permit Requirements			
Monthly Effluent Total Phosphorus and Total Nitrogen (Speciated) Sampling and Monthly Influent Total Phosphorus and Total Nitrogen (Speciated) Sampling.			
Estimated Annual Cost	Annual Median Household Income (MHI)	Estimated Monthly User Rate	User Rate as a Percent of MHI
\$2,180	\$49,308	\$34.20	0.83%

## **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 and 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. With permit synchronization, this permit will expire in the 1<sup>st</sup> Quarter of calendar year 2025.

### **PUBLIC NOTICE:**

The Department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in and water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and permittee must be notified of the denial in writing. The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit. For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.

- ✓ The Public Notice period for this operating permit was from May 7, 2020 through June 8, 2020. No responses received.

**DATE OF FACT SHEET:** MARCH 16, 2020

### **COMPLETED BY:**

**DANIELLE SKOUBY, ENVIRONMENTAL SPECIALIST  
MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER PROTECTION PROGRAM  
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT  
(573) 526-1503  
Danielle.Skouby@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.)	11
Design Flow (avg. day) or peak month's flow (avg. day) whichever is larger	1 pt. / MGD or major fraction thereof. (Max 10 pts.)	11
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	-
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	-
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	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	-
Primary Treatment		
Primary clarifiers	5	-
Chemical addition (except chlorine, enzymes)	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	-
Carbon regeneration	4	-
Total from page <b>ONE (1)</b>	----	54

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

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
<b>Solids Handling</b>		
Sludge Holding	5	-
Anaerobic digestion	10	-
Aerobic digestion	6	-
Evaporative sludge drying	2	-
Mechanical dewatering	8	8
Solids reduction (incineration, wet oxidation)	12	-
Land application	6	6
<b>Disinfection</b>		
Chlorination or comparable	5	-
On-site generation of disinfectant (except UV light)	5	-
Dechlorination	2	-
UV light	4	4
<b>Required Laboratory Control Performed by Plant Personnel (highest level only)</b>		
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	7
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	-
<b>Total from page TWO (2)</b>	<b>----</b>	<b>25</b>
<b>Total from page ONE (1)</b>	<b>---</b>	<b>54</b>
<b>Grand Total</b>	<b>---</b>	<b>79</b>

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

**APPENDIX – RPA RESULTS:**

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	0.27	1.5	0.02	30.00	1.4/0.14	0.62	2.05	NO
Total Ammonia as Nitrogen (Winter) mg/L	12.1	3.31	3.1	0.08	30.00	7.8/0.079	1.87	4.66	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 – FACILITY LAYOUT:**



**APPENDIX – FACILITY LAYOUT:**





**APPENDIX – COST ANALYSIS FOR COMPLIANCE:**

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

**Jefferson City RWRF, Permit Renewal  
City of Jefferson  
Missouri State Operating Permit #MO-0094846**

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 also requires compliance with new monitoring requirements for Effluent Total Kjeldahl Nitrogen, Nitrate + Nitrite, and Total Phosphorus and Influent Ammonia as N, Total Phosphorus, Total Kjeldahl Nitrogen and Nitrate + Nitrite.

**Connections**

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

Connection Type	Number
Residential	17,893
Commercial	2,371
Industrial	4
<b>Total</b>	<b>20,268</b>

**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 Jefferson	
Current Monthly User Rates per 5,000 gallons*	\$34.19
Median Household Income (MHI) <sup>1</sup>	\$49,308
Current Annual Operating Costs (excludes depreciation)	\$11,890,756

\*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:

<b>Criterion 2A Table. Estimated Cost Breakdown of New Permit Requirements</b>			
New Requirement	Frequency	Estimated Cost	Estimated Annual Cost
Total Phosphorus – Influent	Monthly	\$24	\$288
Total Kjeldahl Nitrogen - Influent	Monthly	\$33	\$396
Nitrate + Nitrite - Influent	Monthly	\$40	\$480
Ammonia - Influent	Monthly	\$20	\$240
Total Phosphorus – Effluent	Monthly	\$24	\$192
Total Kjeldahl Nitrogen - Effluent	Monthly	\$33	\$264
Nitrate + Nitrite - Effluent	Monthly	\$40	\$320
Total Estimated Annual Cost of New Permit Requirements			<b>\$2,180</b>

<b>Criterion 2B Table. Estimated Costs for New Permit Requirements</b>		
(1)	Estimated Annual Cost	\$2,180
(2)	Estimated Monthly User Cost for New Requirements <sup>2</sup>	\$0.01
	Estimated Monthly User Cost for New Requirements as a Percent of MHI <sup>3</sup>	0.000%
(3)	Total Monthly User Cost*	\$34.20
	Total Monthly User Cost as a Percent of MHI <sup>4</sup>	0.83%

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

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 \$45,665,800. The community reported that each user pays \$34.19 monthly, of which, \$17.44 is used toward payments on the current outstanding debt.

As shown in Criterion 2, the projected user rate plus the amount of the current user rate used toward payments on outstanding debt is \$34.20.

**(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 <sup>1, 5-9</sup> for the City of Jefferson**

No.	Administrative Unit	Jefferson City	Missouri State	United States
1	Population (2017)	43,092	6,075,300	321,004,416
2	Percent Change in Population (2000-2017)	8.7%	8.6%	14.1%
3	2017 Median Household Income (in 2018 Dollars)	\$49,308	\$52,801	\$59,060
4	Percent Change in Median Household Income (2000-2017)	-17.4%	-7.7%	-6.7%
5	Median Age (2017)	37.8	38.4	37.8
6	Change in Median Age in Years (2000-2017)	1.3	2.3	2.5
7	Unemployment Rate (2017)	4.2%	5.8%	6.6%
8	Percent of Population Below Poverty Level (2017)	15.6%	14.6%	14.6%
9	Percent of Household Received Food Stamps (2017)	12.4%	12.2%	12.6%
10	(Primary) County Where the Community Is Located	Cole County		

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

The community reported the following list of major infrastructure or other investments in environmental projects: replace Westview Pump Station contingent an additional bond issuance: (\$5M) 2021-2023; replace Biosolids Equipment contingent on additional bond issuance (\$5M) 2022-2024; Missouri River Bank Stabilization (\$2M) 2020.

**(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 Jefferson to seek funding from an outside source.

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

The community and utility are recovering from tornado and flooding damage in 2019.

**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) 2017 MHI in 2017 Dollar: United States Census Bureau. 2013-2017 American Community Survey 5-Year Estimates, Table B19013: Median Household Income in the Past 12 Months (in 2017 Inflation-Adjusted Dollars). [http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_17\\_5YR\\_B19013&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B19013&prodType=table).  
(B) 2000 MHI in 1999 Dollar: (1) For United States, United States Census Bureau (2003) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-2-1 Part 1. United States Summary, Table 5. Work Status and Income in 1999: 2000, Washington, DC. <https://www.census.gov/prod/cen2000/phc-2-1-pt1.pdf>. (2) For Missouri State, United States Census Bureau (2003) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-2-27, Missouri, Table 10. Work Status and Income in 1999: 2000, Washington, DC. <https://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf>.  
(C) 2018 CPI, 2017 CPI and 1999 CPI: U.S. Department of Labor Bureau of Labor Statistics (2018) Consumer Price Index - All Urban Consumers, U.S. City Average. All Items. 1982-84=100. [http://data.bls.gov/timeseries/CUUR0000SA0?data\\_tool=Xgtable](http://data.bls.gov/timeseries/CUUR0000SA0?data_tool=Xgtable).  
(D) 2017 MHI in 2018 Dollar = 2017 MHI in 2017 Dollar x 2018 CPI / 2017 CPI; 2000 MHI in 2018 Dollar = 2000 MHI in 1999 Dollar x 2018 CPI / 1999 CPI.  
(E) Percent Change in Median Household Income (2000-2017) = (2017 MHI in 2018 Dollar - 2000 MHI in 2018 Dollar) / (2000 MHI in 2018 Dollar).
2.  $(\$2,180/20,268)/12 = \$0.01$  (Estimated Monthly User Cost for New Requirements)
3.  $(\$0.01/(\$49,308/12))100\% = 0.000\%$  (New Sampling Only)
4.  $(\$34.20/(\$49,308/12))100\% = 0.83\%$  (Total User Cost)
5. (A) Total Population in 2017: United States Census Bureau. 2013-2017 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\\_17\\_5YR\\_B01003&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B01003&prodType=table). (B) Total Population in 2000: (1) 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. <https://www.census.gov/prod/cen2000/phc-1-1-pt1.pdf>. (2) 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. <http://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf>.  
(C) Percent Change in Population (2000-2017) = (Total Population in 2017 - Total Population in 2000) / (Total Population in 2000).
6. (A) Median Age in 2017: United States Census Bureau. 2013-2017 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\\_17\\_5YR\\_B01002&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B01002&prodType=table).  
(B) Median Age in 2000: (1) 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>. (2) 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 (2000-2017) = (Median Age in 2017 - Median Age in 2000).
7. United States Census Bureau. 2013-2017 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\\_17\\_5YR\\_B23025&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B23025&prodType=table).
8. United States Census Bureau. 2013-2017 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\\_17\\_5YR\\_S1701&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_S1701&prodType=table).
9. United States Census Bureau. 2013-2017 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\\_17\\_5YR\\_B22003&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B22003&prodType=table)

**APPENDIX – SEWER EXTENSION AUTHORITY SUPERVISED PROGRAM REAUTHORIZATION LETTER:**



**JUN 12 2017**

Mr. Eric Seaman, P.E.  
Wastewater Division Director  
320 E. McCarty Street  
Jefferson City, MO 65101

RE: City of Jefferson – ACT152, Sewer Extension Authority Supervised Program  
Reauthorization

Dear Mr. Seaman:

The Missouri Department of Natural Resources' Water Protection Program has reevaluated the City of Jefferson Sewer Extension Authority Supervised Program (Program) and has approved its reauthorization. This Program delegates administrative responsibility of construction sewer extension permits to the City of Jefferson. Reporting requirements for this program are included in the associated Missouri State Operating Permits (MSOP).

The Program for the City of Jefferson applies to construction permits for sewer extensions that discharge to the following MSOP(s):

- MO-0094846 [Jefferson City RWRF]
- MO-0044330 [Algoa Regional WWTF]

This approval is granted until it is reauthorized during the operating permit renewal.

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 10 CSR 20-1.020 and 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](http://www.oa.mo.gov/ahc).

Mr. Eric Seaman, P.E.  
Page Two

If you have any questions concerning this matter, please contact Ms. Leasue Meyers, of the Water Protection Program, at 573-751-7906 or 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

A handwritten signature in dark ink, appearing to read "David J. Lamb", written in a cursive style.

David J. Lamb  
Acting Director

DJL:lmn

Enclosure

c: Northeast Regional Office

City of Jefferson  
Page One

Activity No. ACT152

## **SEWER EXTENSION AUTHORITY SUPERVISED PROGRAM REAUTHORIZATION**

### **I. CONDITIONS:**

1. This approval is limited to sewer extensions proposed within the City of Jefferson boundaries for which the receiving wastewater treatment facility is owned, operated, and maintained by the City of Jefferson.
2. Upon completion of accepted construction, the City of Jefferson 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 Jefferson's Standard Sanitary Sewer Specifications Revised 2015 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 Jefferson must submit an annual report by January 28<sup>th</sup> of each year to the Engineering Section. The electronic submittals may be emailed to [DNR.WPPEngineerSection@dnr.mo.gov](mailto: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;

City of Jefferson  
Page Two

Activity No. ACT152

6. Capacity of each pump station, if applicable;
7. The ultimate receiving wastewater treatment facility;
8. Date sewer extension permit is issued;
9. Dates of leakage and deflection tests passing;
10. Dates of City of Jefferson construction inspections;
11. Date sewer extension construction is accepted; and
12. The remaining capacity of each wastewater treatment facility.

### **III. REAUTHORIZATION REQUEST:**

- The City of Jefferson must submit a request for reauthorization to the Engineering Section at least 180 days prior to the expiration date of the Jefferson City RWRF operating permit, MO-0094846. 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 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.
  3. A written statement from the City of Jefferson ensuring that permanent plans of all permitted and constructed sewer extensions records are maintained.

Leasue Meyers, EI  
Engineering Section  
[leasue.meyers@dnr.mo.gov](mailto:leasue.meyers@dnr.mo.gov)

**Appendix. Statement of Basis Letter for Pretreatment Modification**

**City of Jefferson**

Department of Public Works  
320 E. McCarty St.  
Jefferson City, MO 65101



**Carrie Tergin, Mayor**

Matthew J. Morasch, P.E., Director  
Phone: 573-634-6410  
Fax: 573-634-6562

December 16, 2021

Attn: Todd Blanc  
Missouri Department of Natural Resources  
Water Protection Program/Pretreatment  
P.O. Box 176  
Jefferson City, MO 65102-0176

**Subject: City of Jefferson, Pretreatment Code Update Statement of Basis  
MO-0094846 & MO-0044300**

Dear Todd:

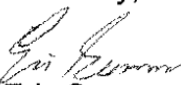
We have revised our City Code to reflect:

- Adding definitions for Dental Amalgam and Dental Discharger (29-1 Definitions and Abbreviations)
- Changing definition of Significant Noncompliance reporting period. (29-1 Definitions and Abbreviations)
- Updating code to clarify need for grease and oil equipment and that they are maintained properly (29-94 Interceptors)
- Changing Pollutant limit for Iron to better reflect industry standard. The new limit will still be protective of water quality. (29-96 Specific Pollutant Limitations).
- Adjusting time that records are kept by industrial users to reflect federal law (29-101.1 Records, information, etc., from industrial users.)
- Requiring a one-time dental amalgam compliance report to comply with federal rules. (29-101.1 Records, information, etc., from industrial users.)
- Specifying corrective action in response to a Notice of Violation (29-108 Notice of Violation)

As the iron limit has changed, Attachment C provides the background evaluation.

If you have any questions, please let me know 573-634-6443 or [eseaman@jeffersoncitymo.gov](mailto:eseaman@jeffersoncitymo.gov).

Sincerely,

  
Eric Seaman, P.E.  
Wastewater Division Director

Attachments





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.



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- b. The following shall be included as information which must be reported within 24 hours under this paragraph.
    - i. Any unanticipated bypass which exceeds any effluent limitation in the permit.
    - ii. Any upset which exceeds any effluent limitation in the permit.
    - iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit required to be reported within 24 hours.
  - c. The Department may waive the written report on a case-by-case basis for reports under paragraph 2. b. of this section if the oral report has been received within 24 hours.
3. **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 28<sup>th</sup> day of the month following the end of the reporting period.
- 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 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.

## 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



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- 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 permittee 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.



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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.





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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

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**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 limited 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 pollutant 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.
- 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.
  - Apply biosolids only at the agronomic rate of nitrogen needed (see 5.c. of this section).
  - 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<sup>1</sup>).  
<sup>1</sup> Volatilization factor is 0.7 for surface application and 1 for subsurface application. Alternative volatilization 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 outstanding state 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 methods or technology reflective 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 include the use of methods or technology reflective 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:
$$(\text{Nitrate} + \text{nitrite nitrogen}) + (\text{organic nitrogen} \times 0.2) + (\text{ammonia nitrogen} \times \text{volatilization factor}^1).$$
<sup>1</sup> Volatilization factor is 0.7 for surface application and 1 for subsurface application. Alternative volatilization 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  $\geq 70\%$  vegetative density over 100% of the site so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion. 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  $\geq 70\%$  vegetative density over 100% of the site, so as to avoid ponding of storm water and provide adequate

- surface water drainage without creating erosion.
- b. 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 <sup>1</sup>	Priority Pollutants <sup>2</sup>
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

<sup>1</sup> 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.

<sup>2</sup> 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 19<sup>th</sup> 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:

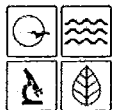
DNR regional or other applicable office listed in the  
permit (see cover letter of permit)

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

**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**

Water Protection Program

RECEIVED

SEP 30 2019

**FOR AGENCY USE ONLY**

CHECK NUMBER

DATE RECEIVED

FEE SUBMITTED

JET PAY CONFIRMATION NUMBER

**PART A – BASIC APPLICATION INFORMATION**

**1. THIS APPLICATION IS FOR:**

- ☐ An operating permit for a new or unpermitted facility. Construction Permit # \_\_\_\_\_  
(Include completed Antidegradation Review or request to conduct an Antidegradation Review, see instructions)
- ☒ An operating permit renewal: Permit #MO- 0094846 Expiration Date 03/31/2020
- ☐ An operating permit modification: Permit #MO- \_\_\_\_\_ Reason: \_\_\_\_\_

**1.1** Is the appropriate fee included with the application (see instructions for appropriate fee)? ☐ YES ☒ NO

**2. FACILITY**

NAME: Jefferson City Regional Water Reclamation Facility (RWRF) TELEPHONE NUMBER WITH AREA CODE: 573-634-6444

ADDRESS (PHYSICAL): 401 Mokane Road CITY: Jefferson City STATE: MO ZIP CODE: 65101

**2.1** LEGAL DESCRIPTION (Facility Site): Sec. 16, T 44, R 11W COUNTY: Callaway

**2.2** UTM Coordinates Easting (X): 572384 Northing (Y): 4271013  
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

**2.3** Name of receiving stream: Missouri River (P)

**2.4** Number of Outfalls: 1 wastewater outfalls: 1 stormwater outfalls: instream monitoring sites:

**3. OWNER: The owner of the regulated activity/discharge being applied for and is not necessarily the owner of the real property on which the activity or discharge is occurring.**

NAME: City of Jefferson EMAIL ADDRESS: chaenchen@jeffcitymo.org TELEPHONE NUMBER WITH AREA CODE: 573-634-6444

ADDRESS: 320 East McCarty Street CITY: Jefferson City STATE: MO ZIP CODE: 65101

**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  
If yes, is the Financial Questionnaire attached? ☒ YES ☐ NO See: <https://dnr.mo.gov/forms/780-2511-f.pdf>

**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: City of Jefferson EMAIL ADDRESS: eseaman@jeffcitymo.org TELEPHONE NUMBER WITH AREA CODE: 573-634-6410

ADDRESS: 320 East McCarty Street CITY: Jefferson City STATE: MO ZIP CODE: 65101

If the Continuing Authority is different than the Owner, 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: Clara Haenchen TITLE: Treatment Plant Manager CERTIFICATE NUMBER (IF APPLICABLE): A-4924

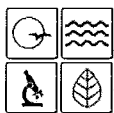
EMAIL ADDRESS: chaenchen@jeffcitymo.org TELEPHONE NUMBER WITH AREA CODE: 573-634-6444

**6. FACILITY CONTACT**

NAME: Clara Haenchen TITLE: Treatment Plant Manager

EMAIL ADDRESS: chaenchen@jeffcitymo.org TELEPHONE NUMBER WITH AREA CODE: 573-634-6444

ADDRESS: 320 East McCarty Street CITY: Jefferson City STATE: MO ZIP CODE: 65101



## MISSOURI DEPARTMENT OF NATURAL RESOURCES

## WATER PROTECTION PROGRAM

**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**RECEIVED  
SEP 30 2019  
Water Protection Program

FACILITY NAME Jefferson City Regional Water Reclamation Facility (RWRF)	
PERMIT NO. MO-0094846	COUNTY Callaway
<b>APPLICATION OVERVIEW</b>	
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.	
<b>BASIC APPLICATION INFORMATION</b>	
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.	
<b>SUPPLEMENTAL APPLICATION INFORMATION</b>	
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 <i>Part D - Expanded Effluent Testing Data</i> : 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 <i>Part E - Toxicity Testing Data</i> : 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 <i>Part F - Industrial User Discharges and Resource Conservation and Recovery Act /CERCLA Wastes</i> . 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 <i>Part G - Combined Sewer Systems</i> .	
<b>ALL APPLICANTS MUST COMPLETE PARTS A, B and C</b>	

FACILITY NAME Jefferson City RWRF	PERMIT NO. MO- 0094846	OUTFALL NO. 001
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## 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. Specify where samples are taken. 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.

Please see attached.

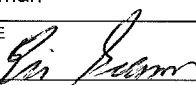


FACILITY NAME Jefferson City RWRP	PERMIT NO. MO- 0094846	OUTFALL NO. 001
<b>PART A – BASIC APPLICATION INFORMATION</b>		
<b>7. FACILITY INFORMATION (continued)</b>		
<p><b>7.2 Map.</b> Attach to this application an aerial or topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information. A map can be obtained by visiting the following website: <a href="https://modnr.maps.arcgis.com/apps/webappviewer/index.html?id=1d81212e0854478ca0dae87c33c8c5ce">https://modnr.maps.arcgis.com/apps/webappviewer/index.html?id=1d81212e0854478ca0dae87c33c8c5ce</a></p> <ol style="list-style-type: none"> <li>The area surrounding the treatment plant, including all unit processes.</li> <li>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.</li> <li>The actual point of discharge.</li> <li>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.</li> <li>Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.</li> <li>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.</li> </ol>		
<b>7.3</b> Facility SIC Code: 4952	Discharge SIC Code: 4952	
<b>7.4</b> Number of people presently connected or population equivalent (P.E.): 74,992	Design P.E. 110,000	
<p><b>7.5</b> Connections to the facility:</p> <p>Number of units presently connected: 20268</p> <p>Residential: 17893 Commercial: 2371 Industrial 4</p>		
<b>7.6</b> Design Flow 11 MGD	Actual Flow 8.3 MGD	
<p><b>7.7</b> Will discharge be continuous through the year? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>Discharge will occur during the following months: January - December</p> <p>How many days of the week will discharge occur? 7</p>		
<p><b>7.8</b> Is industrial wastewater discharged to the facility? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>If yes, describe the number and types of industries that discharge to your facility. Attach sheets as necessary</p> <p>4 - see attached, Part F.</p> <p>Refer to the APPLICATION OVERVIEW to determine whether additional information is needed for Part F.</p>		
<b>7.9</b> Does the facility accept or process leachate from landfills?:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<b>7.10</b> Is wastewater land applied? If yes, please attach Form I See: <a href="https://dnr.mo.gov/forms/780-1686-f.pdf">https://dnr.mo.gov/forms/780-1686-f.pdf</a>	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<b>7.11</b> Does the facility discharge to a losing stream or sinkhole?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<b>7.12</b> Has a wasteload allocation study been completed for this facility?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
<b>8. LABORATORY CONTROL INFORMATION</b>		
<b>LABORATORY WORK CONDUCTED BY PLANT PERSONNEL</b>		
Lab work conducted outside of plant.	Yes <input checked="" type="checkbox"/>	No <input checked="" type="checkbox"/>
Push-button or visual methods for simple test such as pH, settleable solids.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Additional procedures such as Dissolved Oxygen, Chemical Oxygen Demand, Biological Oxygen Demand, titrations, solids, volatile content.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

FACILITY NAME Jefferson City RWRF	PERMIT NO. MO- 0094846	OUTFALL NO. 001
<b>PART A – BASIC APPLICATION INFORMATION</b>		
<b>9. SLUDGE HANDLING, USE AND DISPOSAL</b>		
9.1 Is the sludge a hazardous waste as defined by 10 CSR 25?      Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
9.2 Sludge production (Including sludge received from others): Design Dry Tons/Year 5200      Actual Dry Tons/Year 1983		
9.3 Sludge storage provided: _____ Cubic feet; <u>8</u> Days of storage; <u>17</u> Average percent solids of sludge;  <input type="checkbox"/> No sludge storage is provided. <input type="checkbox"/> Sludge is stored in lagoon.		
9.4 Type of storage: <div style="display: inline-block; width: 45%;"> <input checked="" type="checkbox"/> Holding Tank  <input type="checkbox"/> Basin  <input type="checkbox"/> Concrete Pad </div> <div style="display: inline-block; width: 45%;"> <input type="checkbox"/> Building  <input type="checkbox"/> Lagoon  <input type="checkbox"/> Other (Describe) _____ </div>		
9.5 Sludge Treatment: <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 45%;"> <input type="checkbox"/> Anaerobic Digester    <input type="checkbox"/> Storage Tank  <input type="checkbox"/> Aerobic Digester    <input type="checkbox"/> Air or Heat Drying </div> <div style="width: 45%;"> <input checked="" type="checkbox"/> Lime Stabilization    <input type="checkbox"/> Lagoon  <input type="checkbox"/> Composting    <input type="checkbox"/> Other (Attach Description) </div> </div>		
9.6 Sludge use or disposal: <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 65%;"> <input checked="" type="checkbox"/> Land Application    <input type="checkbox"/> Contract Hauler    <input type="checkbox"/> Hauled to Another Treatment Facility  <input type="checkbox"/> Surface Disposal (Sludge Disposal Lagoon, Sludge Held For More Than Two Years)  <input type="checkbox"/> Other (Attach Explanation Sheet) _____ </div> <div style="width: 30%;"> <input checked="" type="checkbox"/> Solid Waste Landfill  <input type="checkbox"/> Incineration </div> </div>		
9.7 Person responsible for hauling sludge to disposal facility: <input checked="" type="checkbox"/> By Applicant <input checked="" type="checkbox"/> By Others (complete below)		
NAME Republic Services		EMAIL ADDRESS rloney@republicservices.com
ADDRESS 5645 Moreau River Access Road	CITY Jefferson City	STATE MO
		ZIP CODE 65101
CONTACT PERSON Robert Loney	TELEPHONE NUMBER WITH AREA CODE 913-645-3878	PERMIT NO. MO- 0114375
9.8 Sludge use or disposal facility: <input checked="" type="checkbox"/> By Applicant <input checked="" type="checkbox"/> By Others (Complete below)		
NAME Jefferson City Landfill, LLC		EMAIL ADDRESS crobertson2@republicservices.com
ADDRESS 5605 Moreau River Access Road	CITY Jefferson City	STATE MO
		ZIP CODE 65101
CONTACT PERSON Curt Robertson	TELEPHONE NUMBER WITH AREA CODE 573-636-1111	PERMIT NO. MO- 0114375
9.9 Does the sludge or biosolids disposal comply with Federal Sludge Regulation 40 CFR 503? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No    (Explain)		
<b>END OF PART A</b>		

FACILITY NAME Jefferson City RWRF	PERMIT NO. MO- 0094846	OUTFALL NO. 001
<b>PART B – ADDITIONAL APPLICATION INFORMATION</b>		
<b>10. COLLECTION SYSTEM</b>		
<b>10.1</b> Are there any municipal satellite collection systems connected to this facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, please list all connected to this facility, contact phone number and length of each collection system		
FACILITY	CONTACT PHONE NUMBER	LENGTH OF SYSTEM (FEET OR MILES)
City of Holts Summit	573-896-5600	
<b>10.2</b> Length of sanitary sewer collection system in miles (If available, include totals from satellite collection systems) <u>429</u> miles		
<b>10.3</b> Does significant infiltration occur in the collection system? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, briefly explain any steps underway or planned to minimize inflow and infiltration: Replacing 4.8 miles of sewer main with cured-in-place pipe lining.		
<b>11. BYPASSING</b>		
Does any bypassing occur anywhere in the collection system or at the treatment facility? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, explain: UV treatment bypass during heavy rainfall when receiving stream at flood levels		
<b>12. OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)</b>		
Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of the contractor? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)		
NAME		
MAILING ADDRESS		
TELEPHONE NUMBER WITH AREA CODE	EMAIL ADDRESS	
RESPONSIBILITIES OF CONTRACTOR		
<b>13. SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION</b>		
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.  Biosolids equipment Blowers replacement		

FACILITY NAME Jefferson City RWRF			PERMIT NO. MO- 0094846			OUTFALL NO. 001		
<b>PART B – ADDITIONAL APPLICATION INFORMATION</b>								
<b>14. EFFLUENT TESTING DATA</b>								
Applicants must provide effluent testing data for the following parameters. Provide the indicated effluent data <b>for each outfall through which effluent is discharged</b> . Do not include information of combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least <b>three samples</b> and must be no more than four and one-half years apart. See 40 CFR 136.3 for sufficiently sensitive methods: <a href="https://www.ecfr.gov/cgi-bin/text-id?SID=2d29852e2dcdf91badc043bd5fc3d4df&amp;mc=true&amp;node=se40.25.136_13&amp;rgn=div8">https://www.ecfr.gov/cgi-bin/text-id?SID=2d29852e2dcdf91badc043bd5fc3d4df&amp;mc=true&amp;node=se40.25.136_13&amp;rgn=div8</a>								
Outfall Number 001								
PARAMETER			MAXIMUM DAILY VALUE			AVERAGE DAILY VALUE		
			Value	Units	Value	Units	Number of Samples	
pH (Minimum)			7.1	S.U.	7.3	S.U.	137	
pH (Maximum)			7.5	S.U.	7.3	S.U.	137	
Flow Rate			44.52	MGD	14.25	MGD	210	
*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 <sub>5</sub>	20	mg/L	9	mg/L	51	SM 5210B	
	CBOD <sub>5</sub>		mg/L		mg/L			
E. COLI		131.7	#/100 mL	34.4	#/100 mL	12	SM9223B	
TOTAL SUSPENDED SOLIDS (TSS)		20	mg/L	6	mg/L	55	SM2540D	
TOTAL PHOSPHORUS		3.11	mg/L	1.46	mg/L	7	4500PBE/EPA 365.	0.05/0.10mg/l
TOTAL KJELDAHL NITROGEN		3.9	mg/L	2.23	mg/L	7	4500N/EPA 351.2	1.0/0.5 mg/l
NITRITES + NITRATES		9.93	mg/L	5.11	mg/L	7	EPA 353.2	0.10 mg/l
AMMONIA AS N		1.1	mg/L	0.68	mg/L	6	SM4500NH3BC	0.3 mg/L
CHLORINE* (TOTAL RESIDUAL, TRC)			mg/L		mg/L			
DISSOLVED OXYGEN		9.5	mg/L	6.5	mg/L	137	SM 4500-0	
OIL and GREASE		2.1	mg/L	2.05	mg/L	7	EPA 1664	1.0/5.0 mg/L
OTHER: _____			mg/L		mg/L			
*Report only if facility chlorinates								
<b>END OF PART B</b>								

FACILITY NAME Jefferson City RWRF	PERMIT NO. MO- 0094846	OUTFALL NO. 001
<b>PART C – CERTIFICATION</b>		
<b>15. ELECTRONIC DISCHARGE MONITORING REPORT (eDMR) SUBMISSION SYSTEM</b>		
<p>Per 40 CFR Part 127 National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, reporting of effluent limits and monitoring shall be submitted by the permittee via an electronic system to ensure timely, complete, accurate, and nationally-consistent set of data. <b>One of the following must be checked in order for this application to be considered complete.</b> Please visit <a href="https://dnr.mo.gov/forms/780-2204-f.pdf">https://dnr.mo.gov/forms/780-2204-f.pdf</a> to access the eDMR application.</p> <p><input type="checkbox"/> - You have completed and submitted with this permit application the required documentation to participate in the eDMR system.</p> <p><input checked="" type="checkbox"/> - You have previously submitted the required documentation to participate in the eDMR system and/or you are currently using the eDMR system.</p> <p><input type="checkbox"/> - You have submitted a written request for a waiver from electronic reporting. See instructions for further information regarding waivers.</p>		
<b>16. JETPAY</b>		
<p>Permit fees may be paid online by credit card or eCheck through a system called JetPay. Use the URL provided to access JetPay and make an online payment.</p> <p>New Site Specific Permit: <a href="https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/591/">https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/591/</a>          Construction Permits: <a href="https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/592/">https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/592/</a>          Modification Fee: <a href="https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/596/">https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/596/</a></p>		
<b>17. CERTIFICATION</b>		
<p>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.</p> <p><b>ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.</b></p> <p>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 submitted 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.</p>		
PRINTED NAME Eric Seaman	OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL) Wastewater Division Director	
SIGNATURE 		
TELEPHONE NUMBER WITH AREA CODE 573-634-6410		
DATE SIGNED 27SEP19		
<p>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.</p> <p>Send Completed Form to:</p> <p style="text-align: center;">Department of Natural Resources Water Protection Program ATTN: NPDES Permits and Engineering Section P.O. Box 176 Jefferson City, MO 65102-0176</p>		
<b>END OF PART C</b>		
<b>REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH PARTS OF FORM B2 YOU MUST COMPLETE.</b>		
<p>Do not complete the remainder of this application, unless at least one of the following statements applies to your facility:</p> <ol style="list-style-type: none"> <li>1. Your facility design flow is equal to or greater than 1,000,000 gallons per day.</li> <li>2. Your facility is a pretreatment treatment works.</li> <li>3. Your facility is a combined sewer system.</li> </ol>		
<p>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.</p>		

<b>MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL</b>											
FACILITY NAME Jefferson City RWRf				PERMIT NO. MO- 0094846				OUTFALL NO. 001			
<b>PART D – EXPANDED EFFLUENT TESTING DATA</b>											
<b>18. EXPANDED EFFLUENT TESTING DATA</b>											
Refer to the APPLICATION OVERVIEW to determine whether Part D applies to the treatment works.											
<p>If the treatment works has a design flow greater than or equal to 1 MGD 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 <b>for each outfall through which effluent is discharged</b>. Do not include information of combined sewer overflows in this section. All information reported must be based on data collected and analyzed using sufficiently sensitive methods found in 40 CFR Part 136. See 40 CFR 136.3 for sufficiently sensitive methods: <a href="https://www.ecfr.gov/cgi-bin/text-id?SID=2d29852e2dcd91badc043bd5fc3d4df&amp;mc=true&amp;node=se40.25.136.13&amp;rgn=div8">https://www.ecfr.gov/cgi-bin/text-id?SID=2d29852e2dcd91badc043bd5fc3d4df&amp;mc=true&amp;node=se40.25.136.13&amp;rgn=div8</a>. In addition, all 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 <b>three pollutant scans</b> and must be no more than four and one-half years prior to the date of the permit application submittal. In the blank rows provided at the end of this list, include any additional data for pollutants not specifically listed in this form. Information may be written in the blanks below or provided as attached documents containing the laboratory test results.</p>											
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 Ug/l based on most recent test data
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
<b>METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS AND HARDNESS</b>											
ALUMINUM	<0.2	mg/L			<0.158	mg/L			3	6020A, 200.7	33ug
ANTIMONY	<0.15	mg/L			<.0096	mg/L			4	200.8/200.7	6.5
ARSENIC	<0.01	mg/L			<.0076	mg/L			4	200.8/200.7	4.1
BERYLLIUM	<0.004	mg/L			<.0034	mg/L			4	200.8/200.7	0.25
CADMIUM	<0.005	mg/L			<0.005	mg/L			4	200.8/200.7	0.56
CHROMIUM III	<0.01	mg/L			<0.009	mg/L			4	3500CR/625	1
CHROMIUM VI	<0.005	mg/L			<0.004	mg/L			3	3500CR/7196	3.1
COPPER	<0.01	mg/L			<0.007	mg/L			4	200.8/200.7	3.4
IRON	0.05	mg/L			0.1082	mg/l			3	6020A/200.7	14
LEAD	<0.02	mg/L			<0.012	mg/L			4	200.8/200.7	3.4
MERCURY	<0.02	mg/L			<0.008	mg/L			4	200.8/245.1	0.066
NICKEL	0.04	mg/L			0.04	mg/L			4	200.8/200.7	1.2
SELENIUM	0.006	mg/L			0.006	mg/L			4	200.8/200.7	6.6
SILVER	<0.007	mg/L			<0.005	mg/L			4	200.8/200.7	1.8
THALLIUM	<0.02	mg/l			<.0092	mg/L			4	200.8/200.7	3.4
ZINC	0.0509	mg/L			0.0454	mg/L			4	200.8/200.7	6.1
CYANIDE	0.0068	mg/L			0.0068	mg/L			3	4500CNE	3.9
TOTAL PHENOLIC COMPOUNDS	<0.005	mg/L			<0.003	mg/L			3	5530B/420.1	0.000016
HARDNESS (as CaCO <sub>3</sub> )	316	mg/L			252	mg/L			3	2340B/200.7	6500
<b>VOLATILE ORGANIC COMPOUNDS</b>											
ACROLEIN	<0.05	mg/L			<0.05	mg/L			3	EPA 624	50
ACRYLONITRILE	<0.05	mg/L			<0.05	mg/L			3	EPA 624	50
BENZENE	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.12
BROMOFORM	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.11
CARBON TETRACHLORIDE	<0.005	mg/L			<0.004	mg/L			3	EPA 624	0.1

FACILITY NAME Jefferson City RWRP				PERMIT NO. MO- 0094846				OUTFALL NO. 001			
<b>PART D – EXPANDED EFFLUENT TESTING DATA</b>											
<b>18. EXPANDED EFFLUENT TESTING DATA</b>											
Complete Once for Each Outfall Discharging Effluent to Waters of the State											
POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL Ug/l based on most recent test data
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
CHLOROBENZENE	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.081
CHLORODIBROMO-METHANE	<0.005	mg/L			<0.004	mg/L			3	EPA 624	0.24
CHLOROETHANE	<0.01	mg/L			<.007	mg/L			3	EPA 624	0.2
2-CHLORO-ETHYL VINYL ETHER	<0.01	mg/L			<0.007	mg/L			3	EPA 624	0.29
CHLOROFORM	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.14
DICHLOROBROMO-METHANE	<0.005	mg/L			<0.004	mg/L			3	EPA 624	0.13
1,1-DICHLORO-ETHANE	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.13
1,2-DICHLORO-ETHANE	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.14
TRANS-1,2-DICHLOROETHYLENE	<0.02	mg/L			<0.016	mg/L			4	EPA 624	0.17
1,1-DICHLORO-ETHYLENE	<0.005	mg/L			<0.004	mg/L			3	EPA 624	0.11
1,2-DICHLORO-PROPANE	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.097
1,3-DICHLORO-PROPYLENE	<0.015	mg/L			<0.007	mg/L			3	EPA 624	0.12
ETHYLBENZENE	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.057
METHYL BROMIDE	<0.01	mg/L			<0.008	mg/L			3	EPA 624	0.66
METHYL CHLORIDE	<0.01	mg/L			<0.007	mg/L			4	EPA 624	0.2
METHYLENE CHLORIDE	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.21
1,1,2,2-TETRA-CHLOROETHANE	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.12
TETRACHLORO-ETHANE	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.15
TOLUENE	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.048
1,1,1-TRICHLORO-ETHANE	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.057
1,1,2-TRICHLORO-ETHANE	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.25
TRICHLOROETHYLENE	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.15
VINYL CHLORIDE	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.11
<b>ACID-EXTRACTABLE COMPOUNDS</b>											
P-CHLORO-M-CRESOL	<0.007	mg/L			<0.006	mg/L			3	EPA 625	0.74
2-CHLOROPHENOL	<0.007	mg/L			<0.006	mg/L			4	EPA 625	0.72
2,4-DICHLOROPHENOL	<0.009	mg/L			<0.007	mg/L			3	EPA 625	0.65
2,4-DIMETHYLPHENOL	<0.005	mg/L			<0.005	mg/L			3	EPA 625	0.65
4,6-DINITRO-O-CRESOL	<0.024	mg/L			<0.014	mg/L			4	EPA 625	0.76
2,4-DINITROPHENOL	<0.048	mg/L			<0.022	mg/L			4	EPA 625	0.97
2-NITROPHENOL	<0.009	mg/L			<0.007	mg/L			4	EPA 625	0.68
4-NITROPHENOL	<0.006	mg/L			<0.006	mg/L			3	EPA 625	2.4

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<b>PART D – EXPANDED EFFLUENT TESTING DATA</b>											
<b>18. EXPANDED EFFLUENT TESTING DATA</b>											
Complete Once for Each Outfall Discharging Effluent to Waters of the State.											
POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL Ug/l based on most recent test data
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
PENTACHLOROPHENOL	<0.01	mg/L			<0.008	mg/L			4	EPA 625	0.73
PHENOL	<0.005	mg/L			<0.005	mg/L			4	EPA 625	2.4
2,4,6-TRICHLOROPHENOL	<0.005	mg/L			<0.004	mg/L			4	EPA 625	0.74
<b>BASE-NEUTRAL COMPOUNDS</b>											
ACENAPHTHENE	<0.005	mg/L			<0.004	mg/L			4	EPA 625	0.63
ACENAPHTHYLENE	<0.005	mg/L			<0.004	mg/L			3	EPA 625	0.63
ANTHRACENE	<0.005	mg/L			<0.004	mg/L			4	EPA 625	0.65
BENZIDINE	<0.048	mg/L			<0.033	mg/L			4	EPA 625	8.5
BENZO(A)ANTHRACENE	<0.005	mg/L			<0.004	mg/L			3	EPA 625	0.66
BENZO(A)PYRENE	<0.021	mg/L			<0.114	mg/L			4	EPA 625	0.7
3,4-BENZO-FLUORANTHENE	<0.005	mg/L			<0.004	mg/L			3	EPA 625	0.89
BENZO(GH) PHERYLENE	<0.005	mg/L			<0.004	mg/L			3	EPA 625	0.67
BENZO(K) FLUORANTHENE	<0.005	mg/L			<0.004	mg/L			3	EPA 625	0.98
BIS (2-CHLOROTHOXY) METHANE	<0.005	mg/L			<0.004	mg/L			3	EPA 625	0.65
BIS (2-CHLOROETHYL) – ETHER	<0.006	mg/L			<0.005	mg/L			4	EPA 625	0.73
BIS (2-CHLOROISO-PROPYL) ETHER	<0.006	mg/L			<0.005	mg/L			4	EPA 625	0.68
BIS (2-ETHYLHEXYL) PHTHALATE	<0.005	mg/L			<0.004	mg/L			4	EPA 625	0.95
4-BROMOPHENYL PHENYL ETHER	<0.005	mg/L			<0.004	mg/L			3	EPA 625	0.69
BUTYL BENZYL PHTHALATE	<0.005	mg/L			<0.004	mg/L			4	EPA 625	0.62
2-CHLORONAPH-THALENE	<0.005	mg/L			<0.004	mg/L			4	EPA 625	0.77
4-CHLORPHENYL PHENYL ETHER	<0.005	mg/L			<0.004	mg/L			3	EPA 625	0.79
CHRYSENE	<0.005	mg/L			<0.004	mg/L			3	EPA 625	0.7
DI-N-BUTYL PHTHALATE	<0.005	mg/L			<0.004	mg/L			4	EPA 625	0.57
DI-N-OCTYL PHTHALATE	<0.005	mg/L			<0.004	mg/L			3	EPA 625	0.92
DIBENZO (A,H) ANTHRACENE	0.005	mg/L			<0.004	mg/L			3	EPA 625	0.71
1,2-DICHLORO-BENZENE	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.066
1,3-DICHLORO-BENZENE	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.1
1,4-DICHLORO-BENZENE	<0.005	mg/L			<0.004	mg/L			4	EPA 624	0.05
3,3-DICHLORO-BENZIDINE	<0.019	mg/L			<0.015	mg/L			4	EPA 625	0.72
DIETHYL PHTHALATE	<0.005	mg/L			<0.004	mg/L			4	EPA 625	0.63
DIMETHYL PHTHALATE	<0.005	mg/L			<0.004	mg/L			4	EPA 625	0.6





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

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**PART E – TOXICITY TESTING DATA**
**19. 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: 1 chronic 3 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.

	Most Recent	2 <sup>ND</sup> Most Recent	3 <sup>RD</sup> Most Recent
<b>A. Test Information</b>			
Test Method Number	EPA 821/R-02/013	USEPA 2000/2002	USEPA 2000/2002
Final Report Number	MO 60285748	MO 2202109	MO 2011020
Outfall Number	001	001	001
Dates Sample Collected	11-5-18, 11-7-18, 11-9-18	11-14-17	10-4-16
Date Test Started	11-16-18	11-15-17	10-5-16
Duration	7 days	48 hrs	48 hrs
<b>B. Toxicity Test Methods Followed</b>			
Manual Title	EPA 821/R-02/013	Standard Methods	Standard Methods
Edition Number and Year of Publication	4th, 2002	18th-1992	18th-1992
Page Number(s)	1-350	8.1-8.82	8.1-8.82
<b>C. Sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used</b>			
24-Hour Composite	x	x	x
Grab			
<b>D. Indicate where the sample was taken in relation to disinfection (Check all that apply for each)</b>			
Before Disinfection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After Disinfection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
After Dechlorination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>E. Describe the point in the treatment process at which the sample was collected</b>			
Sample Was Collected:	EFF	EFF	EFF
<b>F. Indicate whether the test was intended to assess chronic toxicity, acute toxicity, or both</b>			
Chronic Toxicity	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Acute Toxicity	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>G. Provide the type of test performed</b>			
Static	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Static-renewal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flow-through	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>H. Source of dilution water. If laboratory water, specify type; if receiving water, specify source</b>			
Laboratory Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Receiving Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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# PART E – TOXICITY TESTING DATA

## 19. TOXICITY TESTING DATA (continued)

	Most Recent	Second Most Recent	Third Most Recent
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I. Type of dilution water. If salt water, specify "natural" or type of artificial sea salts or brine used.

Fresh Water	x	x	x
Salt Water			

J. Percentage of effluent used for all concentrations in the test series

	0,0.08,0.4,2,10,50	4.5,9,18,36	2,5,9,18,36

K. Parameters measured during the test (State whether parameter meets test method specifications)

pH	Yes	Yes	Yes
Salinity	NA	NA	NA
Temperature	Yes	Yes	Yes
Ammonia	NA	Yes	Yes
Dissolved Oxygen	Yes	Yes	Yes

L. Test Results

Acute:

Percent Survival in 100% Effluent		100%	100%
LC <sub>50</sub>		>72%	>36%
95% C.I.		Yes	NA
Control Percent Survival			
Other (Describe)			

Chronic:

NOEC	50%		
IC <sub>25</sub>	50		
Control Percent Survival	100		
Other (Describe)			

M. Quality Control/ Quality Assurance

Is reference toxicant data available?	Yes	Yes	Yes
Was reference toxicant test within acceptable bounds?	Yes	Yes	Yes
What date was reference toxicant test run (MM/DD/YYYY)?	11-5-18	11-8-17	10-5-16
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**

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**PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES**

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

**20. GENERAL INFORMATION****20.1** Does the treatment works have, or is it subject to, an approved pretreatment program?☒ Yes☐ No**20.2** 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

Number of CIUs

4**21. 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

see attached

MAILING ADDRESS

CITY

STATE

ZIP CODE

**21.1** Describe all of the industrial processes that affect or contribute to the SIU's discharge  
personal hygiene, gears, radiators, and transformers**21.2** Describe all of the principle processes and raw materials that affect or contribute to the SIU's discharge.

Principal Product(s): see attached

Raw Material(s): see attached

**21.3 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.  
see attached 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.  
see attached gpd ☐ Continuous ☐ Intermittent**21.4** 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?

see attached

**21.5** 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

see attached

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**PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES****22. RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE**

22.1 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

22.2 Method by which RCRA waste is received. (Check all that apply)

☐ Truck☐ Rail☐ Dedicated Pipe**22.3 Waste Description**

EPA Hazardous Waste Number

Amount (volume or mass)

Units

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

23.1 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.

23.2 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).

23.3 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)

**23.4 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.**

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**PART G – COMBINED SEWER SYSTEMS**

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

**24. GENERAL INFORMATION****24.1 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.

**24.2 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.

**24.3** Percent of collection system that is combined sewer N/A**24.4** Population served by combined sewer collection system N/A**24.5** Name of any satellite community with combined sewer collection system N/A**25. CSO OUTFALLS. COMPLETE THE FOLLOWING ONCE FOR EACH CSO DISCHARGE POINT****25.1** 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?

**25.2** 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

**25.3** 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)

**25.4** 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 B2 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, 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](http://dnr.mo.gov/forms/780-1893-f.pdf).
  - 1.1 **Fees Information:**

**DOMESTIC OPERATING PERMIT FEES – PRIVATELY OWNED TREATMENT WORKS (Non-POTW)**

Annual operating permit fees are based on flow.

Annual fee/Design flow	Annual fee/Design flow	Annual fee/Design flow
\$150.....<5,000 gpd	\$1,000..... 15,000-24,999 gpd	\$4,000..... 100,000-249,999 gpd
\$300.....5,000-9,999 gpd	\$1,500..... 25,000-29,999 gpd	\$5,000.....≥250,000 gpd
\$600..... 10,000-14,999 gpd	\$3,000..... 30,000-99,999 gpd	

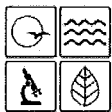
New domestic wastewater treatment facilities must submit the annual fee with the original application.

**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.

**PUBLICLY OWNED 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. Fees listings are found in 10 CSR 20-6.011 which is available at <http://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c20-6.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. Publicly Owned Treatment Works (POTWs) - \$200 each.
    - b. Non-POTWs – \$100 each for a minor modification (name changes, address changes, other non-substantive changes) or a fee equal to 25 percent of the facility's annual operating fee for a major modification.
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 <https://modnr.maps.arcgis.com/apps/webappviewer/index.html?id=1d81212e0854478ca0dae87c33c8c5ce>.
  - 2.3-2.4 Self-explanatory. For the No Exposure Certification for Exclusion Application: <https://dnr.mo.gov/forms/780-2828-f.pdf>
3. Owner – Provide the legal name, mailing address, phone number, and email address of the owner. The owner identified in this section and subsequently reflected on the certificate page of the operating permit, is the owner of the regulated activity/discharge being applied for and is not necessarily the owner of the real property on which the activity or discharge is occurring.
  - 3.1 Prior to submitting a permit to public notice, the Department of Natural Resources shall provide the permit applicant 10 days to review the draft permit for nonsubstantive drafting errors. In the interest of expediting permit issuance, permit applicants may waive the opportunity to review draft permits prior to public notice.
  - 3.2-3.4 Self-explanatory. See the following link for Financial Questionnaire: <https://dnr.mo.gov/forms/780-2511-f.pdf>
4. Continuing Authority – A continuing authority is a company, business, entity or person(s) that will be operating the facility and/or ensuring compliance with the permit requirements. A continuing authority is not, however, an entity or individual that is contractually hired by the permittee to sample or operate and maintain the system for a defined time period, such as a certified operator or analytical laboratory. To access the regulatory requirement regarding continuing authority, 10 CSR 20-6.010(2), please visit <https://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c20-6.pdf>. If the continuing authority is not an individual(s), government, or otherwise required to register with the Missouri Secretary of State (SoS), then the business name must be listed exactly as it appears on the SoS's webpage: <https://bsd.sos.mo.gov/BusinessEntity/BESearch.aspx?SearchType=0>
5. Operator – Provide the name, certificate number, title, mailing address, primary phone number, and email address of the operator of the facility.
6. Provide the name, title, mailing address, primary phone number, and email 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.

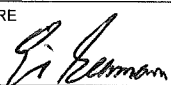


MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER PROTECTION PROGRAM  
**FINANCIAL QUESTIONNAIRE**

<b>NOTE ►</b>	<b>FINANCIAL INFORMATION THAT IS NOT PROVIDED THROUGH THIS FORM WILL BE OBTAINED BY THE DEPARTMENT FROM READILY AVAILABLE SOURCES.</b>	
<b>1. GENERAL INFORMATION</b>		
FACILITY NAME Jefferson City RWRF	PERMIT NUMBER #MO- 0094846	
CITY Jefferson City	COUNTY Callaway	
<b>2. GENERAL FINANCIAL INFORMATION (ALL FACILITIES)</b>		
2.1 Number of connections to the facility: Residential <u>17893</u> Commercial <u>2371</u> Industrial <u>4</u>		
2.2 Current sewer user rate (Based on a 5,000 gallon per month usage):	\$34.19	
2.3 Current annual operating costs for the facility (excludes depreciation):	\$11,890,756	
2.4 Bond rating (if applicable):	A+	
2.5 Bonding capacity: <u>(10%)</u>	\$178,781,052	
2.6 Current outstanding debt relating to wastewater collection and treatment:	\$45,665,800	
2.7 Amount within the current user rate used toward payments on outstanding debt related to the current wastewater infrastructure:	51%	
2.8 Attach any relevant financial statements.		
<b>3. FINANCIAL INFORMATION REQUIRED FROM MUNICIPALITIES</b>		
3.1 Municipality's Full Market Property Value:	\$893,905,260	
3.2 Municipality's Overall Net Debt:	\$58,516,896	
3.3 Municipality's Property Tax Revenues (levied) [A]:	\$4,896,931	
3.4 Municipality's Property Tax Revenues (collected) [B]:	\$4,761,805	
3.5 Municipality's Property Tax Collection Rate ([B]/[A]):	97.2%	
<b>4. FINANCIAL INFORMATION REQUIRED FROM SEWER DISTRICTS</b>		
4.1 Total connections to the sewer district: Residential _____ Commercial _____ Industrial _____		
4.2 When facilities require upgrades, how are the costs divided? Will the homes connected to the upgraded facility bear the costs? Will the costs be divided across the sewer district?		
<b>5. ADDITIONAL CONSIDERATIONS (ALL FACILITIES)</b>		
5.1 Provide a list of major infrastructure or other investments in environmental projects. Include project timing and costs and indicate any possible overlap or complications (attach sheets as necessary): Replace Westview Pump Station contingent on additional bond issuance (\$5M) - 2021-2023 Replace Biosolids Equipment contingent on additional bond issuance (\$5M) - 2022-2024 Missouri River Bank Stabilization (\$2M) - 2020		
5.2 Provide a list of any other relevant local community economic conditions that may impact the ability to afford new permit requirements (attach sheets as necessary): Utility and Community recovering from tornado and flooding in 2019.		



**6. CERTIFICATION**

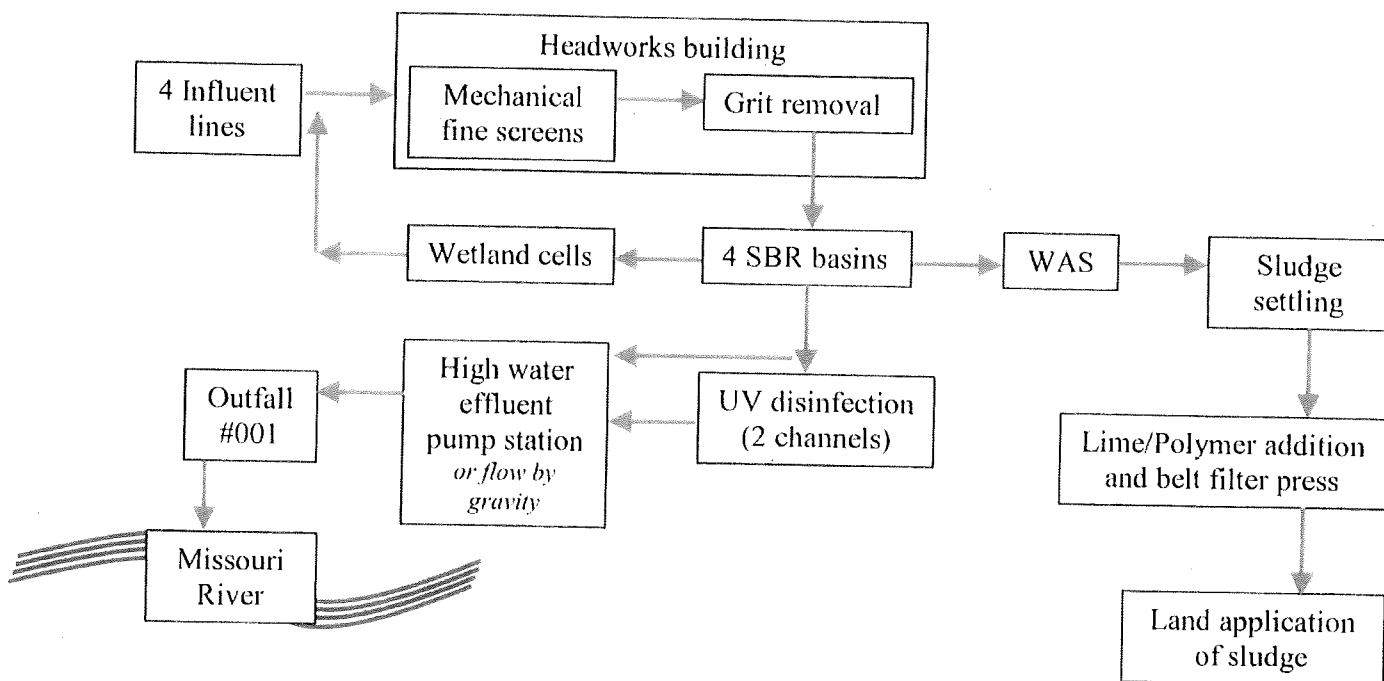
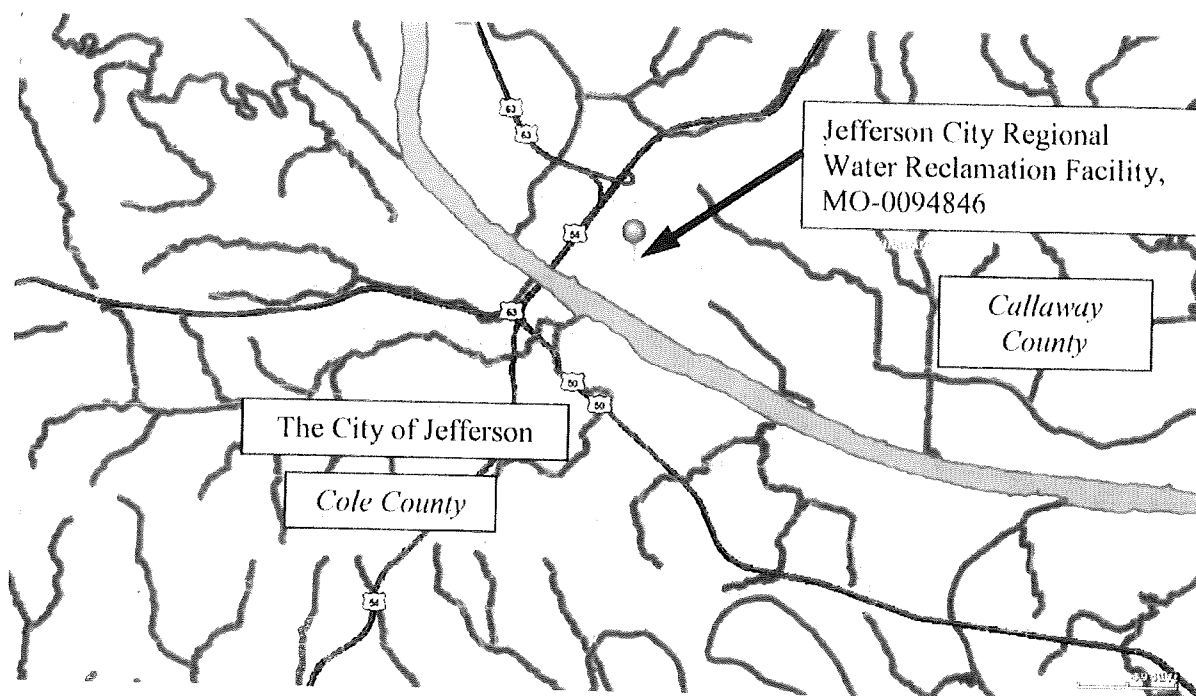
FINANCIAL CONTACT Eric Seaman	OFFICIAL TITLE Wastewater Division Director
EMAIL ADDRESS eseaman@jeffcitymo.org	TELEPHONE NUMBER WITH AREA CODE 573-634-6410
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system 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 submitted 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.	
OWNER OR AUTHORIZED REPRESENTATIVE Eric Seaman	OFFICIAL TITLE Wastewater Division Director
SIGNATURE 	DATE SIGNED 27 SEP 19

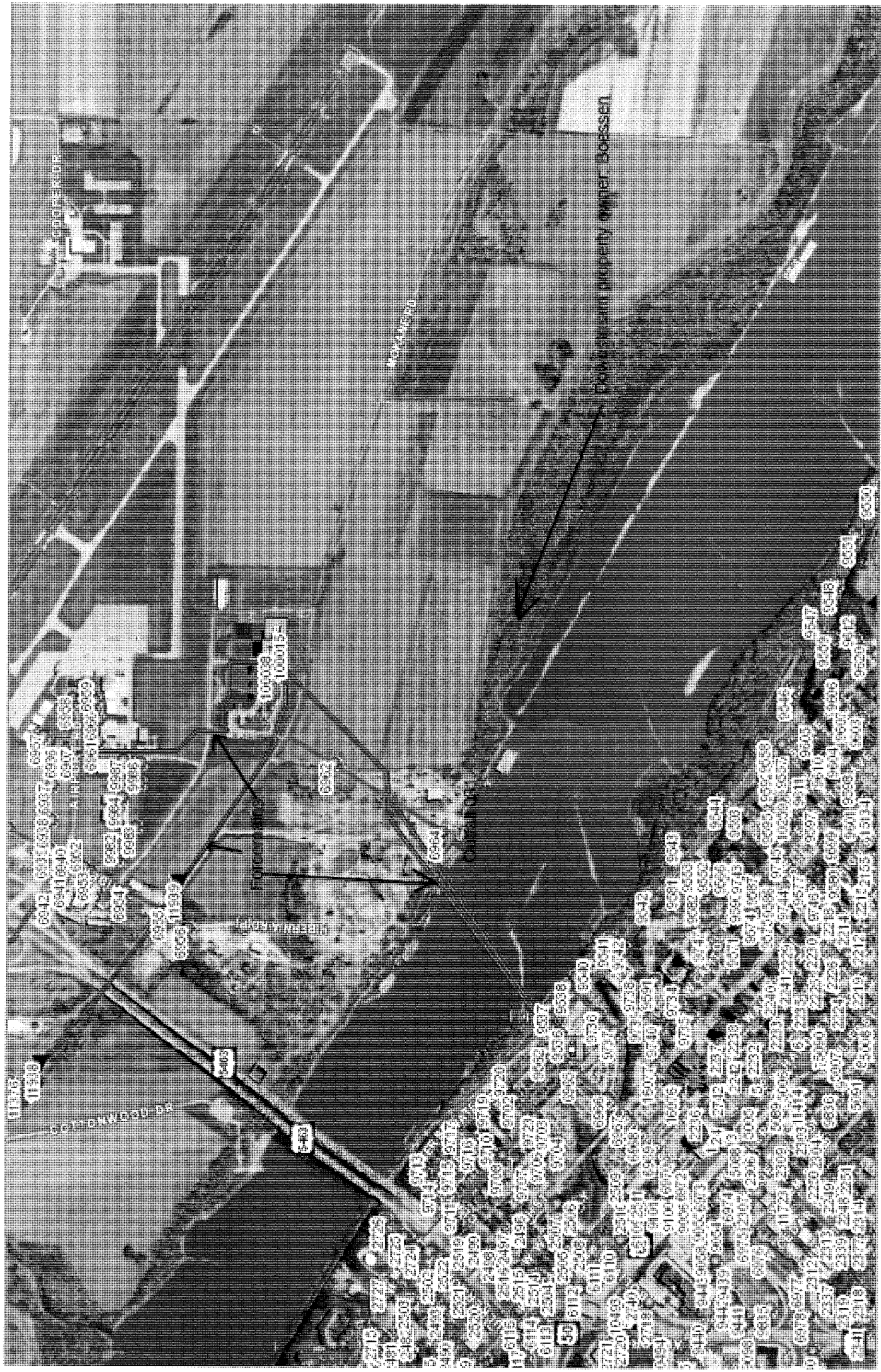
**INSTRUCTIONS FOR COMPLETING THE FINANCIAL QUESTIONNAIRE**

The Financial Questionnaire is to be completed by municipalities, sewer districts, and water supply districts when filing for renewal of their Missouri State Operating Permit. The Financial Questionnaire is to be submitted as an attachment to **FORM B: APPLICATION FOR OPERATING PERMIT FOR FACILITIES THAT RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW LESS THAN OR EQUAL TO 100,000 GALLONS PER DAY** and **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**.

1. GENERAL INFORMATION – Provide the name by which the facility is locally known, the Missouri State Operating Permit number, and the city and county where the facility is located.
2. GENERAL FINANCIAL INFORMATION (ALL FACILITIES) – Municipalities, sewer districts, and water supply districts are to complete.
  - 2.1 Self-explanatory.
  - 2.2 Provide the rate that a household would be charged for sewer service if they use 5,000 gallons per month.
  - 2.3 Provide the cost to operate and maintain the wastewater facility annually.
  - 2.4 Bond ratings can be found here: <https://emma.msrb.org/IssuerHomePage/HomepagesForC6?cusip6=795169>.
  - 2.5 General obligation bond capacity allowed by constitution: Cities = up to 20% of taxable tangible property; Sewer districts = up to 5% of taxable tangible property.
  - 2.6 Provide the amount of debt owed on wastewater collection and treatment. Debt information is typically available from your community's annual financial statements
  - 2.7 Provide the amount of a user's monthly sewer bill that is used toward debt owed on wastewater collection and treatment. This may be a percentage or dollar amount.
  - 2.8 Self-explanatory.
3. FINANCIAL INFORMATION REQUIRED FROM MUNICIPALITIES – Municipalities are to complete.
  - 3.1 Full Market Property Value is typically available through your community or state assessor's office.
  - 3.2 Debt information is typically available from your community's annual financial statements.
  - 3.3 Property tax revenues are typically available from your community's annual financial statements. Property tax rates for Missouri communities can be found in the annual auditor's report: <https://app.auditor.mo.gov/AuditReports/AudRpt2.aspx?id=31>.
  - 3.4 Property Taxes Levied = (Real Property Assessed Value) \* (Property Tax Rate). This information is typically available through your community or state assessor's office and your community's annual financial statements. Property tax rates for Missouri communities can be found in the annual auditor's report: <https://app.auditor.mo.gov/AuditReports/AudRpt2.aspx?id=31>.
  - 3.5 Property tax collection rate = (Property Tax Revenues) ÷ (Property Taxes Levied).
4. FINANCIAL INFORMATION REQUIRED FROM SEWER DISTRICTS – Sewer Districts and Water Supply Districts are to complete.
  - 4.1-4.2 Self-explanatory.
5. ADDITIONAL CONSIDERATIONS (ALL FACILITIES) – Municipalities, sewer districts, and water supply districts are to complete.
  - 5.1-5.2 Self-explanatory.
6. CERTIFICATION – Provide the name and contact information for the individual who can respond to financial information requests for your community. This form must be signed by your community's "owner" or "authorized representative". The owner for a municipality is either the principal executive officer or ranking elected official.

If there are any questions concerning this form or your Missouri State Operating Permit, contact the Department of Natural Resources, Water Protection Program, Operating Permits Section at 800-361-4827 or 573-751-6825.





Part F.21.0

Name And Address	ABB 500 West Highway 94 Jefferson City MO 65101	Modine Manufacturing Co. 1502 S. Country Club Dr. Jefferson City MO 65109	Porite P.O. Box 1047 Jefferson City MO 65102	Unilever, Inc. P.O. Box 1047 Jefferson City MO 65102
21.1 Industrial Processes	Assembly, winding and coating metal and wire	Assembly and finishing metals	Milling and polishing metals	Mixing, compounding and formulation
21.2 Principal Products	Electrical Transformers	Motor Vehicle Parts and Accessories	Bushings, bearings and gears	Hair and skin care, body wash
Raw Materials	numerous	numerous	numerous	numerous
21.3 Flow Rate				
a. process	70,000 gpd Intermittent	22,000 gpd Intermittent	540 gpd. Intermittent	100,000 gpd Intermittent
b. Non-process	20,000 gpd Continuous	7,000 gpd Continuous	4560 gpd. Continuous	50,000 gpd Continuous
21.4 Standards				
a. Local Limits	yes	yes	yes	yes
b. Categorical	Yes, 433 Metal Finishing	Yes, 433 Metal Finishing	Yes, 471 Nonferrous metal forming and powder metals. Subpart J (a)(e)	Yes. Pharmaceutical Manufacturing Point Source – Subpart D. 439 Mixing/Compounding and Formulation
21.5 Problems due to SIU in last 3 years?	No.	No.	No.	January 2, 2019 Notice of Violation issued by City to Unilever, Inc.

Note 21.3 Flow Rate based on most recent permit application.



Pace Analytical Services, LLC  
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Lenexa, KS 66218  
(813)599-5865



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(813)599-5865

September 26, 2019

Clara Haenchen  
City of Jefferson City Wastewater Treatment  
Plant  
401 Old Mokane Rd  
Jefferson City, MO 65101

RE: Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

Dear Clara Haenchen:  
Enclosed are the analytical results for sample(s) received by the laboratory on September 06, 2019.  
The results relate only to the samples included in this report. Results reported herein conform to the  
most current, applicable TMI/NEELAC standards and the laboratory's Quality Assurance Manual,  
where applicable, unless otherwise noted in the body of the report.

Revised report\_rev1

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeffrey Shopper  
jeff.shopper@paceanalabs.com  
1(913)563-1408  
Project Manager

Enclosures

cc: Bradley Kieffer, City of Jefferson WWTP  
Jacob Sawcoer, City of Jefferson City, MO Wastewater  
Treatment Plant  
Emily Wilbers, City of Jefferson City WWTP



# REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

### Indiana Certification IDs:

7726 Muller Road, Indianapolis, IN 46268  
Illinois Certification #: 200074  
Indiana Certification #: C-49-06  
Kansas/NEELAP Certification #: E-10177  
Kentucky UST Certification #: 80226  
Kentucky WW Certification #: 98019  
Michigan Department of Environmental Quality, Laboratory  
#9050

### Kansas Certification IDs:

9608 Lohr Boulevard, Lenexa, KS 66219  
Missouri Inorganic Drinking Water Certification #: 10090  
Arkansas Drinking Water  
Arkansas Certification #: 19-016-0  
Arkansas Drinking Water  
Illinois Certification #: 004455  
Iowa Certification #: 118  
Kansas/NEELAP Certification #: E-10116  
Louisiana Certification #: 03035

Ohio VAP Certification #: CL0065  
Oklahoma Certification #: 2018-101  
Texas Certification #: T104704355  
West Virginia Certification #: 330  
Wisconsin Certification #: 399788130  
USDA Soil Permit #: P330-16-00257

Nevada Certification #: KS000212018-1  
Oklahoma Certification #: 92059935  
Florida: Part E87149 SEKS WET  
Texas Certification #: T104704407-18-11  
Utah Certification #: KS000212018-8  
Illinois Certification #: 004592  
Kansas Field Laboratory Accreditation #: E-92587  
Missouri SEKS Micro Certification: 10070

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Lenexa, KS 66219  
(913)599-5665

#### SAMPLE SUMMARY

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60314028001	SBR PLANT MONTHLY COMPOSITE	Water	09/05/19 09:34	09/06/19 06:15
60314028002	SBR PLANT MONTHLY GRAB	Water	09/05/19 09:34	09/06/19 06:15



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#### SAMPLE ANALYTE COUNT

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

Lab ID	Sample ID	Method	Analysts	Analyses Reported	Laboratory
60314028001	SBR PLANT MONTHLY COMPOSITE	EPA 608.3	KAV	8	PAS-I
		EPA 608.3	KAV	23	PAS-I
		EPA 200.7	JDE	20	PAS-I
		EPA 245.1	HKC	1	PAS-I
		EPA 625	JMT	60	PAS-I
		TKN+NO3+NO2 Calculation	LDB	1	PAS-I
		TKN-NH3 Calculation	LDB	1	PAS-I
		Trivalent Chromium Calculation	LDB	1	PAS-I
		EPA 300.0	MJK	3	PAS-I
		EPA 350.1	JWR	1	PAS-I
		EPA 351.2	AJS	1	PAS-I
		EPA 353.2	AJS	3	PAS-I
		EPA 365.4	JWR	1	PAS-I
		EPA 410.4	MAP	1	PAS-I
		EPA 420.1	CNB	1	PAS-I
		EPA 7196	LDB	1	PAS-I
		EPA 624 Low	EAG	37	PAS-I
		EPA 120.1	AJS2	1	PAS-I
		EPA 1664A	JDA	1	PAS-I
		SM 2310B	LDB	1	PAS-I
60314028002	SBR PLANT MONTHLY GRAB	SM 2320B	MAP	1	PAS-I
		SM 4500-Cl G	MAP	1	PAS-I
		SM 4500-S-2 D	MAP	1	PAS-I
		SM 4500-SC3 B	MCS	1	PAS-I
		SM 5540C	MAP	1	PAS-I
		EPA 365.1	LDB	1	PAS-I
		SM 4500-CNE	CNB	1	PAS-I
		SM 5310C	LDB	1	PAS-I

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## ANALYTICAL RESULTS

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028  
Sample: SBR PLANT MONTHLY COMPOSITE  
Lab ID: 60314028001  
Collected: 09/05/19 09:34  
Received: 09/06/19 06:15  
Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
608.3 PCB									
Analytical Method: EPA 608.3 Preparation Method: EPA 608.3									
PCB-1016 (Aroclor 1016)	ND	ug/L	0.10	0.035	1	09/12/19 09:57	09/14/19 04:13	12674-11-2	
PCB-1221 (Aroclor 1221)	ND	ug/L	0.10	0.035	1	09/12/19 09:57	09/14/19 04:13	11104-28-2	
PCB-1232 (Aroclor 1232)	ND	ug/L	0.10	0.035	1	09/12/19 09:57	09/14/19 04:13	11141-16-5	
PCB-1242 (Aroclor 1242)	ND	ug/L	0.10	0.035	1	09/12/19 09:57	09/14/19 04:13	53489-21-9	
PCB-1248 (Aroclor 1248)	ND	ug/L	0.10	0.035	1	09/12/19 09:57	09/14/19 04:13	12672-29-6	
PCB-1254 (Aroclor 1254)	ND	ug/L	0.10	0.035	1	09/12/19 09:57	09/14/19 04:13	11097-69-1	
PCB-1260 (Aroclor 1260)	ND	ug/L	0.10	0.031	1	09/12/19 09:57	09/14/19 04:13	11096-82-5	
Surrogates									
Tetralin-m-xylene (S)	78	%	14-132		1	09/12/19 09:57	09/14/19 04:13	877-09-8	
608.3 Pesticides									
Analytical Method: EPA 608.3 Preparation Method: EPA 608.3									
Atrith	ND	ug/L	0.050	0.012	1	09/12/19 09:57	09/19/19 17:55	309-00-2	H7, L2, R1
alpha-BHC	ND	ug/L	0.050	0.0050	1	09/12/19 09:57	09/19/19 17:55	319-84-6	R1
beta-BHC	ND	ug/L	0.050	0.0090	1	09/12/19 09:57	09/19/19 17:55	319-85-7	R1
delta-BHC	ND	ug/L	0.050	0.017	1	09/12/19 09:57	09/19/19 17:55	319-86-8	R1
gamma-BHC (lindane)	ND	ug/L	0.050	0.0041	1	09/12/19 09:57	09/19/19 17:55	58-29-9	R1
Chlordane (Technical)	ND	ug/L	0.50	0.38	1	09/12/19 09:57	09/19/19 17:55	57-74-9	R1
alpha-Chlordane	ND	ug/L	0.050	0.0061	1	09/12/19 09:57	09/19/19 17:55	5103-71-9	N2, R1
gamma-Chlordane	ND	ug/L	0.050	0.0085	1	09/12/19 09:57	09/19/19 17:55	5103-74-2	N2, R1
4,4-DDD	ND	ug/L	0.10	0.012	1	09/12/19 09:57	09/19/19 17:55	72-54-8	R1
4,4-DDT	ND	ug/L	0.10	0.017	1	09/12/19 09:57	09/19/19 17:55	72-55-9	R1
Dieldrin	ND	ug/L	0.10	0.036	1	09/12/19 09:57	09/19/19 17:55	60-57-1	R1
Endosulfan I	ND	ug/L	0.050	0.0056	1	09/12/19 09:57	09/19/19 17:55	959-98-8	R1
Endosulfan II	ND	ug/L	0.014	0.011	1	09/12/19 09:57	09/19/19 17:55	321-35-9	R1
Endosulfan sulfate	ND	ug/L	0.10	0.012	1	09/12/19 09:57	09/19/19 17:55	1031-97-8	R1
Erdin	ND	ug/L	0.10	0.018	1	09/12/19 09:57	09/19/19 17:55	7421-93-4	R1
Erdin ketone	ND	ug/L	0.10	0.019	1	09/12/19 09:57	09/19/19 17:55	7421-93-4	N2, R1
Hepachlor epoxide	ND	ug/L	0.050	0.0081	1	09/12/19 09:57	09/19/19 17:55	76-44-8	R1
Methoxychlor	ND	ug/L	0.50	0.0067	1	09/12/19 09:57	09/19/19 17:55	1024-57-3	R1
Toxaphene	ND	ug/L	1.0	0.17	1	09/12/19 09:57	09/19/19 17:55	724-52	R1
Surrogates	65	%	18-118		1	09/12/19 09:57	09/19/19 17:55	2051-24-3	
200.7 Metals, Total									
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Aluminum	ND	ug/L	75.0	33.0	1	09/11/19 15:44	09/12/19 12:33	7429-90-5	
Antimony	ND	ug/L	15.0	6.5	1	09/11/19 15:44	09/12/19 12:33	7440-36-0	
Asenic	ND	ug/L	10.0	4.1	1	09/11/19 15:44	09/12/19 12:33	7440-38-2	
Barium	ND	ug/L	5.0	1.4	1	09/11/19 15:44	09/12/19 12:33	7440-39-3	
Beryllium	ND	ug/L	1.0	0.25	1	09/11/19 15:44	09/12/19 12:33	7440-41-7	
Cadmium	ND	ug/L	5.0	0.56	1	09/11/19 15:44	09/12/19 12:33	7440-43-9	
Calcium	79100	ug/L	200	50.0	1	09/11/19 15:44	09/12/19 12:33	7440-70-2	
Chromium	ND	ug/L	5.0	1.0	1	09/11/19 15:44	09/12/19 12:33	7440-47-3	

## REPORT OF LABORATORY ANALYSIS

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Lenexa, KS 66219  
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## ANALYTICAL RESULTS

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028  
Sample: SBR PLANT MONTHLY COMPOSITE  
Lab ID: 60314028001  
Collected: 09/05/19 09:34  
Received: 09/06/19 06:15  
Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total									
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7									
Copper	ND	ug/L	10.0	3.4	1	09/11/19 15:44	09/12/19 12:33	7440-50-8	
Iron	123	ug/L	50.0	14.0	1	09/11/19 15:44	09/12/19 12:33	7439-89-6	
Lead	ND	ug/L	10.0	3.4	1	09/11/19 15:44	09/12/19 12:33	7439-92-1	
Magnesium	28600	ug/L	50.0	13.0	1	09/11/19 15:44	09/12/19 12:33	7439-95-4	
Molybdenum	ND	ug/L	20.0	2.6	1	09/11/19 15:44	09/12/19 12:33	7439-98-7	
Nickel	ND	ug/L	5.0	1.2	1	09/11/19 15:44	09/12/19 12:33	7440-02-0	
Selenium	ND	ug/L	15.0	6.6	1	09/11/19 15:44	09/12/19 12:33	7782-49-2	
Silver	ND	ug/L	7.0	1.8	1	09/11/19 15:44	09/12/19 12:33	7440-22-4	
Sodium	132000	ug/L	500	144	1	09/11/19 15:44	09/12/19 12:33	7440-23-5	
Thallium	ND	ug/L	20.0	3.4	1	09/11/19 15:44	09/12/19 12:33	7440-28-0	
Hardness, Total(SW 2340B)	316000	ug/L	500	197	1	09/11/19 15:44	09/12/19 12:33		
Zinc	50.9	ug/L	50.0	6.1	1	09/11/19 15:44	09/12/19 12:33	7440-66-6	
245.1 Mercury									
Analytical Method: EPA 245.1 Preparation Method: EPA 245.1									
Mercury	ND	ug/L	0.20	0.066	1	09/06/19 09:55	09/09/19 16:20	7439-97-6	
625 MSSV									
Analytical Method: EPA 625 Preparation Method: EPA 625									
Acenaphthene	ND	ug/L	4.8	0.63	1	09/06/19 20:31	09/09/19 11:59	83-32-9	
Acenaphthylene	ND	ug/L	4.8	0.63	1	09/06/19 20:31	09/09/19 11:59	208-96-8	
Anthracene	ND	ug/L	4.8	0.65	1	09/06/19 20:31	09/09/19 11:59	120-12-7	
Benzo(a)anthracene	ND	ug/L	4.8	0.65	1	09/06/19 20:31	09/09/19 11:59	92-87-5	
Benzo(b)fluoranthene	ND	ug/L	4.8	0.66	1	09/06/19 20:31	09/09/19 11:59	56-55-3	
Benzo(k)fluoranthene	ND	ug/L	4.8	0.70	1	09/06/19 20:31	09/09/19 11:59	50-32-8	
Benzo(a)pyrene	ND	ug/L	4.8	0.89	1	09/06/19 20:31	09/09/19 11:59	205-98-2	
Benzo(e)pyrene	ND	ug/L	4.8	0.67	1	09/06/19 20:31	09/09/19 11:59	191-24-2	
Benzofluoranthene	ND	ug/L	4.8	0.88	1	09/06/19 20:31	09/09/19 11:59	207-08-9	
Benzofluoranthene ether	ND	ug/L	4.8	0.89	1	09/06/19 20:31	09/09/19 11:59	101-55-3	
4-Bromophenylphenyl ether	ND	ug/L	4.8	0.62	1	09/06/19 20:31	09/09/19 11:59	86-86-7	
4-Chloro-3-methylphenol	ND	ug/L	4.8	0.74	1	09/06/19 20:31	09/09/19 11:59	59-50-7	
4-Chloro-3-methylphenol ether	ND	ug/L	4.8	0.65	1	09/06/19 20:31	09/09/19 11:59	111-91-1	
4-Chloro-3-methylphenol ether	ND	ug/L	4.8	0.73	1	09/06/19 20:31	09/09/19 11:59	111-91-1	
4-Chloro-3-methylphenol ether	ND	ug/L	4.8	0.68	1	09/06/19 20:31	09/09/19 11:59	108-60-1	
4-Chloro-3-methylphenol ether	ND	ug/L	4.8	0.77	1	09/06/19 20:31	09/09/19 11:59	91-58-7	
2-Chlorophenol	ND	ug/L	4.8	0.72	1	09/06/19 20:31	09/09/19 11:59	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/L	4.8	0.79	1	09/06/19 20:31	09/09/19 11:59	7005-72-3	
Chrysene	ND	ug/L	4.8	0.70	1	09/06/19 20:31	09/09/19 11:59	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	4.8	0.71	1	09/06/19 20:31	09/09/19 11:59	53-70-3	
3,3-Dichlorobenzidine	ND	ug/L	19.0	0.72	1	09/06/19 20:31	09/09/19 11:59	91-94-1	
2,4-Dichlorophenol	ND	ug/L	4.8	0.65	1	09/06/19 20:31	09/09/19 11:59	120-83-2	
Diethylphthalate	ND	ug/L	4.8	0.63	1	09/06/19 20:31	09/09/19 11:59	84-66-7	
2,4-Dimethylphenol	ND	ug/L	4.8	0.65	1	09/06/19 20:31	09/09/19 11:59	131-11-3	
Dimethylphthalate	ND	ug/L	4.8	0.60	1	09/06/19 20:31	09/09/19 11:59	84-74-2	
Dihydroxyphenyl ether	ND	ug/L	4.8	0.57	1	09/06/19 20:31	09/09/19 11:59	53-42-1	
4,6-Dinitro-2-methylphenol	ND	ug/L	23.8	0.76	1	09/06/19 20:31	09/09/19 11:59	51-28-5	
2,4-Dinitrophenol	ND	ug/L	47.6	0.97	1	09/06/19 20:31	09/09/19 11:59	51-28-5	

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## ANALYTICAL RESULTS

Project: ANNUAL PP AND DNR POLLUTANT SC		Lab ID: 60314028		Collected: 09/05/19 09:34		Received: 09/06/19 06:15		Matrix: Water	
Pace Project No.: 60314028		Sample: SBR PLANT MONTHLY COMPOSITE							
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual

625 MRSV									
Analytical Method: EPA 625 Preparation Method: EPA 625									
2,4-Dinitrotoluene	ND	ug/L	5.7	0.56	1	09/06/19 20:31	09/09/19 11:59	121-14-2	
2,6-Dinitrotoluene	ND	ug/L	4.8	0.63	1	09/06/19 20:31	09/09/19 11:59	605-20-2	
Dihydroxyphenylacetic acid	ND	ug/L	4.8	0.92	1	09/06/19 20:31	09/09/19 11:59	117-84-0	
1,2-Diphenylhydrazine	ND	ug/L	7.6	0.57	1	09/06/19 20:31	09/09/19 11:59	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/L	4.8	0.95	1	09/06/19 20:31	09/09/19 11:59	117-81-7	
Fluoranthene	ND	ug/L	4.8	0.72	1	09/06/19 20:31	09/09/19 11:59	206-44-0	
Fluorene	ND	ug/L	4.8	0.59	1	09/06/19 20:31	09/09/19 11:59	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/L	4.8	0.77	1	09/06/19 20:31	09/09/19 11:59	87-68-3	
Hexachlorocyclopentadiene	ND	ug/L	4.8	0.90	1	09/06/19 20:31	09/09/19 11:59	118-74-1	
Hexachloroethane	ND	ug/L	4.8	0.63	1	09/06/19 20:31	09/09/19 11:59	77-47-4	
Indeno(1,2,3-cd)pyrene	ND	ug/L	4.8	0.70	1	09/06/19 20:31	09/09/19 11:59	67-72-1	
Isothione	ND	ug/L	4.8	0.64	1	09/06/19 20:31	09/09/19 11:59	193-39-5	
Naphthalene	ND	ug/L	4.8	0.51	1	09/06/19 20:31	09/09/19 11:59	78-59-1	
Nitrobenzene	ND	ug/L	4.8	0.65	1	09/06/19 20:31	09/09/19 11:59	91-20-3	
2-Nitrophenol	ND	ug/L	4.8	0.49	1	09/06/19 20:31	09/09/19 11:59	88-75-5	
4-Nitrophenol	ND	ug/L	4.8	0.68	1	09/06/19 20:31	09/09/19 11:59	100-02-7	
N-Nitrosodimethylaniline	ND	ug/L	4.8	2.4	1	09/06/19 20:31	09/09/19 11:59	82-75-9	
N-Nitroso-d-n-propylaniline	ND	ug/L	4.8	0.76	1	09/06/19 20:31	09/09/19 11:59	82-75-9	
N-Nitrosodiphenylamine	ND	ug/L	4.8	0.62	1	09/06/19 20:31	09/09/19 11:59	82-64-7	
Pentachlorophenol	ND	ug/L	4.8	0.38	1	09/06/19 20:31	09/09/19 11:59	86-30-6	
Peranthrene	ND	ug/L	4.8	0.73	1	09/06/19 20:31	09/09/19 11:59	87-86-5	
Phenol	ND	ug/L	4.8	0.64	1	09/06/19 20:31	09/09/19 11:59	85-01-8	
Pyrene	ND	ug/L	4.8	2.4	1	09/06/19 20:31	09/09/19 11:59	108-65-2	
1,2,4-Trichlorobenzene	ND	ug/L	4.8	0.65	1	09/06/19 20:31	09/09/19 11:59	128-00-0	
2,4,6-Trichlorophenol	ND	ug/L	4.8	0.83	1	09/06/19 20:31	09/09/19 11:59	128-82-1	
Surrogates	ND	ug/L	4.8	0.74	1	09/06/19 20:31	09/09/19 11:59	88-06-2	
2,4,6-Trichlorophenol (S)	75	%	24.126		1	09/06/19 20:31	09/09/19 11:59	118-79-6	
2-Fluorophenol (S)	68	%	24.110		1	09/06/19 20:31	09/09/19 11:59	321-80-8	
Nitrobenzene-d5 (S)	41	%	20.39		1	09/06/19 20:31	09/09/19 11:59	367-12-4	
Nitrobenzene-d5 (S)	76	%	24.110		1	09/06/19 20:31	09/09/19 11:59	4165-60-0	
Phenol-d6 (S)	29	%	11.42		1	09/06/19 20:31	09/09/19 11:59	13127-88-3	
Triphenyl-d14 (S)	75	%	35.118		1	09/06/19 20:31	09/09/19 11:59	1718-51-0	
Total Nitrogen Calculation									
Analytical Method: TKH+NO3+NO2 Calculation									
Nitrogen	13.2	mg/L	0.10		1	09/19/19 15:52	7727-37-9		
Total Organic Nitrogen Calc.									
Analytical Method: TKH-NH3 Calculation									
Total Organic Nitrogen	2.1	mg/L	0.50	0.50	1	09/19/19 16:02			
Trivalent Chromium Calculation									
Analytical Method: Trivalent Chromium Calculation									
Chromium, Trivalent	ND	mg/L	0.010	0.010	1	09/20/19 14:35	16065-83-1		
300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Chloride	196	mg/L	10.0	2.2	10	09/13/19 20:35	16887-00-6		

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## ANALYTICAL RESULTS

Project: ANNUAL PP AND DNR POLLUTANT SC		Lab ID: 60314028		Collected: 09/05/19 09:34		Received: 09/06/19 06:15		Matrix: Water	
Pace Project No.: 60314028		Sample: SBR PLANT MONTHLY COMPOSITE							
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual

300.0 IC Anions 28 Days									
Analytical Method: EPA 300.0									
Fluoride	0.46	mg/L	0.20	0.085	1	09/13/19 19:35	16884-48-8		
Sulfate	98.1	mg/L	10.0	2.3	10	09/13/19 20:35	14808-79-8		
350.1 Ammonia									
Analytical Method: EPA 350.1									
Nitrogen, Ammonia	0.28	mg/L	0.10	0.079	1	09/18/19 16:53	7664-41-7		
351.2 Total Kjeldahl Nitrogen									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2									
Nitrogen, Kjeldahl, Total	2.4	mg/L	0.50	0.37	1	09/17/19 08:13	09/18/19 13:21	7727-37-9	
353.2 Nitrogen, NO2/NO3 unspres									
Analytical Method: EPA 353.2									
Nitrogen, NO2 plus NO3	10.9	mg/L	0.50	0.19	5	09/06/19 09:56			
Nitrogen, Nitrate	10.9	mg/L	0.50	0.34	5	09/06/19 09:56	14197-55-8		
Nitrogen, Nitrite	ND	mg/L	0.50	0.34	5	09/06/19 09:56	14197-55-0		
355.4 Total Phosphorus									
Analytical Method: EPA 355.4 Preparation Method: EPA 355.4									
Phosphorus	2.1	mg/L	0.10	0.044	1	09/17/19 10:00	09/18/19 10:51	7723-14-0	
410.4 COD									
Analytical Method: EPA 410.4 Preparation Method: EPA 410.4									
Chemical Oxygen Demand	23.7	mg/L	10.0	3.7	1	09/16/19 16:25	09/17/19 08:53		
Phenolics, Total Recoverable									
Analytical Method: EPA 420.1 Preparation Method: EPA 420.1									
Phenolics, Total Recoverable	ND	mg/L	0.050	0.016	1	09/10/19 09:39	09/10/19 15:17	64743-03-9	
7196 Chromium, Hexavalent									
Analytical Method: EPA 7196									
Chromium, Hexavalent	ND	mg/L	0.010	0.0031	1	09/06/19 08:05	18540-28-9		
624 Volatile Organics									
Analytical Method: EPA 624 Low									
Benzene	ND	ug/L	1.0	0.12	1	09/10/19 15:55	71-43-2		
Bromochloromethane	ND	ug/L	1.0	0.13	1	09/10/19 15:55	75-27-4		
Bromomethane	ND	ug/L	1.0	0.11	1	09/10/19 15:55	75-25-2		
Carbon tetrachloride	ND	ug/L	5.0	0.66	1	09/10/19 15:55	74-83-9		
Chlorobenzene	ND	ug/L	1.0	0.10	1	09/10/19 15:55	108-90-7		
Chloroethane	ND	ug/L	1.0	0.20	1	09/10/19 15:55	75-00-3		
2-Chloroethylvinyl ether	ND	ug/L	1.0	0.29	1	09/10/19 15:55	110-75-8		
Chloroform	ND	ug/L	1.0	0.14	1	09/10/19 15:55	67-66-3		
Chloromethane	ND	ug/L	1.0	0.20	1	09/10/19 15:55	74-87-3		
Dibromochloromethane	ND	ug/L	1.0	0.24	1	09/10/19 15:55	124-48-1		

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## ANALYTICAL RESULTS

Project: ANNUAL PP AND DNR POLLUTANT SC

Pace Project No.: 60314028

Sample: SRR PLANT MONTHLY Lab ID: 60314028002 Collected: 09/05/19 09:34 Received: 09/06/19 06:15 Matrix: Water

GRAB

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
624 Volatile Organics									
Analytical Method: EPA 624 Low									
1,2-Dichlorobenzene	ND	ug/L	1.0	0.066	1		09/10/19 15:55	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	0.10	1		09/10/19 15:55	94-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.080	1		09/10/19 15:55	106-46-7	
1,1-Dichloroethane	ND	ug/L	1.0	0.13	1		09/10/19 15:55	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.14	1		09/10/19 15:55	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	0.11	1		09/10/19 15:55	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	0.14	1		09/10/19 15:55	156-59-2	N2
trans-1,2-Dichloroethene	ND	ug/L	1.0	0.17	1		09/10/19 15:55	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.087	1		09/10/19 15:55	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.16	1		09/10/19 15:55	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.12	1		09/10/19 15:55	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.057	1		09/10/19 15:55	100-41-4	
Methylene Chloride	ND	ug/L	1.0	0.21	1		09/10/19 15:55	75-09-2	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.12	1		09/10/19 15:55	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.15	1		09/10/19 15:55	127-18-4	
Toluene	ND	ug/L	1.0	0.046	1		09/10/19 15:55	106-98-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.057	1		09/10/19 15:55	71-35-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.25	1		09/10/19 15:55	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.15	1		09/10/19 15:55	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.12	1		09/10/19 15:55	75-69-4	
Vinyl chloride	ND	ug/L	1.0	0.11	1		09/10/19 15:55	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.21	1		09/10/19 15:55	1330-20-7	N2
Surrogates									
4-Bromofluorobenzene (S)	100	%	80-120		1		09/10/19 15:55	460-00-4	
Toluene-d8 (S)	100	%	80-120		1		09/10/19 15:55	2037-26-5	
1,2-Dichloroethane-d4 (S)	98	%	80-120		1		09/10/19 15:55	17060-07-0	
Preservation pH	7.0		1.0	0.10	1		09/10/19 15:55		
120.1 Specific Conductance									
Analytical Method: EPA 120.1									
Specific Conductance	1160	umhos/cm	1.0	1.0	1		09/19/19 15:53		
HEM, Oil and Grease									
Analytical Method: EPA 1664A									
Oil and Grease	2.0J	mg/L	4.8	1.3	1		09/16/19 08:42		
2310B Acidity, Total									
Analytical Method: SM 2310B									
Acidity, Total	ND	mg/L	20.0	1.0	1		09/17/19 09:40		
2320B Alkalinity									
Analytical Method: SM 2320B									
Alkalinity, Total as CaCO3	225	mg/L	20.0	6.5	1		09/10/19 17:18		
4500CL G Chlorine, Residual									
Analytical Method: SM 4500-Cl G									
Chlorine, Total Residual	ND	mg/L	0.050	0.010	1		09/09/19 13:42	7782-50-5	H6

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## ANALYTICAL RESULTS

Project: ANNUAL PP AND DNR POLLUTANT SC

Pace Project No.: 60314028

Sample: SRR PLANT MONTHLY Lab ID: 60314028002 Collected: 09/05/19 09:34 Received: 09/06/19 06:15 Matrix: Water

GRAB

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
4500S2D Sulfide, Total									
Analytical Method: SM 4500-S-2 D									
Sulfide, Total	ND	mg/L	0.050	0.039	1		09/09/19 12:16	18496-25-8	
4500SO3B Sulfite, Iodometric									
Analytical Method: SM 4500-SO3 B									
Sulfite	ND	mg/L	2.0	2.0	1		09/16/19 15:33		H6
5540C MBAS Surfactants									
Analytical Method: SM 5540C Preparation Method: SM 5540C									
MBAS, Calculated as LAS	ND	mg/L	0.20	0.064	1	09/06/19 14:10	09/06/19 16:30		SU
365.1 Orthophosphate as P									
Analytical Method: EPA 365.1									
Orthophosphate as P	2.3	mg/L	0.10	0.054	1		09/06/19 06:06		
4500CNE Cyanide, Total									
Analytical Method: SM 4500-CNE Preparation Method: SM 4500-CNE									
Cyanide	0.0068	mg/L	0.0050	0.0039	1	09/06/19 09:03	09/06/19 12:54	57-12-5	
5310C TOC									
Analytical Method: SM 5310C									
Total Organic Carbon	3.5	mg/L	1.0	0.29	1		09/18/19 12:43	7440-44-0	

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC												
Pace Project No.: 60314028												
QC Batch:		607765		Analysis Method:		EPA 245.1						
QC Batch Method:		EPA 245.1		Analysis Description:		245.1 Mercury						
Associated Lab Samples:		60314028001										
METHOD BLANK: 2483292												
Associated Lab Samples:		60314028001		Matrix: Water								
Parameter		Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers					
Mercury		ug/L	ND	0.20	0.066	09/09/19 15:43						
LABORATORY CONTROL SAMPLE: 2483293												
Parameter		Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers					
Mercury		ug/L	5	5.0	99	85-115						
MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2483294												
Parameter		Units	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD % Rec	MSD % Rec	MSD % Rec	MSD % Rec	MSD % Rec	MSD % Rec	
Mercury		ug/L	ND	5	5	4.9	4.9	99	97	70-130	1 20	
MATRIX SPIKE SAMPLE: 2483296												
Parameter		Units	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD % Rec	MSD % Rec	MSD % Rec	MSD % Rec	MSD % Rec	MSD % Rec	
Mercury		ug/L	ND	5	5	5.0	5.0	99	99	70-130	1 20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC									
Pace Project No.: 60314028									
QC Batch:	608761	Analysis Method:		EPA 200.7					
QC Batch Method:	EPA 200.7	Analysis Description:		200.7 Metals, Total					
Associated Lab Samples:		60314028001		METHOD BLANK: 2486779					
Associated Lab Samples:		60314028001		Matrix: Water					
Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers			
Aluminum	ug/L	ND	75.0	33.0	09/12/19 12:13				
Antimony	ug/L	ND	15.0	6.5	09/12/19 12:13				
Arsenic	ug/L	ND	10.0	4.1	09/12/19 12:13				
Barium	ug/L	ND	5.0	1.4	09/12/19 12:13				
Beryllium	ug/L	ND	1.0	0.25	09/12/19 12:13				
Cadmium	ug/L	ND	5.0	0.56	09/12/19 12:13				
Calcium	ug/L	ND	200	50.0	09/12/19 12:13				
Chromium	ug/L	ND	5.0	1.0	09/12/19 12:13				
Copper	ug/L	ND	10.0	3.4	09/12/19 12:13				
Hardness, Total(SM 23408)	ug/L	ND	500	197	09/12/19 12:13				
Iron	ug/L	ND	50.0	14.0	09/12/19 12:13				
Lead	ug/L	ND	10.0	3.4	09/12/19 12:13				
Magnesium	ug/L	ND	50.0	13.0	09/12/19 12:13				
Molybdenum	ug/L	ND	20.0	2.6	09/12/19 12:13				
Nickel	ug/L	ND	5.0	1.2	09/12/19 12:13				
Selenium	ug/L	ND	15.0	6.6	09/12/19 12:13				
Silver	ug/L	ND	7.0	1.8	09/12/19 12:13				
Sodium	ug/L	ND	500	144	09/12/19 12:13				
Thallium	ug/L	ND	20.0	3.4	09/12/19 12:13				
Zinc	ug/L	ND	50.0	6.1	09/12/19 12:13				

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## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

LABORATORY CONTROL SAMPLE: 2466780									
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers			
Silver	ug/L	500	521	104	85-115				
Sodium	ug/L	10000	10500	105	85-115				
Thallium	ug/L	1000	1090	109	85-115				
Zinc	ug/L	1000	1060	106	85-115				

## MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2466781

Parameter	Units	6031367001		MS		MSD		2466782		MS		MSD		% Rec		Limits		Qualifiers	
		Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	Result	Conc.	% Rec	MSD	% Rec	MSD	% Rec	MSD
Aluminum	ug/L	ND	10000	10000	9630	9370	972	99	97	70-130	2	20	3	20					
Antimony	ug/L	ND	1000	1000	986	972	99	97	70-130	2	20	3	20						
Arsenic	ug/L	ND	1000	1000	942	920	94	92	70-130	2	20	3	20						
Barium	ug/L	76.9	1000	1000	1040	1020	96	94	70-130	2	20	3	20						
Beryllium	ug/L	ND	1000	1000	974	953	97	95	70-130	2	20	3	20						
Cadmium	ug/L	ND	1000	1000	954	932	95	93	70-130	2	20	3	20						
Calcium	ug/L	53700	10000	10000	62700	61800	89	80	70-130	1	20	2	20						
Chromium	ug/L	ND	1000	1000	955	941	96	94	70-130	1	20	2	20						
Copper	ug/L	ND	1000	1000	948	931	94	93	70-130	1	20	2	20						
Hardness, Total(SM 2340B)	ug/L	236000	66200	66200	295900	291000	89	84	70-130	1	20	2	20						
Iron	ug/L	ND	10000	10000	9720	9520	97	95	70-130	2	20	3	20						
Lead	ug/L	ND	1000	1000	1000	983	100	86	70-130	2	20	3	20						
Magnesium	ug/L	24700	10000	10000	33600	33300	89	86	70-130	1	20	2	20						
Molybdenum	ug/L	69.1	1000	1000	1060	1030	99	95	70-130	2	20	3	20						
Nickel	ug/L	ND	1000	1000	968	949	97	95	70-130	2	20	3	20						
Selenium	ug/L	ND	1000	1000	970	946	97	95	70-130	2	20	3	20						
Silver	ug/L	ND	500	500	475	470	95	94	70-130	1	20	2	20						
Sodium	ug/L	126000	10000	10000	134000	132000	76	54	70-130	2	20	M1							
Thallium	ug/L	ND	1000	1000	931	915	93	91	70-130	2	20	3	20						
Zinc	ug/L	ND	1000	1000	958	947	95	94	70-130	1	20	2	20						

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

LABORATORY CONTROL SAMPLE: 2466780									
Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers			
1,1,1-Trichloroethane	ug/L	ND	1.0	0.057	09/10/19 14:02				
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	0.12	09/10/19 14:02				
1,1,2-Trichloroethane	ug/L	ND	1.0	0.25	09/10/19 14:02				
1,1-Dichloroethane	ug/L	ND	1.0	0.13	09/10/19 14:02				
1,1-Dichloroethene	ug/L	ND	1.0	0.11	09/10/19 14:02				
1,2-Dichlorobenzene	ug/L	ND	1.0	0.086	09/10/19 14:02				
1,2-Dichloropropane	ug/L	ND	1.0	0.14	09/10/19 14:02				
1,3-Dichloropropane	ug/L	ND	1.0	0.097	09/10/19 14:02				
1,4-Dichlorobenzene	ug/L	ND	1.0	0.10	09/10/19 14:02				
2-Chloroethylvinyl ether	ug/L	ND	1.0	0.050	09/10/19 14:02				
Benzene	ug/L	ND	1.0	0.29	09/10/19 14:02				
Bromochloromethane	ug/L	ND	1.0	0.12	09/10/19 14:02				
Bromoform	ug/L	ND	1.0	0.13	09/10/19 14:02				
Bromomethane	ug/L	ND	1.0	0.66	09/10/19 14:02				
Carbon tetrachloride	ug/L	ND	1.0	0.11	09/10/19 14:02				
Chlorobenzene	ug/L	ND	1.0	0.081	09/10/19 14:02				
Chloroethane	ug/L	ND	1.0	0.20	09/10/19 14:02				
Chloroform	ug/L	ND	1.0	0.14	09/10/19 14:02				
Chloromethane	ug/L	ND	1.0	0.20	09/10/19 14:02				
cis-1,2-Dichloroethane	ug/L	ND	1.0	0.16	09/10/19 14:02				
cis-1,3-Dichloropropene	ug/L	ND	1.0	0.057	09/10/19 14:02				
Dibromochloromethane	ug/L	ND	1.0	0.21	09/10/19 14:02				
Ethylbenzene	ug/L	ND	1.0	0.21	09/10/19 14:02				
Methylene Chloride	ug/L	ND	1.0	0.15	09/10/19 14:02				
Tetraethioethane	ug/L	ND	1.0	0.048	09/10/19 14:02				
Toluene	ug/L	ND	1.0	0.17	09/10/19 14:02				
trans-1,2-Dichloroethane	ug/L	ND	1.0	0.12	09/10/19 14:02				
trans-1,3-Dichloropropene	ug/L	ND	1.0	0.15	09/10/19 14:02				
Trichloroethene	ug/L	ND	1.0	0.12	09/10/19 14:02				
Trichlorofluoromethane	ug/L	ND	1.0	0.12	09/10/19 14:02				
Vinyl chloride	ug/L	ND	1.0	0.21	09/10/19 14:02				
Xylene (Total)	ug/L	ND	3.0	0.21	09/10/19 14:02				
1,2-Dichloroethane-4d (S)	%	100	80-120						
4-Bromofluorobenzene (S)	%	100	80-120						
Toluene-4d (S)	%	101	80-120						

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

LABORATORY CONTROL SAMPLE: 2485009

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	20	21.8	109	80-114	
1,1,2,2-Tetrachloroethane	ug/L	20	21.8	109	67-123	
1,1,2-Trichloroethane	ug/L	20	21.0	105	80-117	
1,1-Dichloroethane	ug/L	20	20.7	103	75-117	
1,2-Dichloroethane	ug/L	20	21.2	106	66-126	
1,2-Dichlorobenzene	ug/L	20	21.2	106	81-115	
1,2-Dichloropropane	ug/L	20	20.9	105	71-110	
1,3-Dichloropropane	ug/L	20	21.2	106	78-115	
2-Chloroethylvinyl ether	ug/L	20	21.2	101	81-115	
Benzene	ug/L	20	22.9	114	10-167	
Bromodichloromethane	ug/L	20	21.1	106	79-114	
Bromomethane	ug/L	20	21.9	110	79-116	
Carbon tetrachloride	ug/L	20	23.7	118	72-128	
Chlorobenzene	ug/L	20	34.5	173	15-185	
Chloroethane	ug/L	20	22.8	114	70-130	
Chloroform	ug/L	20	21.6	108	65-135	
Chloromethane	ug/L	20	14.4	72	41-138	
cis-1,2-Dichloroethene	ug/L	20	19.9	99	78-110	
cis-1,3-Dichloropropene	ug/L	20	21.3	106	17-148	
Dibromochloromethane	ug/L	20	20.6	103	80-114 N2	
Ethylbenzene	ug/L	20	22.8	114	79-116	
Methylene Chloride	ug/L	20	21.1	105	70-135	
Tetrafluoroethane	ug/L	20	18.5	93	83-116	
Toluene	ug/L	20	21.8	109	70-118	
trans-1,2-Dichloroethene	ug/L	20	20.8	104	82-115	
trans-1,3-Dichloropropene	ug/L	20	21.3	107	75-116	
Trichloroethene	ug/L	20	21.0	104	81-116	
Trichlorofluoromethane	ug/L	20	22.2	111	82-124	
Vinyl chloride	ug/L	20	23.1	115	64-128	
Xylene (Total)	ug/L	60	64.2	107	39-159	
1,2-Dichloroethane-d4 (S)	%			107	82-114 N2	
4-Bromofluorobenzene (S)	%			101	80-120	
Toluene-d8 (S)	%			100	80-120	

MATRIX SPIKE SAMPLE: 2485010

Parameter	Units	Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	ND	20	18.6	93	52-162	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	15.7	78	46-157	
1,1,2-Trichloroethane	ug/L	ND	20	15.2	76	52-150	
1,1-Dichloroethane	ug/L	ND	20	16.3	84	55-155	
1,2-Dichloroethane	ug/L	ND	20	16.8	84	10-234	

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

MATRIX SPIKE SAMPLE: 2485010

Parameter	Units	Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2-Dichlorobenzene	ug/L	ND	20	15.6	78	18-190	
1,2-Dichloroethane	ug/L	ND	20	15.0	74	49-155	
1,2-Dichloropropane	ug/L	ND	20	16.1	81	10-210	
1,3-Dichlorobenzene	ug/L	ND	20	16.0	80	59-156	
1,4-Dichlorobenzene	ug/L	ND	20	15.7	78	18-190	
2-Chloroethylvinyl ether	ug/L	ND	20	15.0	75	10-229	
Benzene	ug/L	ND	20	16.8	84	37-151	
Bromodichloromethane	ug/L	ND	20	15.7	78	35-155	
Bromomethane	ug/L	ND	20	16.1	81	45-169	
Carbon tetrachloride	ug/L	ND	20	26.0	130	10-242	
Chlorobenzene	ug/L	ND	20	15.9	80	37-160	
Chloroethane	ug/L	ND	20	20.1	101	14-230	
Chloroform	ug/L	ND	20	15.0	74	51-138	
Chloromethane	ug/L	ND	20	14.6	73	10-273	
cis-1,2-Dichloroethene	ug/L	ND	20	16.3	81	43-132 N2	
cis-1,3-Dichloropropene	ug/L	ND	20	14.8	74	10-227	
Dibromochloromethane	ug/L	ND	20	16.2	81	53-149	
Ethylbenzene	ug/L	ND	20	16.0	80	37-162	
Methylene Chloride	ug/L	ND	20	13.7	68	10-221	
Tetrafluoroethane	ug/L	ND	20	17.6	88	64-148	
Toluene	ug/L	ND	20	13.7	68	47-150	
trans-1,2-Dichloroethene	ug/L	ND	20	16.7	83	54-156	
trans-1,3-Dichloropropene	ug/L	ND	20	17.4	87	17-183	
Trichloroethene	ug/L	ND	20	14.9	75	70-157	
Trichlorofluoromethane	ug/L	ND	20	17.1	86	17-181	
Vinyl chloride	ug/L	ND	20	19.1	95	13-251	
Xylene (Total)	ug/L	ND	60	48.2	80	43-137 N2	
1,2-Dichloroethane-d4 (S)	%				97	80-120	
4-Bromofluorobenzene (S)	%				103	80-120	
Toluene-d8 (S)	%	7.0		7.0	103	80-120	
Preservation pH							

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### QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

QC Batch: 521213 Analysis Method: EPA 608.3  
QC Batch Method: EPA 608.3 Analysis Description: 608.3 PCB  
Associated Lab Samples: 60314028001

METHOD BLANK: 2404400  
Associated Lab Samples: 60314028001 Matrix: Water

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	ND	0.10	0.035	09/14/19 01:35	
PCB-1221 (Aroclor 1221)	ug/L	ND	0.10	0.035	09/14/19 01:35	
PCB-1232 (Aroclor 1232)	ug/L	ND	0.10	0.035	09/14/19 01:35	
PCB-1248 (Aroclor 1248)	ug/L	ND	0.10	0.035	09/14/19 01:35	
PCB-1254 (Aroclor 1254)	ug/L	ND	0.10	0.035	09/14/19 01:35	
PCB-1280 (Aroclor 1280)	ug/L	ND	0.10	0.031	09/14/19 01:35	
Tetrahalo-m-xylene (S)	%	66	14-132		09/14/19 01:35	

#### LABORATORY CONTROL SAMPLE: 2404401

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
PCB-1016 (Aroclor 1016)	ug/L	0.5	0.42	83	50-140	
PCB-1280 (Aroclor 1280)	ug/L	0.5	0.44	89	8-140	
Tetrahalo-m-xylene (S)	%			63	14-132	

#### MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2404402

Parameter	Units	MS Spike Result	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
PCB-1016 (Aroclor 1016)	ug/L	ND	1	1	0.59	59	54	50-140	9	36	
PCB-1280 (Aroclor 1280)	ug/L	ND	1	1	0.35	35	29	8-140	19	38	
Tetrahalo-m-xylene (S)	%				0.29	63	57	14-132			

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### QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

QC Batch: 521212 Analysis Method: EPA 608.3  
QC Batch Method: EPA 608.3 Analysis Description: 608.3 Pesticides  
Associated Lab Samples: 60314028001

METHOD BLANK: 2404395  
Associated Lab Samples: 60314028001 Matrix: Water

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
4,4'-DDD	ug/L	ND	0.10	0.012	09/19/19 16:27	
4,4'-DDE	ug/L	ND	0.10	0.017	09/19/19 16:27	
4,4'-DDT	ug/L	ND	0.10	0.036	09/19/19 16:27	
Aldrin	ug/L	ND	0.050	0.012	09/19/19 16:27	
alpha-BHC	ug/L	ND	0.050	0.0060	09/19/19 16:27	NZ
alpha-Chlordane	ug/L	ND	0.050	0.0061	09/19/19 16:27	
beta-BHC	ug/L	ND	0.050	0.0061	09/19/19 16:27	
Chlordane (Technical)	ug/L	ND	0.50	0.38	09/19/19 16:27	
delta-BHC	ug/L	ND	0.050	0.017	09/19/19 16:27	
Dieldrin	ug/L	ND	0.10	0.0056	09/19/19 16:27	
Endosulfan I	ug/L	ND	0.050	0.011	09/19/19 16:27	
Endosulfan II	ug/L	ND	0.10	0.012	09/19/19 16:27	
Endosulfan sulfate	ug/L	ND	0.10	0.014	09/19/19 16:27	
Endrin	ug/L	ND	0.10	0.018	09/19/19 16:27	
Endrin aldehyde	ug/L	ND	0.10	0.018	09/19/19 16:27	NZ
gamma-BHC (Lindane)	ug/L	ND	0.050	0.0041	09/19/19 16:27	
gamma-Chlordane	ug/L	ND	0.050	0.0085	09/19/19 16:27	NZ
Heptachlor	ug/L	ND	0.050	0.0081	09/19/19 16:27	
Heptachlor epoxide	ug/L	ND	0.050	0.0067	09/19/19 16:27	
Methoxychlor	ug/L	ND	0.50	0.17	09/19/19 16:27	
Toxaphene	ug/L	ND	1.0	0.0063	09/19/19 16:27	
Decachlorobiphenyl (S)	%	67	18-118		09/19/19 16:27	

#### LABORATORY CONTROL SAMPLE: 2404396

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
4,4'-DDD	ug/L	0.2	0.21	103	31-141	
4,4'-DDE	ug/L	0.2	0.16	78	30-145	
4,4'-DDT	ug/L	0.2	0.20	102	25-160	
Aldrin	ug/L	0.1	0.161	16	42-140 L2	
alpha-BHC	ug/L	0.1	0.093	93	37-140	
alpha-Chlordane	ug/L	0.1	0.071	71	45-140 N2	
beta-BHC	ug/L	0.1	0.083	83	17-147	
delta-BHC	ug/L	0.1	0.078	78	19-140	
Dieldrin	ug/L	0.2	0.19	93	35-146	
Endosulfan I	ug/L	0.1	0.088	88	45-153	
Endosulfan II	ug/L	0.2	0.19	86	1-202	
Endosulfan sulfate	ug/L	0.2	0.18	91	28-144	
Endrin	ug/L	0.2	0.19	97	30-147	

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

### LABORATORY CONTROL SAMPLE: 2404396

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Endrin aldehyde	ug/L	0.2	0.18	92	35-176	
Endrin ketone	ug/L	0.2	0.19	93	47-187	N2
gamma-BHC (Lindane)	ug/L	0.1	0.093	93	32-140	
gamma-Chlordane	ug/L	0.1	0.061	61	45-140	N2
Hepachlor	ug/L	0.1	0.034	35	34-140	
Hepachlor epoxide	ug/L	0.1	0.086	86	37-142	
Methoxychlor	ug/L	1	1.1	107	34-193	
Decachlorobiphenyl (S)	%			58	18-118	

### MATRIX SPIKE & MATRIX SPIKE DUPLICATE

Parameter	Units	60314028001			2404397			2404398			MS % Rec	MSD % Rec	Limit	RPD	Max	Qual
		Result	Conc.	Spike	Result	Conc.	Spike	Result	Conc.	Spike						
4,4'-DDD	ug/L	ND	0.8	0.4	0.79	0.41	93	103	31-141	62	39	R1				
4,4'-DDE	ug/L	ND	0.8	0.4	0.74	0.36	83	91	30-145	68	35	R1				
4,4'-DDT	ug/L	ND	0.8	0.4	0.81	0.41	101	103	25-160	65	42	R1				
Alidin	ug/L	ND	0.4	0.2	0.28	0.13	70	63	42-140	76	35	R1				
alpha-Chlordane	ug/L	ND	0.4	0.2	0.34	0.18	81	89	37-140	58	36	R1				
beta-BHC	ug/L	ND	0.4	0.2	0.32	0.16	85	84	45-140	69	35	N2,R1				
delta-BHC	ug/L	ND	0.4	0.2	0.30	0.15	80	79	17-147	68	44	R1				
Dieldrin	ug/L	ND	0.8	0.4	0.72	0.36	91	90	36-146	67	49	R1				
Endosulfan I	ug/L	ND	0.8	0.4	0.73	0.36	89	89	45-153	66	53	R1				
Endosulfan II	ug/L	ND	0.8	0.4	0.72	0.36	88	88	1-202	66	53	R1				
Endosulfan sulfate	ug/L	ND	0.8	0.4	0.69	0.32	84	88	26-144	65	38	R1				
Endrin	ug/L	ND	0.8	0.4	0.67	0.32	84	81	10-156	70	48	R1				
Endrin aldehyde	ug/L	ND	0.8	0.4	0.58	0.32	73	81	10-156	70	48	R1				
gamma-BHC (Lindane)	ug/L	ND	0.4	0.2	0.34	0.18	87	88	32-140	66	35	R1				
gamma-Chlordane	ug/L	ND	0.4	0.2	0.29	0.14	72	72	34-140	66	43	R1				
Hepachlor	ug/L	ND	0.4	0.2	0.29	0.14	72	72	34-140	66	43	R1				
Hepachlor epoxide	ug/L	ND	0.4	0.2	0.29	0.14	72	72	34-140	66	43	R1				
Methoxychlor	ug/L	ND	4	2	3.9	2.0	98	101	19-186	64	30	R1				
Decachlorobiphenyl (S)	%						71	77	18-118							

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## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

QC Batch: 607742  
QC Batch Method: EPA 625  
Associated Lab Samples: 60314028001

Analysis Method: EPA 625  
Analysis Description: 625 MSS

METHOD BLANK: 2483221  
Associated Lab Samples: 60314028001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/L	ND	5.0	0.67	09/09/19 10:28	
1,2-Diphenylhydrazine	ug/L	ND	8.0	0.60	09/09/19 10:28	
2,4,6-Trichlorophenol	ug/L	ND	5.0	0.77	09/09/19 10:28	
2,4-Dichlorophenol	ug/L	ND	5.0	0.68	09/09/19 10:28	
2,4-Dimethylphenol	ug/L	ND	5.0	0.69	09/09/19 10:28	
2,4-Dinitrophenol	ug/L	ND	5.0	1.0	09/09/19 10:28	
2,4-Dinitrobenzene	ug/L	ND	5.0	0.59	09/09/19 10:28	
2-Chlorophenol	ug/L	ND	5.0	0.66	09/09/19 10:28	
2-Chlorophenylamine	ug/L	ND	5.0	0.61	09/09/19 10:28	
2-Nitrophenol	ug/L	ND	5.0	0.75	09/09/19 10:28	
3,3'-Dichlorobenzidine	ug/L	ND	5.0	0.75	09/09/19 10:28	
4,6-Dinitro-2-methylphenol	ug/L	ND	20.0	0.76	09/09/19 10:28	
4-Ethoxyphenyl ether	ug/L	ND	25.0	0.72	09/09/19 10:28	
4-Chloro-3-methylphenol	ug/L	ND	5.0	0.72	09/09/19 10:28	
4-Chlorophenyl ether	ug/L	ND	5.0	0.83	09/09/19 10:28	
4-Nitrophenol	ug/L	ND	5.0	2.5	09/09/19 10:28	
Acenaphthene	ug/L	ND	5.0	0.66	09/09/19 10:28	
Acenaphthylene	ug/L	ND	5.0	0.66	09/09/19 10:28	
Anthracene	ug/L	ND	5.0	0.68	09/09/19 10:28	
Benzofluorene	ug/L	ND	5.0	8.9	09/09/19 10:28	
Benzofluorene	ug/L	ND	5.0	0.70	09/09/19 10:28	
Benzofluorene	ug/L	ND	5.0	0.74	09/09/19 10:28	
Benzofluorene	ug/L	ND	5.0	0.94	09/09/19 10:28	
Benzofluorene	ug/L	ND	5.0	0.70	09/09/19 10:28	
Benzofluorene	ug/L	ND	5.0	1.0	09/09/19 10:28	
Bis(2-Chloroethoxy)methane	ug/L	ND	5.0	0.68	09/09/19 10:28	
Bis(2-Chloroethoxy) ether	ug/L	ND	5.0	0.76	09/09/19 10:28	
Bis(2-Ethoxyethoxy) ether	ug/L	ND	6.0	0.72	09/09/19 10:28	
Butylbenzophenone	ug/L	ND	5.0	1.0	09/09/19 10:28	
Chrysene	ug/L	ND	5.0	0.65	09/09/19 10:28	
Dibenzophenone	ug/L	ND	5.0	0.74	09/09/19 10:28	
Dibenzophenone	ug/L	ND	5.0	0.60	09/09/19 10:28	
Dibenzophenone	ug/L	ND	5.0	0.67	09/09/19 10:28	
Diethylphthalate	ug/L	ND	5.0	0.74	09/09/19 10:28	
Fluorene	ug/L	ND	5.0	0.66	09/09/19 10:28	
Fluorene	ug/L	ND	5.0	0.63	09/09/19 10:28	
Hexachloro-1,3-butadiene	ug/L	ND	5.0	0.75	09/09/19 10:28	
Hexachlorobenzene	ug/L	ND	5.0	0.62	09/09/19 10:28	
Hexachlorobenzene	ug/L	ND	5.0	0.61	09/09/19 10:28	
Hexachlorobenzene	ug/L	ND	5.0	0.95	09/09/19 10:28	

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# QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

METHOD BLANK: 2483221  
Associated Lab Samples: 60314028001

Parameter	Units	Blank Result	Reporting Unit	MDL	Analyzed	Qualifiers
Hexachlorocyclopentadiene	ug/L	ND	5.0	0.66	09/09/19 10:28	
Hexachlorobenzene	ug/L	ND	5.0	0.74	09/09/19 10:28	
Indeno(1,2,3-cd)pyrene	ug/L	ND	5.0	0.67	09/09/19 10:28	
Isophorene	ug/L	ND	5.0	0.54	09/09/19 10:28	
N-Nitrosodipropylamine	ug/L	ND	5.0	0.66	09/09/19 10:28	
N-Nitrosodimethylamine	ug/L	ND	5.0	0.80	09/09/19 10:28	
N-Nitrosodiphenylamine	ug/L	ND	5.0	0.40	09/09/19 10:28	
Naphthalene	ug/L	ND	5.0	0.68	09/09/19 10:28	
Nitrobenzene	ug/L	ND	5.0	0.51	09/09/19 10:28	
Pentachlorobenzene	ug/L	ND	5.0	0.76	09/09/19 10:28	
Phenanthrene	ug/L	ND	5.0	0.67	09/09/19 10:28	
Phenol	ug/L	ND	5.0	2.5	09/09/19 10:28	
Pyrene	ug/L	ND	5.0	0.68	09/09/19 10:28	
2,4,6-Trichlorophenol (S)	%	76	24-126		09/09/19 10:28	
2-Fluorophenyl (S)	%	77	24-110		09/09/19 10:28	
2-Fluorophenol (S)	%	53	20-59		09/09/19 10:28	
Nitrobenzene-d5 (S)	%	86	24-110		09/09/19 10:28	
Phenol-d6 (S)	%	36	11-42		09/09/19 10:28	
Terphenyl-d14 (S)	%	85	35-118		09/09/19 10:28	

LABORATORY CONTROL SAMPLE: 2483222

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/L	50	34.6	69	54-93	
1,2-Dichlorobenzene	ug/L	50	46.0	92	62-105	
2,4,6-Trichlorophenol	ug/L	50	39.8	80	63-100	
2,4-Dichlorophenol	ug/L	50	38.5	77	59-95	
2,4-Dimethylphenol	ug/L	50	37.9	76	55-92	
2,4-Dinitrophenol	ug/L	50	39.1	78	36-137	
2,6-Dinitrophenol	ug/L	50	42.4	85	65-113	
2,6-Dinitrobenzene	ug/L	50	42.2	84	65-108	
2-Chloronaphthalene	ug/L	50	38.3	79	60-98	
2-Nitrophenol	ug/L	50	38.5	77	51-89	
3,3-Dichlorobenzidine	ug/L	50	39.6	79	54-110	
4,6-Dinitro-2-methylphenol	ug/L	50	56.6	113	64-163	
4-Bromophenyl ether	ug/L	50	46.9	94	58-125	
4-Chloro-3-methylphenol	ug/L	50	39.4	79	61-107	
4-Chlorophenyl ether	ug/L	50	41.6	83	62-96	
4-Nitrophenol	ug/L	50	38.9	78	63-102	
Acenaphthene	ug/L	50	17.7	35	18-50	
Acenaphthylene	ug/L	50	40.6	81	62-101	
Anthracene	ug/L	50	40.2	80	62-100	
Benzidine	ug/L	50	43.6	87	63-105	
	ug/L	50	52.3	105	10-123	

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# QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

LABORATORY CONTROL SAMPLE: 2483222

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzol(a)anthracene	ug/L	50	42.7	85	65-105	
Benzol(b)pyrene	ug/L	50	43.5	87	59-110	
Benzol(g,h,i)perylene	ug/L	50	43.6	87	60-114	
Benzol(k)fluoranthene	ug/L	50	43.1	86	60-110	
bis(2-Chloroethoxy)methane	ug/L	50	42.8	86	59-110	
bis(2-Chloroethyl) ether	ug/L	50	41.8	84	60-97	
bis(2-Chloroisopropyl) ether	ug/L	50	41.1	82	53-97	
bis(2-Ethylhexyl)phthalate	ug/L	50	43.9	88	54-98	
Butylbenzylphthalate	ug/L	50	46.9	94	61-121	
Chrysene	ug/L	50	46.7	93	59-125	
Dibenz(a,h)anthracene	ug/L	50	42.7	85	63-109	
Dibenz(b)fluoranthene	ug/L	50	46.1	92	65-112	
Dibenz(f,h)anthracene	ug/L	50	49.1	98	56-127	
Dibenz(g,h,i)perylene	ug/L	50	42.8	86	60-111	
Dibenz(k)fluoranthene	ug/L	50	42.9	86	65-103	
Diethylphthalate	ug/L	50	41.8	84	64-108	
Dimethylphthalate	ug/L	50	44.5	89	64-108	
Fluorene	ug/L	50	41.4	83	65-101	
Hexachloro-1,3-butadiene	ug/L	50	30.2	60	46-94	
Hexachlorobenzene	ug/L	50	36.4	77	59-106	
Hexachlorocyclopentadiene	ug/L	50	26.7	51	19-56	
Hexachloroethane	ug/L	50	32.2	64	47-90	
Indeno(1,2,3-cd)pyrene	ug/L	50	43.1	86	60-110	
Isophorene	ug/L	50	43.8	88	62-97	
N-Nitrosodipropylamine	ug/L	50	45.6	91	59-100	
N-Nitrosodimethylamine	ug/L	50	20.67	53	20-59	
N-Nitrosodiphenylamine	ug/L	50	41.8	84	64-102	
Naphthalene	ug/L	50	38.9	78	58-94	
Nitrobenzene	ug/L	50	42.6	85	59-98	
Pentachlorobenzene	ug/L	50	37.7	75	54-121	
Phenanthrene	ug/L	50	20.5	41	17-44	
Pyrene	ug/L	50	43.5	87	63-108	
2,4,6-Trichlorophenol (S)	%				24-126	
2-Fluorophenyl (S)	%				24-110	
2-Fluorophenol (S)	%				20-59	
Nitrobenzene-d5 (S)	%				24-110	
Phenol-d6 (S)	%				11-42	
Terphenyl-d14 (S)	%				35-118	

MATRIX SPIKE SAMPLE: 2483223

Parameter	Units	60313979001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/L	ND	49	35.6	73	44-109	
1,2-Dichlorobenzene	ug/L	ND	49	43.0	88	16-120	

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

### MATRIX SPIKE SAMPLE:

Parameter	Units	2483223		Spike Conc.	60313979001		MS Result	MS % Rec	% Rec Limits	Qualifiers
		Result	Conc.		Result	Conc.				
2,4,6-Trinitrophenol	ug/L	ND	49		42.6		87		37-123	
2,4-Dinitrophenol	ug/L	ND	49		40.5		83		39-115	
2,4-Dimethylphenol	ug/L	ND	49		31.7		65		32-116	
2,4-Dinitrobenzene	ug/L	ND	49		51.8		106		10-154	
2,6-Dinitrobenzene	ug/L	ND	49		45.9		94		39-122	
2-Chloronaphthalene	ug/L	ND	49		42.7		87		50-119	
2-Chlorophenol	ug/L	ND	49		38.7		79		60-98	
2-Nitrophenol	ug/L	ND	49		36.6		79		35-91	
3,3-Dichlorobenzidine	ug/L	ND	49		42.5		87		29-132	
4,6-Dinitro-2-methylphenol	ug/L	ND	49		ND		0		10-158 M1	
4-Bromophenyl ether	ug/L	ND	49		48.4		99		10-158	
4-Chloro-3-methylphenol	ug/L	ND	49		40.8		83		53-115	
4-Chlorophenyl ether	ug/L	ND	49		46.8		96		39-105	
4-Nitrophenol	ug/L	ND	49		39.4		80		29-111	
Acenaphthylene	ug/L	ND	49		22.2		45		17-49	
Acenaphthene	ug/L	ND	49		39.8		81		47-110	
Anthracene	ug/L	ND	49		39.2		80		33-110	
Benzo(a)anthracene	ug/L	ND	49		42.6		87		27-114	
Benzo(b)fluoranthene	ug/L	ND	49		ND		0		10-18 M1	
Benzo(k)fluoranthene	ug/L	ND	49		42.9		87		33-113	
bis(2-Chloroethoxy) ether	ug/L	ND	49		43.6		89		26-116	
bis(2-Ethoxyethyl) ether	ug/L	ND	49		47.5		97		28-121	
Butylbenzylphthalate	ug/L	ND	49		41.8		85		24-118	
Chrysene	ug/L	ND	49		39.8		81		26-116	
D-n-butylphthalate	ug/L	ND	49		41.9		88		33-109	
D-n-octylphthalate	ug/L	ND	49		43.2		91		27-106	
Dibenz(a,h)anthracene	ug/L	ND	49		44.7		95		36-113	
Diethylphthalate	ug/L	ND	49		52.3		106		33-129	
Fluoranthene	ug/L	ND	49		49.6		101		32-131	
Hexachloro-1,3-butadiene	ug/L	ND	49		42.0		86		30-116	
Hexachlorobenzene	ug/L	ND	49		46.8		95		31-120	
Hexachlorocyclopentadiene	ug/L	ND	49		52.6		107		27-142	
Hexachlorocyclopentadiene	ug/L	ND	49		42.0		86		25-119	
Indeno(1,2,3-cd)pyrene	ug/L	ND	49		40.8		83		30-112	
Isophthalate	ug/L	ND	49		44.2		90		28-115	
N-Alkyl-6-n-propylamine	ug/L	ND	49		40.6		83		59-111	
N-Nitrosodimethylamine	ug/L	ND	49		30.6		62		24-103	
N-Nitrosodiphenylamine	ug/L	ND	49		37.7		77		28-111	
Naphthalene	ug/L	ND	49		32.3		66		10-68	
	ug/L	ND	49		42.3		86		40-110	
	ug/L	ND	49		43.5		89		25-117	
	ug/L	ND	49		46.1		94		28-110	
	ug/L	ND	49		26.8		55		16-66	
	ug/L	ND	49		41.1		84		26-111	
	ug/L	ND	49		39.5		81		23-107	

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

### MATRIX SPIKE SAMPLE:

Parameter	Units	2483223		Spike Conc.	60313979001		MS Result	MS % Rec	% Rec Limits	Qualifiers
		Result	Conc.		Result	Conc.				
Nitrobenzene	ug/L	ND	49		52.2		107		35-118	
Pentachlorophenol	ug/L	ND	49		47.2		96		14-147	
Picene	ug/L	ND	49		41.8		85		54-113	
Phenol	ug/L	ND	49		18.3		37		16-42	
Pyrene	ug/L	ND	49		44.0		90		52-115	
2,4,6-Trinitrophenol (S)	%						79		24-126	
2-Fluorophenyl (S)	%						75		24-110	
Nitrobenzene-d5 (S)	%						47		20-59	
Phenol-d6 (S)	%						82		24-110	
Triphenyl-d14 (S)	%						33		11-42	
	%						83		35-118	

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC

Pace Project No.: 60314028

QC Batch: 610488 Analysis Method: EPA 120.1

QC Batch Method: EPA 120.1 Analysis Description: 120.1 Specific Conductance

Associated Lab Samples: 60314028002

METHOD BLANK: 2483803 Matrix: Water

Parameter	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Specific Conductance	umhos/cm	ND	1.0	08/19/19 15:42	

SAMPLE DUPLICATE: 2483804

Parameter	Units	Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	983	983	0	20	

SAMPLE DUPLICATE: 2483805

Parameter	Units	Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	963	958	1	20	

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC

Pace Project No.: 60314028

QC Batch: 609415 Analysis Method: EPA 1664A

QC Batch Method: EPA 1664A Analysis Description: 1664 HBM, Oil and Grease

Associated Lab Samples: 60314028002

METHOD BLANK: 2489288 Matrix: Water

Parameter	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Oil and Grease	mg/L	ND	5.0	09/16/19 08:35	

LABORATORY CONTROL SAMPLE: 2489289

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	40	41.5	104	78-114	

MATRIX SPIKE SAMPLE: 2489300

Parameter	Units	Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Oil and Grease	mg/L	ND	100	86.4	85	78-114	

SAMPLE DUPLICATE: 2489301

Parameter	Units	Result	Dup Result	RPD	Max RPD	Qualifiers
Oil and Grease	mg/L	ND	2.11		18	

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

QC Batch: 609727 Analysis Method: SM 2310B  
QC Batch Method: SM 2310B Analysis Description: 2310B Acidity, Total  
Associated Lab Samples: 60314028002

METHOD BLANK: 2490944 Matrix: Water  
Associated Lab Samples: 60314028002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Acidity, Total	mg/L	ND	20.0	1.0	09/17/19 05:40	

LABORATORY CONTROL SAMPLE: 2490945

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acidity, Total	mg/L	490	508	104	90-110	

SAMPLE DUPLICATE: 2490946

Parameter	Units	60313897002 Result	Dup Result	RPD	Max RPD	Qualifiers
Acidity, Total	mg/L	ND	ND			13

SAMPLE DUPLICATE: 2490947

Parameter	Units	60314020003 Result	Dup Result	RPD	Max RPD	Qualifiers
Acidity, Total	mg/L	ND	ND			13

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

QC Batch: 608485 Analysis Method: SM 2320B  
QC Batch Method: SM 2320B Analysis Description: 2320B Alkalinity  
Associated Lab Samples: 60314028002

METHOD BLANK: 2485706 Matrix: Water  
Associated Lab Samples: 60314028002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	ND	20.0	6.5	09/10/19 16:00	

LABORATORY CONTROL SAMPLE: 2485707

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	500	514	103	90-110	

SAMPLE DUPLICATE: 2485708

Parameter	Units	60313897002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	287	291	1		10

SAMPLE DUPLICATE: 2485709

Parameter	Units	60314020005 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	161	167	4		10

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC

Pace Project No.: 60314028

QC Batch: 608087 Analysis Method: SM 4500-Cl-G

QC Batch Method: SM 4500-Cl-G Analysis Description: 4500CL G Chlorine, Total Residual

Associated Lab Samples: 60314028002

METHOD BLANK: 2484448 Matrix: Water

Associated Lab Samples: 60314028002

Parameter	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chlorine, Total Residual	ND	0.050	0.010	09/09/19 13:41	H6

LABORATORY CONTROL SAMPLE: 2484449

Parameter	Units	Spike Conc.	LCS Result	% Rec	% Rec Limits	Qualifiers
Chlorine, Total Residual	mg/L	1	1.1	107	80-120	H6

SAMPLE DUPLICATE: 2484450

Parameter	Units	60313400001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chlorine, Total Residual	mg/L	ND	ND		10	H6

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC

Pace Project No.: 60314028

QC Batch: 608089 Analysis Method: SM 4500-S-2-D

QC Batch Method: SM 4500-S-2-D Analysis Description: 4500S2D Sulfide, Total

Associated Lab Samples: 60314028002

METHOD BLANK: 2484452 Matrix: Water

Associated Lab Samples: 60314028002

Parameter	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Sulfide, Total	ND	0.050	0.039	09/09/19 12:10	

LABORATORY CONTROL SAMPLE: 2484453

Parameter	Units	Spike Conc.	LCS Result	% Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	0.5	0.48	96	80-120	

MATRIX SPIKE SAMPLE: 2484454

Parameter	Units	60313898002 Result	Spike Conc.	MS Result	% Rec	% Rec Limits	Qualifiers
Sulfide, Total	mg/L	ND	0.5	0.20	40	75-125	M1

SAMPLE DUPLICATE: 2484455

Parameter	Units	60313898004 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	ND		20	

SAMPLE DUPLICATE: 2484456

Parameter	Units	60314010002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfide, Total	mg/L	ND	ND		20	

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC									
Pace Project No.: 60314028									
QC Batch: 609631		Analysis Method: SM 4500-SO3 B							
OC Batch Method: SM 4500-SO3 B		Analysis Description: 4500SO3B Sulfite							
Associated Lab Samples: 60314028002									
METHOD BLANK: 2490609		Matrix: Water							
Associated Lab Samples: 60314028002									
Sulfite	Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers		
		mg/L	ND	2.0	2.0	09/16/19 15:18	H6		
LABORATORY CONTROL SAMPLE: 2490610									
Sulfite	Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers		
		mg/L	15	14.0	93	80-120	H6		
SAMPLE DUPLICATE: 2490611									
Sulfite	Parameter	Units	6031390002 Result	Dup Result	RPD	Max RPD	Qualifiers		
		mg/L	ND	ND		20	H6		

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC															
Pace Project No.: 60314028															
QC Batch: 607892		Analysis Method: SM 5540C		Analysis Description: 5540C MBAS Surfactants											
OC Batch Method: SM 5540C															
Associated Lab Samples: 60314028002															
METHOD BLANK: 2483731															
Associated Lab Samples: 60314028002		Matrix: Water													
MBAS, Calculated as LAS	Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers								
		mg/L	ND	0.20	0.064	09/06/19 16:29	SU								
LABORATORY CONTROL SAMPLE: 2483732															
MBAS, Calculated as LAS	Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers								
		mg/L	1	0.90	90	80-120	SU								
MATRIX SPIKE SAMPLE: 2483733															
MBAS, Calculated as LAS	Parameter	Units	60314028002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers							
		mg/L	ND	0.5	0.60	100	33-130	SU							

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## Project: ANNUAL PP AND DNR POLLUTANT SC

QC Batch:	609281	Analysis Method:	EPA 300.0
QC Batch Method:	EPA 300.0	Analysis Description:	300.0 IC Anions
Associated Lab Samples:	60314028001		

METHOD BLANK: 2488887  
Associated Lab Samples: 6031402800

METHOD BLANK: 2488987		Matrix: Water				
Associated Lab Samples: 60314028001						
Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.22	09/13/19 10:45	
Fluoride	mg/L	ND	1.0	0.06	09/13/19 10:45	
Sulfate	mg/L	ND	1.0	0.23	09/13/19 10:45	

LABORATORY CONTROL SAMPLE: 2488888

LABORATORY CONTROL SAMPLE: 2488888						
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.9	98	90-110	
Fluoride	mg/L	2.5	2.5	101	90-110	
Sulfate	mg/L	5	5.2	104	90-110	

**MATRIX SPIKE & MATRIX SPIKE DUPLICATE:**

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2468899							
Parameter	MS 6031368001		MSD Spike Conc.		MSD % Rec		Max RPD 15 HI
	Units	Result	Spike Conc.	Result	% Rec	% Rec Limits	
Fluoride	mg/L	1.6	2.5	4.1	4.2	103	105 80-120

**MATRIX SPIKE SAMPLE:**

MATRIX SPIKE SAMPLE:		2468891		6031-4028001		Spike		MS		MS		% Rec		% Rec		Qualifiers	
Parameter	Units	Result	Conc.	Result		Result		% Rec		Result		% Rec		Limits		Qualifiers	
Chloride	mg/L	196	250	452		103		80-120									
Fluoride	mg/L	0.46	2.5	2.9		96		80-120									
Sulfate	mg/L	98.1	50	151		106		80-120									

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## Project: ANNUAL PP AND DNR POLLUTANT SC

QC Batch:	610225	Analysis Method:	EPA 350.1
QC Batch Method:	EPA 350.1	Analysis Description:	350.1 Ammonia
Associated Lab Samples:	60314028001		

METHOD BLANK: 2492803  
Associated Lab Samples: 6031402800

METHOD BLANK: 2492803		Matrix: Water	
Associated Lab Samples: 60314028001			
Parameter	Units	Blank Result	Reporting Limit
Nitrogen, Ammonia	mg/L	ND	0.10
			MDL
			Analyzed
			Qualifiers
			0.078
			09/18/19
			16:45

LABORATORY CONTROL

LABORATORY CONTROL SAMPLE: 2492804						
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	5	5.0	100	90-110	

**MATRIX SPIKE SAMPLE**

Parameter	Units	Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
MATRIX SPIKE SAMPLE:							
2492805		6031396902					
Nitrogen, Ammonia	mg/L	ND	5	4.5	90	90-110	

### Nitrogen, Ammonia

SAMPLE DUPLICATE: 2492806						
Parameter	Units	60313868002 Result	Dup	RPD	Max RPD	Qualifiers
Nitrogen, Ammonia	mg/L	ND	5	4.6	90	90-110
Nitrogen, Ammonia	mg/L	ND	0.45		18	

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

QC Batch: 609899 Analysis Method: EPA 351.2  
QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN  
Associated Lab Samples: 60314028001

METHOD BLANK: 2490824 Matrix: Water  
Associated Lab Samples: 60314028001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	ND	0.50	0.37	09/18/19 13:08	

### LABORATORY CONTROL SAMPLE: 2490825

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	MS % Rec	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	5	5.2	104	90-110	

### MATRIX SPIKE SAMPLE: 2490826

Parameter	Units	60314024002 Result	Spike Conc.	MS % Rec	% Rec	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	1.8	5	7.9	121	90-110 MT

### MATRIX SPIKE SAMPLE: 2490828

Parameter	Units	60314075002 Result	Spike Conc.	MS % Rec	% Rec	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	2.4	5	8.0	112	90-110 MT

### SAMPLE DUPLICATE: 2490827

Parameter	Units	60313988003 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	6.1	6.2	1	10	

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

QC Batch: 607727 Analysis Method: EPA 353.2  
QC Batch Method: EPA 353.2 Analysis Description: 353.2 Nitrate + Nitrite, Unpres.  
Associated Lab Samples: 60314028001

METHOD BLANK: 2483177 Matrix: Water  
Associated Lab Samples: 60314028001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	0.067	09/06/19 09:23	
Nitrogen, Nitrite	mg/L	ND	0.10	0.067	09/06/19 09:23	
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	0.038	09/06/19 09:23	

### LABORATORY CONTROL SAMPLE: 2483178

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	MS % Rec	Qualifiers
Nitrogen, Nitrate	mg/L	1	0.98	98	70-130	
Nitrogen, Nitrite	mg/L	1	1.0	104	90-110	
Nitrogen, NO2 plus NO3	mg/L	2	2.0	101	90-110	

### MATRIX SPIKE SAMPLE: 2483179

Parameter	Units	60313935005 Result	Spike Conc.	MS % Rec	% Rec	Qualifiers
Nitrogen, Nitrate	mg/L	ND	1	1.1	111	70-130
Nitrogen, Nitrite	mg/L	ND	1	1.1	111	90-110 MT
Nitrogen, NO2 plus NO3	mg/L	ND	2	2.2	110	90-110

### MATRIX SPIKE SAMPLE: 2483181

Parameter	Units	60313985002 Result	Spike Conc.	MS % Rec	% Rec	Qualifiers
Nitrogen, Nitrate	mg/L	ND	1	1.1	114	70-130
Nitrogen, Nitrite	mg/L	ND	1	1.1	111	90-110 MT
Nitrogen, NO2 plus NO3	mg/L	ND	2	2.3	112	90-110 MT

### SAMPLE DUPLICATE: 2483180

Parameter	Units	60313936009 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	14.6	15.0	1	20	
Nitrogen, Nitrite	mg/L	1.6	1.6	3	20	
Nitrogen, NO2 plus NO3	mg/L	16.4	16.6	2	20	

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC

Pace Project No.: 60314028

QC Batch: 607737 Analysis Method: EPA 365.1

QC Batch Method: EPA 365.1 Analysis Description: 365.1 Orthophosphate as P

Associated Lab Samples: 60314028002

METHOD BLANK: 2463205

Associated Lab Samples: 60314028002

Matrix: Water	
Parameter	Blank Result
Orthophosphate as P	ND
	Reporting Limit
	0.10
	MDL
	0.054
	Analyzed
	09/06/19 08:59
	Qualifiers

LABORATORY CONTROL SAMPLE: 2463206

Parameter	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Orthophosphate as P	mg/L	2	2.1	107	90-110

MATRIX SPIKE SAMPLE: 2463207

Parameter	60313771004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Orthophosphate as P	mg/L	ND	2	2.2	105	90-110

SAMPLE DUPLICATE: 2463208

Parameter	60313897002 Result	Dup Result	RPD	Max RPD	Qualifiers
Orthophosphate as P	mg/L	3.0	3.0	1	30

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC

Pace Project No.: 60314028

QC Batch: 608993 Analysis Method: EPA 365.4

QC Batch Method: EPA 365.4 Analysis Description: 365.4 Phosphorus

Associated Lab Samples: 60314028001

METHOD BLANK: 2461584

Associated Lab Samples: 60314028001

Matrix: Water	
Parameter	Blank Result
Phosphorus	ND
	Reporting Limit
	0.10
	MDL
	0.044
	Analyzed
	09/18/19 10:26
	Qualifiers

LABORATORY CONTROL SAMPLE: 2461585

Parameter	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	2	1.9	97	90-110

MATRIX SPIKE SAMPLE: 2461586

Parameter	60314000002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	1.5	2	3.4	100	90-110

MATRIX SPIKE SAMPLE: 2461588

Parameter	60314010002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	0.45	2	2.5	104	90-110

SAMPLE DUPLICATE: 2461587

Parameter	60313990005 Result	Dup Result	RPD	Max RPD	Qualifiers
Phosphorus	mg/L	ND	.064	10	

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#### QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

QC Batch: 603625 Analysis Method: EPA 410.4  
QC Batch Method: EPA 410.4 Analysis Description: 410.4 Water Analysis  
Associated Lab Samples: 60314028001

METHOD BLANK: 2490583 Matrix: Water

Parameter	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chemical Oxygen Demand	ND	10.0	3.7	09/17/19 08:44	

LABORATORY CONTROL SAMPLE: 2490584

Parameter	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	50	53.4	107	90-110	

MATRIX SPIKE SAMPLE: 2490585

Parameter	Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	ND	50	55.7	110	90-110	

MATRIX SPIKE SAMPLE: 2490587

Parameter	Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	82.7	50	110	55	90-110 MT	

SAMPLE DUPLICATE: 2490586

Parameter	Units	60313359009 Result	Dup Result	RPD	Max RPD	Qualifiers
Chemical Oxygen Demand	mg/L	14.1	11.4	22	25	

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#### QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

QC Batch: 608273 Analysis Method: EPA 420.1  
QC Batch Method: EPA 420.1 Analysis Description: 420.1 Phenolics Macro  
Associated Lab Samples: 60314028001

METHOD BLANK: 2484987 Matrix: Water

Parameter	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Phenolics, Total Recoverable	ND	0.050	0.016	09/10/19 14:54	

LABORATORY CONTROL SAMPLE: 2484988

Parameter	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phenolics, Total Recoverable	0.25	0.26	103	90-110	

MATRIX SPIKE SAMPLE: 2484989

Parameter	Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Phenolics, Total Recoverable	ND	0.25	0.26	106	90-110	

MATRIX SPIKE SAMPLE: 2484991

Parameter	Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Phenolics, Total Recoverable	ND	0.25	0.30	118	90-110 MT	

SAMPLE DUPLICATE: 2484990

Parameter	Units	60313900001 Result	Dup Result	RPD	Max RPD	Qualifiers
Phenolics, Total Recoverable	mg/L	ND	0.214		20	

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC

Pace Project No.: 60314028

OC Batch: 608013 Analysis Method: SM 4500-CN-E  
OC Batch Method: SM 4500-CN-E Analysis Description: 4500CN-E Cyanide, Total

Associated Lab Samples: 60314028002

METHOD BLANK: 2484288

Associated Lab Samples: 60314028002

Parameter	Units	Matrix: Water		Reporting Limit	MDL	Analyzed	Qualifiers
		Blank Result	Result				
Cyanide	mg/L	ND	0.0050	0.0036	09/09/19 12:30		

LABORATORY CONTROL SAMPLE: 2484289

Parameter	Units	Spike Conc.		LCS Result	% Rec	% Rec Limits	Qualifiers
		Result	Result				
Cyanide	mg/L	0.1	0.10	102	69-126		

SAMPLE DUPLICATE: 2484291

Parameter	Units	60313726001 Result		Dup Result	RPD	Max RPD	Qualifiers
		Result	Result				
Cyanide	mg/L	0.024	0.028	17	46		

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## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC

Pace Project No.: 60314028

OC Batch: 610019 Analysis Method: SM 5310C  
OC Batch Method: SM 5310C Analysis Description: 5310C Total Organic Carbon

Associated Lab Samples: 60314028002

METHOD BLANK: 2492014

Associated Lab Samples: 60314028002

Parameter	Units	Matrix: Water		Reporting Limit	MDL	Analyzed	Qualifiers
		Blank Result	Result				
Total Organic Carbon	mg/L	ND	1.0	0.29	09/18/19 11:17		

LABORATORY CONTROL SAMPLE: 2492015

Parameter	Units	Spike Conc.		LCS Result	% Rec	% Rec Limits	Qualifiers
		Result	Result				
Total Organic Carbon	mg/L	5	5.3	106	80-120		

MATRIX SPIKE SAMPLE: 2492016

Parameter	Units	60315060001 Result		Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
		Result	Result					
Total Organic Carbon	mg/L	8520	5000	13800	105	80-120		

SAMPLE DUPLICATE: 2492017

Parameter	Units	60315070001 Result		Dup Result	RPD	Max RPD	Qualifiers
		Result	Result				
Total Organic Carbon	mg/L	44.9	45.0	0	25		

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## REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC  
9808 Loret Blvd.  
Lenexa, KS 66219  
(913) 595-5665

## QUALITY CONTROL DATA

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

QC Batch: 607726 Analysis Method: EPA 7196  
QC Batch Method: EPA 7196 Analysis Description: 7196 Chromium, Hexavalent  
Associated Lab Samples: 60314028001

METHOD BLANK: 2483174 Matrix: Water

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chromium, Hexavalent	mg/L	ND	0.010	0.0031	09/06/19 08:04	

LABORATORY CONTROL SAMPLE: 2483175						
Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chromium, Hexavalent	mg/L	0.1	0.10	100	90-110	

MATRIX SPIKE SAMPLE: 2483176						
Parameter	Units	60314028001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits
Chromium, Hexavalent	mg/L	ND	0.1	0.10	103	85-115

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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## QUALIFIERS

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

### DEFINITIONS

- DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
  - ND - Not Detected at or above adjusted reporting limit.
  - TNTC - Too Numerous To Count
  - J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
  - MDL - Adjusted Method Detection Limit.
  - PQL - Practical Quantitation Limit.
  - RL - Reporting Limit - The lowest concentration value that meets project requirements for quantifiable data with known precision and bias for a specific analyte in a specific matrix.
  - S - Surrogate
  - 1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
  - Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
  - LCS(D) - Laboratory Control Sample (Duplicate)
  - MS(D) - Matrix Spike (Duplicate)
  - DUP - Sample Duplicate
  - RPD - Relative Percent Difference
  - NC - Not Calculable.
  - SG - Silica Gel - Clean-Up
  - U - Indicates the compound was analyzed for, but not detected.
  - N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
  - Pace Analytical is TNI accredited. Contact Your Pace PM for the current list of accredited analytes.
  - TNI - The NELAP Institute.
- ### LABORATORIES
- PA-SH Pace Analytical Services - Indianapolis
  - PA-SH-K Pace Analytical Services - Kansas City
- ### ANALYTE QUALIFIERS
- H1 Analysis conducted outside the EPA method holding time.
  - H6 Analysis initiated outside of the 15 minute EPA required holding time.
  - H7 Re-extraction or re-analysis could not be performed within method holding time.
  - L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
  - M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
  - N2 The lab does not hold NELAP/TNI accreditation for this parameter but other accreditation/certifications may apply. A complete list of accreditation/certifications is available upon request.
  - R1 RPD value was outside control limits.
  - SU MBAS, calculated as LAS, Mol wt 342.2 g/mol

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60314028001	SBR PLANT MONTHLY COMPOSITE	EPA 608.3	521213	EPA 608.3	521340
60314028001	SBR PLANT MONTHLY COMPOSITE	EPA 608.3	521212	EPA 608.3	521341
60314028001	SBR PLANT MONTHLY COMPOSITE	EPA 200.7	608761	EPA 200.7	608794
60314028001	SBR PLANT MONTHLY COMPOSITE	EPA 245.1	607766	EPA 245.1	607775
60314028001	SBR PLANT MONTHLY COMPOSITE	EPA 625	607742	EPA 625	608057
60314028002	SBR PLANT MONTHLY GRAB	EPA 624 Low	608279		
60314028002	SBR PLANT MONTHLY GRAB	EPA 120.1	610488		
60314028002	SBR PLANT MONTHLY GRAB	EPA 1664A	609415		
60314028002	SBR PLANT MONTHLY GRAB	SM 2310B	609727		
60314028002	SBR PLANT MONTHLY GRAB	SM 2320B	609485		
60314028002	SBR PLANT MONTHLY GRAB	SM 4500-CI-G	608087		
60314028002	SBR PLANT MONTHLY GRAB	SM 4500-S-2 D	608089		
60314028002	SBR PLANT MONTHLY GRAB	SM 4500-SC3 B	609631		
60314028002	SBR PLANT MONTHLY GRAB	SM 5540C	607892	SM 5540C	609352
60314028001	SBR PLANT MONTHLY COMPOSITE	TKN+NO3+NO2 Calculation	610445		
60314028001	SBR PLANT MONTHLY COMPOSITE	TKN+NH3 Calculation	610560		
60314028001	SBR PLANT MONTHLY COMPOSITE	Trivalent Chromium Calculation	610780		
60314028001	SBR PLANT MONTHLY COMPOSITE	EPA 300.0	609281		
60314028001	SBR PLANT MONTHLY COMPOSITE	EPA 350.1	610225		
60314028001	SBR PLANT MONTHLY COMPOSITE	EPA 351.2	609699	EPA 351.2	610382
60314028001	SBR PLANT MONTHLY COMPOSITE	EPA 353.2	607727		
60314028002	SBR PLANT MONTHLY GRAB	EPA 365.1	607737		
60314028001	SBR PLANT MONTHLY COMPOSITE	EPA 365.4	609893	EPA 365.4	610133
60314028001	SBR PLANT MONTHLY COMPOSITE	EPA 410.4	609625	EPA 410.4	609874
60314028001	SBR PLANT MONTHLY COMPOSITE	EPA 420.1	608273	EPA 420.1	608493
60314028002	SBR PLANT MONTHLY GRAB	SM 4500-CN-E	608013	SM 4500-CN-E	608211

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: ANNUAL PP AND DNR POLLUTANT SC  
Pace Project No.: 60314028

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60314028002	SBR PLANT MONTHLY GRAB	SM 5310C	610019		
60314028001	SBR PLANT MONTHLY COMPOSITE	EPA 7196	607726		

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Sample Condition Upon Receipt

MO#: 60314028



Client Name: City of Jefferson City

Courier: FedEx ☐ UPS ☐ VIA ☒ GLY ☐ PEX ☐ EQI ☐ Pace ☐ Xroads ☐ Client ☐ Other ☐

Tracking #: \_\_\_\_\_ Pace Shipping Label Used? Yes ☐ No ☒

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals Intact: Yes ☒ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bagged ☒ Foam ☐ None ☐ Other ☒ Styrofoam

Thermometer Used: T-301 Type of Ice: Wet Blue None

Cooler Temperature (°C): As-read 4.9 corr. Factor 0.0 Corrected 4.9

Temperature should be above freezing to 6°C

Chain of Custody present: ☒ Yes ☐ No ☐ N/A

Chain of Custody relinquished: ☒ Yes ☐ No ☐ N/A

Samples arrived within holding time: ☒ Yes ☐ No ☐ N/A

Short Hold Time analysis (<72hr): ☒ Yes ☐ No ☐ N/A

Rush Turn Around Time request: ☒ Yes ☐ No ☐ N/A

Sufficient volume: ☒ Yes ☐ No ☐ N/A

Correct containers used: ☒ Yes ☐ No ☐ N/A

Pace containers used: ☒ Yes ☐ No ☐ N/A

Containers intact: ☒ Yes ☐ No ☐ N/A

Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs? ☒ Yes ☐ No ☐ N/A

Filled volume received for dissolved tests? ☒ Yes ☐ No ☐ N/A

Sample labels match COC Date / time / ID / analyses: ☒ Yes ☐ No ☐ N/A

Samples contain multiple phases? Matrix: WT ☒ Yes ☐ No ☐ N/A

Containers requiring pH preservation in compliance? ☒ Yes ☐ No ☐ N/A

Exceptions: VOA, Micro, ORG, KS, TPH, DRBRO ☒ Yes ☐ No ☐ N/A

Cyanide water sample checks: ☒ Yes ☐ No ☐ N/A

Lead acetate strip turns dark? (Record only) ☒ Yes ☐ No ☐ N/A

Potassium iodide test strip turns blue/purple? (Preserve) ☒ Yes ☐ No ☐ N/A

Date and initials of Person Examining contents: 9/16/19 JS

Project Manager Review: **JEFFREY SHOPPER**

Date: \_\_\_\_\_

### CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:			Section B Required Project Information:			Section C Invoice Information:			Page: _____ Of _____										
Company: <u>City of Jefferson City, MO Wastewater Treatment Plant</u>			Report To: <u>Clara Haschen</u>			Attention: <u>Jeffrey Shopper</u>			Regulatory Agency: <u>MO</u>										
Address: <u>401 O's McKane Rd</u>			Copy To: <u>Emily W. Wiers</u>			Company Name: <u>Pace Analytical, Inc.</u>			State / Location: <u>MO</u>										
Jefferson City, MO 65101			Purchase Order #: _____			Address: _____													
Email: <u>chaser@jeffcitymo.org</u>			Project Name: <u>Annual PP and DNR Pollutant Scan</u>			Pace Quote: _____													
Phone: <u>573-834-6502</u>			Project #: _____			Pace Project Manager: <u>jeff.shopper@paceanalytical.com</u>													
Fax: _____						Pace Profile #: <u>12887</u>													
Requested Due Date: _____																			
ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9, -)	Sample IDs must be unique	COLLECTED				PRESERVATIVES				ANALYSES TEST				REQUESTED ANALYSES FILTERED (Y/N)				RECEIVED CHARGE (Y/N)
			DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME			
1	SBR Plant Monthly Composite	WW	9-4-19	9:58	9-5-19	9:34													
2	SBR Plant Monthly Grab	WW	9-5-19	9:34															
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
ADDITIONAL COMMENTS			RELINQUISHED BY / AFFILIATION		DATE		TIME		ACCEPTED BY / AFFILIATION		DATE		TIME		SAMPLE CONDITIONS				
Anions - Chloride, Fluoride, Sulfate			Emily W. Wiers		9-5-19		9:34		E. Brackert / Pace		9/6/19		0615		4.9		Y		Y
15007 Metals - As, Ba, Be, Bi, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, Sb, Tl, Zn, Al, Fe, Co, Vp, SS, Hydrocarbons																			
SAMPLER NAME AND SIGNATURE			PRINT Name of SAMPLER		SIGNATURE of SAMPLER		DATE signed												
			Emily W. Wiers		[Signature]		9-5-19												

**ENGINEERING SURVEYS AND SERVICES  
TESTING LABORATORIES**

1113 Fay Street \* Columbia, Missouri 65201 \* (573) 449-2646  
802 El Dorado Drive \* Jefferson City, Missouri 65101 \* (573) 636-3303  
1775 West Main Street \* Sedalia, Missouri 65301 \* (660) 826-8618

Date: 08 October 2018

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 12 September 2018

Sample No. / 8906 / SBR Plant PP Effluent Composite, 9/12/18, 8:47am

Description :

**TEST RESULTS:**

Parameter:	8906	Units	Detection	Method
Biochemical Oxygen Demand	4	mg/l		5210 B
Total Suspended Solids	9	mg/l		2540D
Chemical Oxygen Demand	27.0	mg/l		5220B
Chloride	149	mg/l		4500Cl C
Sulfate	71.0	mg/l		9038
Fluoride	0.52	mg/l		9214
Kjeldahl Nitrogen	1.1	mg/l		4500N org
Nitrate Nitrogen	10.0	mg/l		SM16-418D
Total Nitrogen	11.6	mg/l		
Organic Nitrogen	0.8	mg/l		4500Norg C
Phosphorous, Total	1.65	mg/l		4500-P B,E
Total Hardness	243	mg eq. CaCo3/l		2340 B
Calcium	59.2	mg/l		6020A
Magnesium	23.2	mg/l		6020A
Sodium	117	mg/l		6020A
Antimony	<0.006	mg/l		200.8

Sample secured and delivered to laboratory by others

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.

cc: Community  
Development

email: Jenny

**Engineering Surveys & Services**

BY:



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Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 12 September 2018

Sample No. / 8906 / SBR Plant PP Effluent Composite, 9/12/18, 8:47am

Description :

**TEST RESULTS:**

Parameter:	8906	Units	Detection	Method
Arsenic	<0.005	mg/l		200.8
Barium	<0.100	mg/l		200.8
Beryllium	<0.004	mg/l		200.8
Cadmium	<0.005	mg/l		200.8
Chromium	<0.010	mg/l		200.8
Chromium, Trivalent	<0.010	mg/l		3500 Cr
Copper	<0.005	mg/l		200.8
Lead	<0.005	mg/l		200.8
Mercury	<0.00020*	mg/l		200.8
Molybdenum	<0.100	mg/l		200.8
Nickel	<0.01	mg/l		200.8
Selenium	<0.005	mg/l		200.8
Silver	<0.003	mg/l		200.8
Thallium	<0.002	mg/l		200.8
Zinc	0.031	mg/l		200.8
Aluminum	<0.200	mg/l		200.8

Sample secured and delivered to laboratory by others

\*Analysis by PCD Laboratories

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.

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Development

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BY:



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Date: 08 October 2018

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 12 September 2018

Sample No. / 8906 / SBR Plant PP Effluent Composite, 9/12/18, 8:47am  
Description :

**TEST RESULTS:**

Parameter:	8906	Units	Detection	Method
Iron	0.13	mg/l		6020A
Digestion	Yes			
Total Phenolic Compounds	<0.0050*	mg/l		5530 B, D
Pesticides & PCB	**	ug/l		EPA 8081
Semivolatile Organics	**	ug/l		EPA 8270

Sample secured and delivered to laboratory by others

\*Analysis by PDC Laboratories

\*\*See attached report from PDC Laboratories

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cc: Community  
Development

email: Jenny

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BY:



Derek J. Brester

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Date: 08 October 2018

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 12 September 2018

Sample No. / 8907 / SBR Plant PP Effluent Grab, 9/12/18, 8:47am

Description :

**TEST RESULTS:**

Parameter:	8907	Units	Detection	Method
Acidity	-163	mg CaCO <sub>3</sub> /l		2310 B
Alkalinity	184	mg CaCO <sub>3</sub> /l		2320 B
Chlorine, Residual	0.05	mg/l		4500-Cl G
Conductivity	1,380	umhos/cm		2510 B
Sulfide	<0.4	mg/l		9034
Sulfite	<0.5	mg/l		4500-S03-B
Phosphate, Ortho	1.62	mg/l		4500-P E
Nitrite Nitrogen	0.071	mg/l		4500-NO2-B
Chromium, Hexavalent	<0.005	mg/l		3500 Cr D
Grease & Oil	< 1.0	mg/l		EPA1664
Cyanide	<0.005	mg/l		4500CNCE
Ammonia	0.3	mg/l		4500NH3B C
Carbon (TOC)	6.8*	mg/l		9060
Volatile Organic Compound	**	ug/l		EPA 8260
Surfactants (MBAS)	<0.20*	mg/l		5540 C

Sample secured and delivered to laboratory by others

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\*\*See attached report from PDC Laboratories

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cc: Community  
Development

email: Jenny

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BY:





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Date: 08 October 2018

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 12 September 2018

Sample No. / 8908 / Semiannual SBR Plant Influent Composite, 9/12/18, 8:41am

Description :

**TEST RESULTS:**

Parameter:	8908	Units	Detection	Method
Kjeldahl Nitrogen	20.2	mg/l		4500N org
Nitrate Nitrogen	<0.10	mg/l		SM16-418D
Total Nitrogen	20.2	mg/l		
Phosphorous, Total	4.00	mg/l		4500-P B,E
Arsenic	<0.005	mg/l		200.8
Cadmium	<0.005	mg/l		200.8
Chromium	<0.010	mg/l		200.8
Copper	0.051	mg/l		200.8
Lead	0.006	mg/l		200.8
Mercury	<0.00020*	mg/l		200.8
Molybdenum	<0.100	mg/l		200.8
Iron	6.15	mg/l		6020A
Manganese	0.236	mg/l		200.8
Nickel	<0.01	mg/l		200.8
Silver	<0.003	mg/l		200.8
Zinc	0.114	mg/l		200.8

Sample secured and delivered to laboratory by others

\* Analysis by PDC Laboratories

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cc: Community  
Development

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BY:



**Derek J. Brester**

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Date: 08 October 2018

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 12 September 2018

Sample No. / 8908 / Semiannual SBR Plant Influent Composite, 9/12/18, 8:41am

Description :

**TEST RESULTS:**

Parameter:	8908	Units	Method
Digestion	Yes		
Total Phenolic Compounds	<0.25*	mg/l	5530 B, D

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Date: 08 October 2018

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 12 September 2018

Sample No. / 8909 / Semiannual SBR Plant Influent Grab, 9/12/18, 8:41am

Description :

**TEST RESULTS:**

Parameter:	8909	Units	Method
Ammonia	10.6	mg/l	4500NH3B C
Nitrite Nitrogen	<0.005	mg/l	4500-NO2-B
Grease & Oil	8.8	mg/l	EPA1664
Cyanide	<0.005	mg/l	4500CNCE
Benzene	<5.0*	ug/l	8260 B
Toluene	<5.0*	ug/l	8260 B
Ethylbenzene	<5.0*	ug/l	8260
Xylene	<15*	ug/l	8260
Surfactants (MBAS)	0.86*	mg/l	5540 C

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cc: Community  
Development

email: Jenny

**Engineering Surveys & Services**

BY:



**Derek J. Brester**



# PDC Laboratories, Inc.

PROFESSIONAL • DEPENDABLE • COMMITTED

September 27, 2018

Derek Brester  
Engineering Surveys & Services  
1113 Fay Street  
Columbia, MO 65201

Dear Derek Brester:

Please find enclosed the analytical results for the sample(s) the laboratory received on **9/13/18 9:10 am** and logged in under work order **8092349**. All testing is performed according to our current TNI certifications unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories, Inc.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

PDC Laboratories, Inc. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Vice President, John LaPayne with any feedback you have about your experience with our laboratory.

Sincerely,

Kurt Stepping  
Senior Project Manager  
(309) 692-9688 x1719  
kstepping@pdclab.com



**PDC Laboratories, Inc.**

2231 West Altorfer Drive

Peoria, IL 61615

(800) 752-6651

**ANALYTICAL RESULTS****Sample:** 8092349-01**Name:** SN: 8906 JN:7570**Alias:** EFFLUENT COMPOSITE**Sampled:** 09/12/18 00:00**Received:** 09/13/18 09:10**Matrix:** Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
<b>General Chemistry - PIA</b>							
Phenolics	< 0.0050	mg/L		09/21/18 10:54	09/21/18 10:54	ALS	EPA 420.4
<b>Pesticides - PIA</b>							
4,4'-DDD	< 1.0	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 808
4,4'-DDE	< 1.0	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 808
4,4'-DDT	< 1.0	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 808
Aldrin	< 0.50	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Alpha-BHC	< 0.50	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 808
Aroclor 1018	< 5.0	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Aroclor 1221	< 10	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Aroclor 1232	< 5.0	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Aroclor 1242	< 5.0	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Aroclor 1248	< 5.0	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Aroclor 1254	< 10	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 808
Aroclor 1260	< 10	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Aroclors - Total	< 50	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 808
Beta-BHC	< 0.50	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Chlordane (technical)	< 5.0	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Delta-BHC	< 0.50	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Dieldrin	< 1.0	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Endosulfan I	< 0.50	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Endosulfan II	< 1.0	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 808
Endosulfan sulfate	< 1.0	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Endrin	< 1.0	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Endrin aldehyde	< 1.0	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
gamma-BHC (Lindane)	< 0.50	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Heptachlor	< 0.50	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Heptachlor epoxide	< 0.50	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Methoxychlor	< 5.0	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 608
Toxaphene	< 5.0	ug/L		09/14/18 09:32	09/20/18 02:55	ELS	EPA 808
<b>Semivolatile Organics - PIA</b>							
1,2,4-Trichlorobenzene	< 1.2	ug/L		09/18/18 06:30	09/19/18 20:00	KAF	EPA 625
1,2-Diphenylhydrazine	< 2.3	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 625*
2,3,7,8-TCDD Screen	< 50	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 625*
2,4,6-Trichlorophenol	< 4.0	ug/L		09/18/18 06:30	09/19/18 20:00	KAF	EPA 625
2,4-Dichlorophenol	< 8.9	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 625
2,4-Dimethylphenol	< 5.0	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 625
2,4-Dinitrophenol	< 5.0	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 625
2,4-Dinitrotoluene	< 1.6	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 625
2,6-Dinitrotoluene	< 2.3	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 625
2-Chloronaphthalene	< 1.3	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 625



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## ANALYTICAL RESULTS

Sample: 8092349-01

Name: SN: 8906 JN:7570

Alias: EFFLUENT COMPOSITE

Sampled: 09/12/18 00:00

Received: 09/13/18 09:10

Matrix: Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
2-Chlorophenol	< 7.2	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
2-Nitrophenol	< 8.7	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
3,3'-Dichlorobenzidine	< 12	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825*
4,8-Dinitro-2-methylphenol	< 6.0	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
4-Bromophenyl phenyl ether	< 1.2	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
4-Chloro-3-methylphenol	< 7.0	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
4-Chlorophenylphenyl ether	< 1.3	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
4-Nitrophenol	< 8.1	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Acenaphthene	< 2.1	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Acenaphthylene	< 1.8	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Anthracene	< 1.5	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Benzidine	< 40	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Benzo(a)anthracene	< 1.8	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Benzo(a)pyrene	< 2.1	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Benzo(b)fluoranthene	< 2.5	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Benzo(g,h,i)perylene	< 3.4	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Benzo(k)fluoranthene	< 1.9	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Bis(2-chloroethoxy) methane	< 2.4	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Bis(2-chloroethyl) ether	< 2.1	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Bis(2-chloroisopropyl) ether	< 1.9	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Bis(2-ethylhexyl) phthalate	< 4.4	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Butyl benzyl phthalate	< 1.5	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Chrysene	< 1.3	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Dibenzo(a,h)anthracene	< 0.93	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Diethyl phthalate	< 2.0	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Dimethyl phthalate	< 1.8	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Di-n-butyl phthalate	< 2.1	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Di-n-octyl phthalate	< 2.1	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Fluoranthene	< 2.2	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Fluorene	< 1.8	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Hexachlorobenzene	< 1.4	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Hexachlorobutadiene	< 1.8	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Hexachlorocyclopentadiene	< 5.1	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Hexachloroethane	< 2.1	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Indeno(1,2,3-cd)pyrene	< 1.5	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Isophorone	< 1.8	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Naphthalene	< 1.9	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Nitrobenzene	< 2.7	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
N-Nitrosodimethylamine	< 0.98	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
N-Nitrosodi-n-propylamine	< 2.4	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
N-Nitrosodiphenylamine	< 1.6	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Pentachlorophenol	< 5.0	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825
Phenanthrene	< 2.1	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 825

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Peoria, IL 61615

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**ANALYTICAL RESULTS****Sample:** 8092349-01**Name:** SN: 8906 JN:7570**Alias:** EFFLUENT COMPOSITE**Sampled:** 09/12/18 00:00**Received:** 09/13/18 09:10**Matrix:** Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Phenol	< 4.2	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 625
Pyrene	< 0.74	ug/L		09/18/18 08:30	09/19/18 20:00	KAF	EPA 625
<b><u>Total Metals - PIA</u></b>							
Mercury	< 0.00020	mg/L		09/20/18 05:40	09/20/18 09:11	TAT	EPA 245.1



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## ANALYTICAL RESULTS

Sample: 8092349-02  
Name: SN: 8907 JN:7570  
Alias: EFFLUENT GRAB

Sampled: 09/12/18 08:47  
Received: 09/13/18 09:10  
Matrix: Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
<b>General Chemistry - PIA</b>							
Surfactants - MBAS	< 0.20	mg/L		09/14/18 08:00	09/14/18 08:00	SAH	SM 5540C
Total Organic Carbon (TOC)	6.8	mg/L		09/19/18 19:03	09/19/18 19:03	SAH	SM 5310C
<b>Volatile Organics - PIA</b>							
1,1,1-Trichloroethane	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
1,1,2,2-Tetrachloroethane	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
1,1,2-Trichloroethane	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
1,1-Dichloroethane	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
1,1-Dichloroethene	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
1,2-Dichlorobenzene	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
1,2-Dichloroethane	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
1,2-Dichloropropane	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
1,3-Dichlorobenzene	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
1,3-Dichloropropene - Total	< 15	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624*
1,4-Dichlorobenzene	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
2-Chloroethylvinyl ether	< 5.0	ug/L		09/19/18 10:59	09/19/18 15:39	JJI	EPA 624
Acrolein	< 50	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
Acrylonitrile	< 50	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
Benzene	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
Bromodichloromethane	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
Bromoform	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
Bromomethane	< 10	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
Carbon tetrachloride	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
Chlorobenzene	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
Chloroethane	< 10	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
Chloroform	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
Chloromethane	< 10	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
cis-1,2-Dichloroethene	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624*
Dibromochloromethane	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
Ethylbenzene	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
Methylene chloride	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
Tetrachloroethene	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
Toluene	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
trans-1,2-Dichloroethene	< 20	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
Trichloroethene	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624
Vinyl chloride	< 5.0	ug/L		09/14/18 08:10	09/14/18 17:54	MAB	EPA 624





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### ANALYTICAL RESULTS

Sample: 8092349-03  
Name: SN: 8908 JN:7570  
Alias: INFLUENT COMPOSITE

Sampled: 09/12/18 00:00  
Received: 09/13/18 09:10  
Matrix: Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
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#### General Chemistry - PIA

Phenolics	< 0.25	mg/L		09/21/18 10:56	09/21/18 10:56	ALS	EPA 420.4
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#### Total Metals - PIA

Mercury	< 0.00020	mg/L		09/20/18 05:40	09/20/18 09:13	TAT	EPA 245.1
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Sample: 8092349-04  
Name: SN: 8909 JN:7570  
Alias: INFLUENT GRAB

Sampled: 09/12/18 08:41  
Received: 09/13/18 09:10  
Matrix: Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
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#### General Chemistry - PIA

Surfactants - MBAS	0.86	mg/L		09/14/18 08:00	09/14/18 08:00	SAH	SM 5540C
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#### Volatile Organics - PIA

Benzene	< 5.0	ug/L		09/14/18 08:10	09/14/18 18:21	MAB	EPA 624
Ethylbenzene	< 5.0	ug/L		09/14/18 08:10	09/14/18 18:21	MAB	EPA 624
m,p-Xylene	< 5.0	ug/L		09/14/18 08:10	09/14/18 18:21	MAB	EPA 624
o-Xylene	< 5.0	ug/L		09/14/18 08:10	09/14/18 18:21	MAB	EPA 824
Toluene	< 5.0	ug/L		09/14/18 08:10	09/14/18 18:21	MAB	EPA 624
Xylenes- Total	< 15	ug/L		09/14/18 08:10	09/14/18 18:21	MAB	EPA 624



**PDC Laboratories, Inc.**

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Peoria, IL 61615

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**NOTES**

Specific method revisions used for analysis are available upon request.

**Certifications**

**CHI - McHenry, IL**

TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100279  
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17556

**PIA - Peoria, IL**

TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230  
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553  
Missouri Department of Natural Resources Certificate of Approval for Microbiological Laboratory Service No. 870  
Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)  
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)  
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

**SPIL - Springfield, IL**

NELAP/NELAC accreditation through the Illinois EPA, Lab No. 100323

**SPMO - Springfield, MO**

USEPA DMR-QA Program

**STL - St. Louis, MO**

TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389  
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050  
Drinking Water Certifications: Missouri (1050)  
Missouri Department of Natural Resources

\* Not a TNI accredited analyte

Certified by: Janet Clutters For Kurt Stepping, Senior Project Manager



POC

# SAMPLE CHAIN OF CUSTODY RECORD

## ENGINEERING SURVEYS & SERVICES

1113 Fay Street \* Columbia, Missouri 65201 \* (573) 449-2646  
 802 El Dorado Drive \* Jefferson City, Missouri 65101 \* (573) 636-3303  
 1175 W. Main Street \* Sedalia, Missouri 65301 \* (660) 826-8618

809234-4  
 Jan

Sample ID	Date/Time Collected	Tests Requested	Sample Container	Preserv.	Comments
SN 8906 Effluent Composite	12 Sep 18	Total Phenols Semi-volatile Organics - 625 Pesticides + PCBs - 608 Mercury - 245.1	500a 2-1000a 250p	H <sub>2</sub> SO <sub>4</sub> None HNO <sub>3</sub>	JN7570
<del>SN 8907</del> Effluent Grab	12 Sep 18 8:47am	TOC (Total Organic Carbon) VOC - 624 Extended Include 2-CEVE	2 vials 2 vials 2 vials	H <sub>2</sub> SO <sub>4</sub> HCl None	
		Surfactants (MBAS)	1000p	None	
SN 8908 Influent Composite	12 Sep 18	Total Phenols Mercury - 245.1	500a 250p	H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub>	
SN 8909 Influent Grab	12 Sep 18 8:41am	BTEX Surfactants (MBAS)	2 vials 1000p	HCl None	

Sample Collected By \_\_\_\_\_ Company/Organization Engineering Surveys + Services

Date/Time \_\_\_\_\_ Address Columbia, MO

Samples Relinquished By/Phone	Samples Received By	Date/Time
<u>Dan B</u>		12 Sep 18 2:00pm
	<u>[Signature]</u>	9/13/18 9:10

# SAMPLE CHAIN OF CUSTODY RECORD



**Engineering Surveys and Services**

100 West Main Street \* Sedalia, Missouri 65301 \* (660) 820-8018  
 802 El Dorado Drive \* Jefferson City, Missouri 65101 \* (573) 636-3303  
 1000 Fay Street \* Columbia, Missouri 65201 \* (573) 439-2646

ESS Lab No L7570

**City of Jefferson**

City of Jefferson

Jefferson City, Missouri

Origin	Tests Requested		Sample Container	Preserv.	Comments
Annual Exp. Effluent (PP), Composite					
SB12 8906	Biochemical Oxygen Demand	Total Suspended Solids	1000 p	None	
	Chemical Oxygen Demand	Chloride	500 p(2)	HNO3.H2S <sub>2</sub>	
	Sulfate	Fluoride	1000 amb(2)	None	
		Kjeldahl Nitrogen	500 amb	H2SO4	
	Nitrate Nitrogen	Total Nitrogen			
	Organic Nitrogen	Phosphorous, Total			
	Total Hardness	Calcium			
	Magnesium	Sodium			
	Antimony	Arsenic			
	Barium	Beryllium			
	Cadmium	Chromium			
	Chromium, Trivalent	Copper			
	Lead	Mercury			
	Molybdenum	Nickel			
	Selenium	Silver			
	Thallium	Zinc			
	Aluminum	Iron			
	Digestion	Total Phenolic Compounds			
	Pesticides & PCB	Semivolatile Organics			

Sample Date: 9-12-18

Sample Time: 8:47

**Sampled By:**

*Emily Willis*

**Relinquished By:**

*Emily Willis*  
*Mike Ben...*

**Received By:**

*Mike Ben...*  
 9-12-18  
 11:00 am

# SAMPLE CHAIN OF CUSTODY RECORD



## Engineering Surveys and Services

725 West Main Street \* Sedalia, Missouri 65301 \* (660) 826-8618  
 802 E. Darado Drive \* Jefferson City, Missouri 65101 \* (573) 676-3333  
 111 E. 1st Street \* Columbia, Missouri 65201 \* (573) 440-2646

ESS Lab No. L7570

City of Jefferson

City of Jefferson

Jefferson City, Missouri

Origin	Tests Requested	Sample Container	Preserv.	Comments
<b>Annual Exp. Effluent (PP), Grab</b>				
SBR (8904)	Acidity	1000 p(2)	None	2 SOD NP
	Chlorine, Residual	500 p(2)	NP, H2SO4	
	Sulfide	1000 w/m g	H2SO4(L)	
	Phosphate, Ortho	40 ml vial(6)	NP, HCl, H2SO4	
	Chromium, Hexavalent			
	Cyanide			
	Carbon (TOC)			
	Surfactants (MBAS)			
	Alkalinity			
	Conductivity			
	Sulfite			
	Nitrite Nitrogen			
	Grease & Oil			
	Ammonia			
	Volatile Organic Compound			

Sample Date: 9-12-18

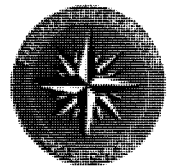
Sample Time: 8:47

Sampled By:  
 Emily  
 Wilf

Relinquished By:  
 Emily  
 Wilf  
 Mike Bengel

Received By:  
 Mike Bengel  
 9-12-18 11:00 am  
 JESS 9-12-18 11:36 am

# SAMPLE CHAIN OF CUSTODY RECORD



## Engineering Surveys and Services

2880 West Main Street \* Sedalia, Missouri 65301 \* (660) 826-8618  
 3000 Dorado Drive \* Jefferson City, Missouri 65101 \* (573) 616-1301  
 1000 East Street \* Columbia, Missouri 65201 \* (573) 449-2640

ESS Lab No L7570

City of Jefferson

City of Jefferson

Jefferson City, Missouri

Origin

Tests Requested

Sample  
Container

Preserv.

Comments

Semiannual Effluent Composite

SBR INF

8908

Kjeldahl Nitrogen

Nitrate Nitrogen

500 p

H2SO4

Total Nitrogen

Phosphorous, Total

500 p

HNO3

Arsenic

Cadmium

500 amb

H2SO4

Chromium

Copper

Lead

Mercury

Molybdenum

Iron

Manganese

Nickel

Silver

Zinc

Digestion

Total Phenolic Compounds

Sample Date:

9-12-18

Sample Time:

8:41

Sampled By:

Emily  
Willis

Relinquished By:

Emily  
Willis

Received By:

Mike Bender  
9-12-18  
11:00 am

# SAMPLE CHAIN OF CUSTODY RECORD



**Engineering Surveys and Services**

1774 West Main Street • Sedalia, Missouri 65301 • (660) 826-8618  
 902 El Dorado Drive • Jefferson City, Missouri 65101 • (573) 636-1303  
 1111 Fay Street • Columbia, Missouri 65201 • (573) 440-2646

ESS Lab No L7570

City of Jefferson

City of Jefferson

Jefferson City, Missouri

Origin	Tests Requested		Sample Container	Preserv.	Comments
Semiannual Effluent Grab					
SBR INF					
(8909)	Ammonia	Nitrite Nitrogen	500 p(2)	NP, H2SO4	
	Grease & Oil	Cyanide	1000 p(2)	NP, NaOH	
	Benzene	Toluene	1000 w/m g	H2SO4	
	Ethylbenzene	Xylene	40 ml vial	HCl	
	Surfactants (MBAS)				

Sample Date: 9-12-18

Sample Time: 8:41

Sampled By:

Emily  
Willis

Relinquished By:

Emily  
Willis  
mik [unclear] am

Received By:

mike [unclear]  
 9-12-18  
 Jerry S. 11:00 am  
 9-12-18 11:00 am





**ENGINEERING SURVEYS AND SERVICES  
TESTING LABORATORIES**

1113 Fay Street \* Columbia, Missouri 65201 \* (573) 449-2648  
802 El Dorado Drive \* Jefferson City, Missouri 65101 \* (573) 636-3303  
1775 West Main Street \* Sedalia, Missouri 65301 \* (660) 826-8618

Date: 04 October 2017

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 06 September 2017

Sample No. / 1394 / SBR Plant Effluent PP Grab, 9-6-17, 8:22 a.m.

Description :

**TEST RESULTS:**

Parameter:	1394	Units	Method
Volatile Organic Compound	**		EPA 8260
Carbon (TOC)	6.7*	mg/l	9060
Acidity	-184	mg CaCO3/l	2310 B
Alkalinity	209	mg CaCO3/l	2320 B
Chlorine, Residual	0.03	mg/l	4500-Cl G
Conductivity	1,420	umhos/cm	2510 B
Cyanide	<0.005	mg/l	4500CNCE
Grease & Oil	< 1.0	mg/l	EPA1664
Nitrite Nitrogen	0.282	mg/l	4500-NO2-B
Phosphate, Ortho	3.03	mg/l	4500-P E
Sulfide	<0.4	mg/l	9034
Sulfite	<0.5	mg/l	4500-SO3-B
Chromium, Hexavalent	<0.005	mg/l	3500 Cr D

Sample secured and delivered to laboratory by others

\*Analysis by PDC

\*\*See attached PDC Laboratories report

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.

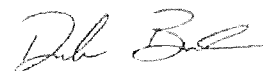
cc: Community  
Development

1 Clara Haenchen  
Haenchen, Wilbers,  
Klefner

35884

**Engineering Surveys & Services**

BY:



For Linda L. Adams

**ENGINEERING SURVEYS AND SERVICES  
TESTING LABORATORIES**

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802 El Dorado Drive \* Jefferson City, Missouri 65101 \* (573) 636-3303  
1775 West Main Street \* Sedalia, Missouri 65301 \* (660) 826-8618

Date: 04 October 2017

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 06 September 2017

Sample No. / 1395 / SBR Plant Effluent PP Composite, 9-6-17, 8:24 a.m.

Description :

**TEST RESULTS:**

Parameter:	1395	Units	Detection	Method
Biochemical Oxygen Demand	24	mg/l		5210 B
Total Suspended Solids	26	mg/l		2540D
Chemical Oxygen Demand	21.5	mg/l		5220B
Chloride	232	mg/l		4500Cl C
Fluoride	0.61	mg/l		9214
Ammonia	1.4	mg/l		4500NH3B C
Kjeldahl Nitrogen	2.2	mg/l		4500N org
Nitrate Nitrogen	7.44	mg/l		SM16-418D
Organic Nitrogen	0.8	mg/l		4500Norg C
Phosphorous, Total	3.57	mg/l		4500-P B,E
Sulfate	91.3	mg/l		9038
Calcium	59.6	mg/l		6020A
Magnesium	26.8	mg/l		6020A
Sodium	182	mg/l		6020A
Antimony	<0.006	mg/l		6020A
Arsenic	0.008	mg/l		6020A

Sample secured and delivered to laboratory by others

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.

cc: Community  
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1 Clara Haenchen  
Haenchen, Wilbers,  
Klefner

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*Engineering Surveys & Services*

BY:



For: Linda L. Adams

**ENGINEERING SURVEYS AND SERVICES  
TESTING LABORATORIES**

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802 El Dorado Drive \* Jefferson City, Missouri 65101 \* (573) 636-3303  
1775 West Main Street \* Sedalia, Missouri 65301 \* (660) 826-8618

Date: 04 October 2017

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 06 September 2017

Sample No. / 1395 / SBR Plant Effluent PP Composite, 9-6-17, 8:24 a.m.  
Description :

**TEST RESULTS:**

Parameter:	1395	Units	Method
Barium	<0.10	mg/l	6020A
Beryllium	<0.004	mg/l	6020A
Cadmium	<0.005	mg/l	6020A
Chromium	<0.010	mg/l	6020A
Copper	<0.005	mg/l	6020A
Lead	<0.02	mg/l	6020A
Mercury	<0.0005	mg/l	6020A
Molybdenum	<0.10	mg/l	6020A
Nickel	0.04	mg/l	6020A
Selenium	0.006	mg/l	6020A
Silver	<0.005	mg/l	6020A
Thallium	<0.002	mg/l	6020A
Zinc	0.044	mg/l	6020A
Selenium	<0.20	mg/l	6020A
Iron	0.05	mg/l	6020A
Chromium, Trivalent	<0.10	mg/l	3500 Cr

Sample secured and delivered to laboratory by others

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.

cc: Community  
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BY:



For: Linda L. Adams

**ENGINEERING SURVEYS AND SERVICES  
TESTING LABORATORIES**

1113 Fay Street \* Columbia, Missouri 65201 \* (573) 449-2846  
802 El Dorado Drive \* Jefferson City, Missouri 65101 \* (573) 636-3303  
1775 West Main Street \* Sedalia, Missouri 65301 \* (660) 826-8618

Date: 04 October 2017

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 06 September 2017

Sample No. / 1395 / SBR Plant Effluent PP Composite, 9-6-17, 8:24 a.m.  
Description :

**TEST RESULTS:**

Parameter:	1395	Units	Method
Digestion	Yes		
Pesticides & PCB	**		EPA 8081
Semivolatile Organics	**		EPA 8270
Total Phenolic Compounds	<0.0050*	mg/l	5530 B, D
Total Hardness	259	mg eq. CaCo3/l	2340 B

Sample secured and delivered to laboratory by others

\* Analysis by PDC Laboratories

\*\*See attached PDC Laboratories report

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.

cc: Community  
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1 Clara Haenchen  
Haenchen, Wilbers,  
Klefner

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*Engineering Surveys & Services*

BY:



For Linda L. Adams

**ENGINEERING SURVEYS AND SERVICES  
TESTING LABORATORIES**

1113 Fay Street \* Columbia, Missouri 65201 \* (573) 449-2846  
802 El Dorado Drive \* Jefferson City, Missouri 65101 \* (573) 636-3303  
1775 West Main Street \* Sedalia, Missouri 65301 \* (660) 826-8618

Date: 04 October 2017

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 06 September 2017

Sample No. / 1396 / Semiannual Influent Grab, 9-6-17, 8:36 a.m.

Description :

**TEST RESULTS:**

Parameter:	1396	Units	Detection	Method
Ammonia	18.5	mg/l		4500NH3B C
Nitrite Nitrogen	<0.005	mg/l		4500-NO2-B
Grease & Oil	19.8	mg/l		EPA1664
Cyanide	<0.005	mg/l		4500CNCE
Benzene	<5.0*	ug/l		8260 B
Toluene	<5.0*	ug/l		8260 B
Ethylbenzene	<5.0*	ug/l		8260
Xylene	<15*	ug/l		8260
Chloride	364	mg/l		4500Cl C
Sulfate	94.5	mg/l		9038

Sample secured and delivered to laboratory by others

\*Analysis by PDC Laboratories

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.

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*Engineering Surveys & Services*

BY:



For: Linda L. Adams

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TESTING LABORATORIES**

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1775 West Main Street \* Sedalia, Missouri 65301 \* (660) 826-8618

Date: 04 October 2017

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 06 September 2017

Sample No. / 1397 / Semiannual Influent Composite, 9-6-17, 8:38 a.m.

Description :

**TEST RESULTS:**

Parameter:	1397	Units	Detection	Method
Kjeldahl Nitrogen	33.6	mg/l		4500N org
Nitrate Nitrogen	<0.10	mg/l		SM16-418D
Total Nitrogen	33.6	mg/l		
Phosphorous, Total	7.31	mg/l		4500PBE
Total Phenolic Compounds	0.041*	mg/l		5530 B, D
Antimony	<0.006	mg/l		6020A
Selenium	<0.005	mg/l		6020A
Arsenic	0.007	mg/l		6020A
Cadmium	<0.005	mg/l		6020A
Chromium	<0.010	mg/l		6020A
Copper	0.065	mg/l		6020A
Lead	<0.02	mg/l		6020A
Mercury	<0.0005	mg/l		6020A
Molybdenum	<0.10	mg/l		6020A
Iron	1.26	mg/l		6020A
Manganese	0.199	mg/l		6020A

Sample secured and delivered to laboratory by others

\*Analysis by PDC Laboratories

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.

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1 Clara Haenchen  
Haenchen, Wilbers,  
Klefner

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BY:



For Linda L. Adams

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802 El Dorado Drive \* Jefferson City, Missouri 65101 \* (573) 638-3303  
1775 West Main Street \* Sedalia, Missouri 65301 \* (660) 828-8618

Date: 04 October 2017

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 06 September 2017

Sample No. / 1397 / Semiannual Influent Composite, 9-6-17, 8:38 a.m.  
Description :

**TEST RESULTS:**

Parameter:	1397	Units	Method
Nickel	<0.01	mg/l	6020A
Silver	<0.005	mg/l	6020A
Zinc	0.177	mg/l	6020A
Digestion	Yes		

Sample secured and delivered to laboratory by others

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.

cc: Community  
Development

1 Clara Haenchen  
Haenchen, Wilbers,  
Klefner

35890

**Engineering Surveys & Services**

BY:



For: Linda L. Adams



## PDC Laboratories, Inc.

PROFESSIONAL • DEPENDABLE • COMMITTED

September 26, 2017

Linda Adams  
Engineering Surveys & Services  
1113 Fay St  
Columbia, MO 65201

Dear Linda Adams:

Please find enclosed the analytical results for the sample(s) the laboratory received on **9/8/17 9:16 am** and logged in under work order **7091327**. All testing is performed according to our current TNI certifications unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories, Inc.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

PDC Laboratories, Inc. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Vice President, John LaPayne with any feedback you have about your experience with our laboratory.

Sincerely,

Senior Project Manager  
(309) 692-9688 x1719  
kstepping@pdclab.com







PDC Laboratories, Inc.  
2231 West Altorfer Drive  
Peoria, IL 61615  
(800) 752-6651

## ANALYTICAL RESULTS

Sample: 7091327-01  
Name: JN:7570 SN:1394  
Matrix: Waste Water - Regular Sample

Sampled: 09/06/17 00:00  
Received: 09/08/17 09:15

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
<b>General Chemistry - PIA</b>							
Total Organic Carbon (TOC)	6.7	mg/L		09/11/17 23:47	09/11/17 23:47	JMD	SM 5310C
<b>Volatile Organics - PIA</b>							
1,1,1-Trichloroethane	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
1,1,2,2-Tetrachloroethane	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
1,1,2-Trichloroethane	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
1,1-Dichloroethane	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
1,1-Dichloroethene	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
1,2-Dichlorobenzene	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
1,2-Dichloroethane	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
1,2-Dichloropropane	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
1,3-Dichlorobenzene	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
1,3-Dichloropropene - Total	< 15	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624*
1,4-Dichlorobenzene	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
2-Chloroethylvinyl ether	< 5.0	ug/L		09/12/17 13:21	09/12/17 15:57	JJI	EPA 624
Acrolein	< 50	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
Acrylonitrile	< 50	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
Benzene	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
Bromodichloromethane	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
Bromoform	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
Bromomethane	< 10	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
Chlorobenzene	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
Chloroethane	< 10	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
Chloroform	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
Chloromethane	< 10	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
cis-1,2-Dichloroethene	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624*
Dibromochloromethane	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
Ethylbenzene	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
Methylene chloride	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
Tetrachloroethene	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
Toluene	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
trans-1,2-Dichloroethene	< 20	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
Trichloroethene	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624
Vinyl chloride	< 5.0	ug/L		09/11/17 08:37	09/11/17 20:54	MAB	EPA 624



PDC Laboratories, Inc.  
2231 West Altorfer Drive  
Peoria, IL 61615  
(800) 752-6651

## ANALYTICAL RESULTS

Sample: 7091327-02  
Name: JN:7570 SN:1395  
Matrix: Waste Water - Regular Sample

Sampled: 09/06/17 00:00  
Received: 09/08/17 09:15

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
<b>General Chemistry - PIA</b>							
Phenolics	< 0.0050	mg/L		09/15/17 07:54	09/15/17 07:54	ALS	EPA 420.4 - QC 10-210-00-1-A
<b>Pesticides - PIA</b>							
4,4'-DDD	< 1.0	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
4,4'-DDE	< 1.0	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
4,4'-DDT	< 1.0	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Aldrin	< 0.50	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Alpha-BHC	< 0.50	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Aroclor 1016	< 5.0	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Aroclor 1221	< 10	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Aroclor 1232	< 5.0	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Aroclor 1242	< 5.0	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Aroclor 1248	< 5.0	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Aroclor 1254	< 10	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Aroclor 1260	< 10	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Aroclors - Total	< 50	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Aroclors- Total	< 50	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Beta- BHC	< 0.50	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Beta-BHC	< 0.50	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Chlordane (technical)	< 5.0	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Delta-BHC	< 0.50	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Dieldrin	< 1.0	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Endosulfan I	< 0.50	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Endosulfan II	< 1.0	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Endosulfan sulfate	< 1.0	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Endrin	< 1.0	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Endrin aldehyde	< 1.0	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
gamma-BHC (Lindane)	< 0.50	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Heptachlor	< 0.50	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Heptachlor epoxide	< 0.50	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Methoxychlor	< 5.0	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
Toxaphene	< 5.0	ug/L		09/13/17 11:39	09/20/17 23:03	JMT	EPA 608
<b>Semivolatile Organics - PIA</b>							
1,2,4-Trichlorobenzene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
1,2-Diphenylhydrazine	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625*
2,3,7,8-TCDD Screen	< 50	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625*
2,4,6-Trichlorophenol	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
2,4-Dichlorophenol	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
2,4-Dimethylphenol	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
2,4-Dinitrophenol	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625



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2231 West Altorfer Drive  
Peoria, IL 61615  
(800) 752-6651

## ANALYTICAL RESULTS

Sample: 7091327-02  
Name: JN:7570 SN:1395  
Matrix: Waste Water - Regular Sample

Sampled: 09/06/17 00:00  
Received: 09/08/17 09:15

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
2,4-Dinitrotoluene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
2,6-Dinitrotoluene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
2-Chloronaphthalene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
2-Chlorophenol	< 6.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
2-Nitrophenol	< 6.7	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
3,3'-Dichlorobenzidine	< 12	ug/L		09/12/17 08:36	09/18/17 17:49	JLH/K	EPA 625*
4,6-Dinitro-2-methylphenol	< 10	ug/L		09/12/17 08:36	09/19/17 14:26	JLH/K	EPA 625
4-Bromophenyl phenyl ether	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
4-Chloro-3-methylphenol	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
4-Chlorophenylphenyl ether	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
4-Nitrophenol	< 6.1	ug/L		09/12/17 08:38	09/19/17 14:28	JLH/K	EPA 625
Acenaphthene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Acenaphthylene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Anthracene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Benzidine	< 26	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Benzo(a)anthracene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Benzo(a)pyrene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Benzo(b)fluoranthene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Benzo(g,h,i)perylene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Benzo(k)fluoranthene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Bis(2-chloroethoxy) methane	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Bis(2-chloroethyl) ether	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Bis(2-chloroisopropyl) ether	< 5.0	ug/L		09/12/17 08:38	09/19/17 14:28	JLH/K	EPA 625
Bis(2-ethylhexyl) phthalate	< 3.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Butyl benzyl phthalate	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Chrysene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Dibenzo(a,h)anthracene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Diethyl phthalate	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Dimethyl phthalate	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Di-n-butyl phthalate	< 5.0	ug/L		09/12/17 08:38	09/19/17 14:28	JLH/K	EPA 625
Di-n-octyl phthalate	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Fluoranthene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Fluorene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Hexachlorobenzene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Hexachlorobutadiene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Hexachlorocyclopentadiene	< 4.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Hexachloroethane	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Indeno(1,2,3-cd)pyrene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Isophorone	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Naphthalene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
Nitrobenzene	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
N-Nitrosodimethylamine	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625
N-Nitrosodi-n-propylamine	< 5.0	ug/L		09/12/17 08:36	09/19/17 14:28	JLH/K	EPA 625

**PDC Laboratories, Inc.**

2231 West Altorfer Drive

Peoria, IL 61615

(800) 752-6651

**ANALYTICAL RESULTS**

Sample: 7091327-02  
Name: JN:7570 SN:1395  
Matrix: Waste Water - Regular Sample

Sampled: 09/06/17 00:00  
Received: 09/08/17 09:15

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
N-Nitrosodiphenylamine	< 5.0	ug/L		09/12/17 08:38	09/19/17 14:28	JLH/K	EPA 825
Pentachlorophenol	< 10	ug/L		09/12/17 08:38	09/19/17 14:28	JLH/K	EPA 825
Phenanthrene	< 5.0	ug/L		09/12/17 08:38	09/19/17 14:28	JLH/K	EPA 825
Phenol	< 5.0	ug/L		09/12/17 08:38	09/19/17 14:28	JLH/K	EPA 825
Pyrene	< 5.0	ug/L		09/12/17 08:38	09/19/17 14:28	JLH/K	EPA 825

Sample: 7091327-03  
Name: JN:7570 SN:1396  
Matrix: Waste Water - Regular Sample

Sampled: 09/06/17 00:00  
Received: 09/08/17 09:15

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
<b>Volatile Organics - PIA</b>							
Benzene	< 5.0	ug/L		09/11/17 08:37	09/11/17 21:21	MAB	EPA 824
Ethylbenzene	< 5.0	ug/L		09/11/17 08:37	09/11/17 21:21	MAB	EPA 824
m,p-Xylene	< 5.0	ug/L		09/11/17 08:37	09/11/17 21:21	MAB	EPA 824
o-Xylene	< 5.0	ug/L		09/11/17 08:37	09/11/17 21:21	MAB	EPA 824
Toluene	< 5.0	ug/L		09/11/17 08:37	09/11/17 21:21	MAB	EPA 824
Xylenes- Total	< 15	ug/L		09/11/17 08:37	09/11/17 21:21	MAB	EPA 824

Sample: 7091327-04  
Name: JN:7570 SN:1397  
Matrix: Waste Water - Regular Sample

Sampled: 09/06/17 00:00  
Received: 09/08/17 09:15

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
<b>General Chemistry - PIA</b>							
Phenolics	0.041	mg/L		09/15/17 08:10	09/15/17 08:10	ALS	EPA 420.4 - QC 10-210-00-1-A



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## NOTES

Specific method revisions used for analysis are available upon request.

### Certifications

#### CHI - McHenry, IL

TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100279  
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17556

#### PIA - Peoria, IL

TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230  
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553  
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)  
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

#### SPMO - Springfield, MO

USEPA DMR-QA Program

#### STL - St. Louis, MO

TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389  
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050  
Drinking Water Certifications: Missouri (1050)  
Missouri Department of Natural Resources

\* Not a TNI accredited analyte

Certified by: Kurt Stepping, Senior Project Manager



# SAMPLE CHAIN OF CUSTODY RECORD

## ENGINEERING SURVEYS & SERVICES

1113 Fay Street \* Columbia, Missouri 65201 \* (573) 449-2646  
802 El Dorado Drive \* Jefferson City, Missouri 65101 \* (573) 636-3303  
1175 W. Main Street \* Sedalia, Missouri 65301 \* (660) 826-8618

709 1327-4

Sample ID	Date/Time Collected	Tests Requested	Sample Container	Preserv.	Comments
SN 1276 waste water	9-5-17	Total Volatile Acids	500 p	NP	JN 7545
SN 1391 SN 1392 SN 1393 sludge	8-28-17 8-31-17 8-21-17	Soxhlet oil + Grease Total Solids	(3) 250 p	NP	JN 7570 Report mg/kg Dry Weight
SN 1394 Grab Waste water Effluent	9-6-17	TOC (total organic carbons) Volatile organics - 624 extended include 2-CEVE	(2) vials (2) vials (2) vials	H <sub>2</sub> SO <sub>4</sub> HCl NP	JN 7570
SN 1395 composite	9-6-17	Total Phenols Semi volatile organics - 625 Pesticides + PCBs - 608	500 a (2) 1000 a	H <sub>2</sub> SO <sub>4</sub> NP	
SN 1396 Grab Waste water Influent	9-6-17	BTEX	(2) vials	HCl	JN 7570
SN 1397 comp	9-6-17	Total Phenols	500 a	H <sub>2</sub> SO <sub>4</sub>	

Sample Collected By \_\_\_\_\_ Company/Organization Engineering Surveys & Services

Date/Time \_\_\_\_\_ Address Columbia, MO

Samples Relinquished By/Phone	Samples Received By	Date/Time
<u>Travis Adams</u>		7 Sep 17
		12:00 p.m.
		9817 815

**ENGINEERING SURVEYS AND SERVICES  
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1775 West Main Street \* Sedalia, Missouri 65301 \* (660) 828-8618

Date: 08 November 2016

Lab Number: L7670

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 26 October 2016

Sample No. / 23030 / SBR Plant Effluent Composite, 10-26-16, 8:10 a.m.

Description : 23031 / SBR Plant Effluent Grab, 10-26-16, 9:50 a.m.

**TEST RESULTS:**

Parameter:	23030	23031	Units	Detection	Method
Chromium	<10	xxxx	ug/l		6020A
Chromium, Trivalent	<10	xxxx	ug/l		3500 Cr
Aluminum	<200	xxxx	ug/l		6020A
Iron	18	xxxx	ug/l		6020A
Digestion	yes	xxxx			
Total Phenolic Compounds	<0.005*	xxxx	mg/l		5530 B, D
Chromium, Hexavalent	xxxx	<5	ug/l		3500 Cr D

Sample secured and delivered to laboratory by others

\* Analysis by PDC Laboratories

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.

cc: Community  
Development

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**Engineering Surveys & Services**

BY:



Linda L. Adams

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1775 West Main Street \* Sedalia, Missouri 65301 \* (660) 826-8818

Date: 08 November 2016

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 20 October 2016

Sample No. / 22965 / SBR Plant Effluent Composite, 10-20-16, 9:05 a.m.

Description : 22966 / SBR Plant Effluent Grab, 10-20-16, 12:50 p.m.

**TEST RESULTS:**

Parameter:	22965	22966	Units	Method
Aluminum	<200	xxxx	ug/l	6020A
Chromium	<10	xxxx	ug/l	6020A
Iron	68	xxxx	ug/l	6020A
Digestion	yes	xxxx		
Total Phenolic Compounds	<0.005*	xxxx	mg/l	5530 B, D
Chromium, Trivalent	<10	xxxx	ug/l	3500 Cr
Chromium, Hexavalent	xxxx	<5	ug/l	3500 Cr D

Sample secured and delivered to laboratory by others

\*Analysis by PDC Laboratories

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.


cc: Community  
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1775 West Main Street \* Sedalia, Missouri 65301 \* (660) 826-8618

Date: 11 October 2016

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 07 September 2016

Sample No. / 21870 / SBR Plant Effluent Composite, 9-7-16, 8:05 a.m.

Description :

**TEST RESULTS:**

Parameter:	21870	Units	Detection	Method
Biochemical Oxygen Demand	<6	mg/l		5210 B
Total Suspended Solids	2	mg/l		2540D
Chemical Oxygen Demand	18.6	mg/l		5220B
Chloride	203	mg/l		4500Cl C
Fluoride	0.55	mg/l		9214
Ammonia	0.3	mg/l		4500NH3B C
Kjeldahl Nitrogen	1.1	mg/l		4500N org
Nitrate Nitrogen	6.72	mg/l		SM16-418D
Organic Nitrogen	0.8	mg/l		4500Norg C
Phosphorous, Total	1.50	mg/l		4500-P B,E
Sulfate	101	mg/l		9038
Total Hardness	250	mg eq. CaCo3/l		2340 B
Calcium	57.5	mg/l		6020A
Magnesium	25.8	mg/l		6020A
Sodium	138	mg/l		6020A
Antimony	<6	ug/l		6020A

Sample secured and delivered to laboratory by others

\*\*See attached report

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.

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Date: 11 October 2016

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 07 September 2016

Sample No. / 21870 / SBR Plant Effluent Composite, 9-7-16, 8:05 a.m.

Description :

**TEST RESULTS:**

Parameter:	21870	Units	Method
Arsenic	<5	ug/l	6020A
Barium	<100	ug/l	6020A
Beryllium	<4	ug/l	6020A
Cadmium	<5	ug/l	6020A
Chromium	<10	ug/l	6020A
Copper	<5	ug/l	6020A
Lead	<5	ug/l	6020A
Mercury	<0.2	ug/l	6020A
Molybdenum	<100	ug/l	6020A
Nickel	<10	ug/l	6020A
Selenium	<5	ug/l	6020A
Silver	<3	ug/l	6020A
Thallium	<2	ug/l	6020A
Zinc	50	ug/l	6020A
Digestion	yes		
Pesticides & PCB	**		EPA 8081

Sample secured and delivered to laboratory by others

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Date: 11 October 2016

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 07 September 2016

Sample No. / 21870 / SBR Plant Effluent Composite, 9-7-16, 8:05 a.m.

Description :

**TEST RESULTS:**

Parameter:	21870	Units	Method
Semivolatile Organics	**		EPA 8270

Sample secured and delivered to laboratory by others

\*\*See attached report

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1775 West Main Street \* Sedalia, Missouri 65301 \* (660) 626-8618

Date: 11 October 2016

Lab Number: L7570

**Project:** City of Jefferson

**Location:** Jefferson City, Missouri

**Date Received:** 07 September 2016

**Sample No. /** 21871 / SBR Plant Effluent Grab, 9-7-16, 8:45 a.m.

**Description :**

**TEST RESULTS:**

Parameter:	21871	Units	Detection	Method
Volatile Organic Compound	**			EPA 8260
Carbon (TOC)	7.0*	mg/l		9060
Acidity	-104	mg eq. CaCO3/l		2310 B
Alkalinity	194	mg eq. CaCO3/l		2320 B
Chlorine, Residual	0.02	mg/l		4500-Cl G
Conductivity	1,210	umhos/cm		2510 B
Cyanide	<4	ug/l		4500CNCE
Grease & Oil	<1.0	mg/l		EPA1664
Nitrite Nitrogen	0.081	mg/l		4500-NO2-B
Phosphate, Ortho	1.39	mg/l		4500-P E
Sulfide	<0.4	mg/l		9034
Sulfite	<0.5	mg/l		4500-S03-B

Sample secured and delivered to laboratory by others

\* Analysis by PDC Laboratories \*\*See attached report

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.

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Date: 11 October 2016

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 07 September 2016

Sample No. / 21872 / SBR Plant Influent, 9-7-16, 10:00 a.m.

Description :

**TEST RESULTS:**

Parameter:	21872	Units	Detection	Method
Ammonia	23.0	mg/l		4500NH3B C
Kjeldahl Nitrogen	34.7	mg/l		4500N org
Nitrate Nitrogen	0.31	mg/l		SM16-418D
Nitrite Nitrogen	<0.005	mg/l		4500-NO2-B
Total Nitrogen	35.0	mg/l		
Phosphorous, Total	7.15	mg/l		4500PBE
Grease & Oil	24.2	mg/l		EPA1664
Benzene	<5.0*	ug/l		8260
Toluene	<5.0*	ug/l		8260 B
Ethylbenzene	<5.0*	ug/l		8260
Xylene	<15*	ug/l		8260
Cyanide	<4	ug/l		4500CNCE
Phenols	0.034*	mg/l		5530 B, D
Arsenic	<5	ug/l		6020A
Cadmium	<5	ug/l		6020A
Chromium	<10	ug/l		6020A

Sample secured and delivered to laboratory by others

\* Analysis by PDC Laboratories

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.

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Date: 11 October 2016

Lab Number: L7570

**Project:** City of Jefferson

**Location:** Jefferson City, Missouri

**Date Received:** 07 September 2016

**Sample No. /** 21872 / SBR Plant Influent, 9-7-16, 10:00 a.m.

**Description :**

**TEST RESULTS:**

Parameter:	21872	Units	Method
Copper	81	ug/l	6020A
Lead	5	ug/l	6020A
Mercury	<0.2	ug/l	6020A
Molybdenum	<100	ug/l	6020A
Iron	1,300	ug/l	6020A
Manganese	251	ug/l	6020A
Nickel	<10	ug/l	6020A
Silver	6	ug/l	6020A
Zinc	153	ug/l	6020A
Digestion	yes		

Sample secured and delivered to laboratory by others

\* Analysis by PDC Laboratories

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cc: Community  
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Date: 11 October 2016

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 07 September 2016

Sample No. / 21873 / Algoa Lagoon Effluent, 9-6-16, 2:20 p.m.

Description :

**TEST RESULTS:**

Parameter:	21873	Units	Detection	Method
Ammonia	0.6	mg/l		4500NH3B C
Kjeldahl Nitrogen	4.5	mg/l		4500N org
Nitrate Nitrogen	2.72	mg/l		SM16-418D
Nitrite Nitrogen	0.315	mg/l		4500-NO2-B
Total Nitrogen	7.5	mg/l		
Phosphorous, Total	3.40	mg/l		4500PBE
Grease & Oil	<1.0	mg/l		EPA1664
Benzene	<5.0*	ug/l		8260
Toluene	<5.0*	ug/l		8260 B
Ethylbenzene	<5.0*	ug/l		8260
Xylene	<15*	ug/l		8260
Cyanide	<4	ug/l		4500CNCE
Phenols	<0.005*	mg/l		5530 B, D
Arsenic	<5	ug/l		6020A
Cadmium	<5	ug/l		6020A
Chromium	<10	ug/l		6020A

Sample secured and delivered to laboratory by others

\* Analysis by PDC Laboratories

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.


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Date: 11 October 2016

Lab Number: L7570

**Project:** City of Jefferson

**Location:** Jefferson City, Missouri

**Date Received:** 07 September 2016

**Sample No. /** 21873 / Algoa Lagoon Effluent, 9-6-16, 2:20 p.m.

**Description :**

**TEST RESULTS:**

Parameter:	21873	Units	Method
Copper	<5	ug/l	6020A
Lead	<5	ug/l	6020A
Mercury	<0.2	ug/l	6020A
Molybdenum	<100	ug/l	6020A
Iron	10	ug/l	6020A
Manganese	41	ug/l	6020A
Nickel	<10	ug/l	6020A
Silver	<3	ug/l	6020A
Zinc	12	ug/l	6020A
Digestion	yes		

Sample secured and delivered to laboratory by others

\* Analysis by PDC Laboratories

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.

cc: Community  
Development

1 Clara Haenchen  
email: Haenchen,  
email: Caddy,

29835

***Engineering Surveys & Services***

BY:



**Linda L. Adams**



**ENGINEERING SURVEYS AND SERVICES  
TESTING LABORATORIES**

1113 Fay Street \* Columbia, Missouri 65201 \* (573) 449-2646  
802 El Dorado Drive \* Jefferson City, Missouri 65101 \* (573) 636-3303  
1775 West Main Street \* Sedalia, Missouri 65301 \* (660) 826-8618

Date: 11 October 2016

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 07 September 2016

Sample No. / 21874 / Algoa Lagoon Influent, 9-6-16, 2:45 p.m.

Description :

**TEST RESULTS:**

Parameter:	21874	Units	Detection	Method
Ammonia	9.0	mg/l		4500NH3B C
Kjeldahl Nitrogen	24.6	mg/l		4500N org
Nitrate Nitrogen	0.25	mg/l		SM16-418D
Nitrite Nitrogen	<0.005	mg/l		4500-NO2-B
Total Nitrogen	24.8	mg/l		
Phosphorous, Total	3.85	mg/l		4500PBE
Grease & Oil	26.0	mg/l		EPA1664
Benzene	<5.0*	ug/l		8260
Toluene	<5.0*	ug/l		8260 B
Ethylbenzene	<5.0*	ug/l		8260
Xylene	<15*	ug/l		8260
Cyanide	<4	ug/l		4500CNCE
Phenols	0.023*	mg/l		5530 B, D
Arsenic	<5	ug/l		6020A
Cadmium	<5	ug/l		6020A
Chromium	<10	ug/l		6020A

Sample secured and delivered to laboratory by others

\* Analysis by PDC Laboratories

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.

cc: Community  
Development

1 Clara Haenchen  
email: Haenchen,  
email: Caddy,

29836

**Engineering Surveys & Services**

BY:



**Linda L. Adams**

**ENGINEERING SURVEYS AND SERVICES  
TESTING LABORATORIES**

1113 Fay Street \* Columbia, Missouri 65201 \* (573) 449-2646  
802 El Dorado Drive \* Jefferson City, Missouri 65101 \* (573) 636-3303  
1775 West Main Street \* Sedalia, Missouri 65301 \* (660) 826-8818

Date: 11 October 2016

Lab Number: L7570

Project: City of Jefferson

Location: Jefferson City, Missouri

Date Received: 07 September 2016

Sample No. / 21874 / Algoa Lagoon Influent, 9-6-26, 2:45 p.m.  
Description :

**TEST RESULTS:**

Parameter:	21874	Units	Method
Copper	84	ug/l	6020A
Lead	<5	ug/l	6020A
Mercury	<0.2	ug/l	6020A
Molybdenum	<100	ug/l	6020A
Iron	420	ug/l	6020A
Manganese	24	ug/l	6020A
Nickel	<10	ug/l	6020A
Silver	5	ug/l	6020A
Zinc	244	ug/l	6020A
Digestion	yes		

Sample secured and delivered to laboratory by others

\* Analysis by PDC Laboratories

Method number from "Standard Methods for the Examination of Water & Wastewater", current edition, unless noted otherwise.

cc: Community  
Development

1 Clara Haenchen  
email: Haenchen,  
email: Caddy,

29837

*Engineering Surveys & Services*

BY:



Linda L. Adams



# PDC Laboratories, Inc.

PROFESSIONAL • DEPENDABLE • COMMITTED

September 22, 2016

Linda Adams  
Engineering Surveys & Services  
1113 Fay St  
Columbia, MO 65201

Dear Linda Adams:

Please find enclosed the analytical results for the sample(s) the laboratory received on **9/9/16 9:20 am** and logged in under work order **6091468**. All testing is performed according to our current TNI certifications unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories, Inc.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

PDC Laboratories, Inc. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Vice President, John LaPayne with any feedback you have about your experience with our laboratory.

Sincerely,

Kurt Stepping  
Senior Project Manager  
(309) 692-9688 x1719  
kstepping@pdclab.com





**PDC Laboratories, Inc.**

2231 West Altorfer Drive

Peoria, IL 61615

(800) 752-6651

## ANALYTICAL RESULTS

**Sample:** 6091468-01

**Name:** SN#1870 JN#7570

**Matrix:** Waste Water - Composite

**Sampled:** 09/07/16 00:00

**Received:** 09/09/16 09:20

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
<b>Pesticides - PIA</b>							
4,4'-DDD	< 0.10	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
4,4'-DDE	< 0.10	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
4,4'-DDT	< 0.10	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
Aldrin	< 0.050	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
Alpha-BHC	< 0.050	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
Beta-BHC	< 0.050	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
Chlordane (technical)	< 0.50	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
Delta-BHC	< 0.050	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
Dieldrin	< 0.10	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
Endosulfan I	< 0.10	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
Endosulfan II	< 0.10	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
Endosulfan sulfate	< 0.10	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
Endrin	< 0.10	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
Endrin aldehyde	< 0.10	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
gamma-BHC (Lindane)	< 0.050	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
Heptachlor	< 0.050	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
Heptachlor epoxide	< 0.050	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
Methoxychlor	< 0.50	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
Toxaphene	< 0.50	ug/L		09/13/16 08:16	09/19/16 20:34	JMT	SW 8081
<b>Polychlorinated Biphenyls (PCBs) - PIA</b>							
Aroclor 1016	< 0.50	ug/L		09/13/16 08:23	09/16/16 22:01	JMT	SW 8082
Aroclor 1221	< 1.0	ug/L		09/13/16 08:23	09/16/16 22:01	JMT	SW 8082
Aroclor 1232	< 0.50	ug/L		09/13/16 08:23	09/16/16 22:01	JMT	SW 8082
Aroclor 1242	< 0.50	ug/L		09/13/16 08:23	09/16/16 22:01	JMT	SW 8082
Aroclor 1248	< 0.50	ug/L		09/13/16 08:23	09/16/16 22:01	JMT	SW 8082
Aroclor 1254	< 1.0	ug/L		09/13/16 08:23	09/16/16 22:01	JMT	SW 8082
Aroclor 1260	< 1.0	ug/L		09/13/16 08:23	09/16/16 22:01	JMT	SW 8082
Aroclor 1262	< 0.50	ug/L		09/13/16 08:23	09/16/16 22:01	JMT	SW 8082*
Aroclor 1268	< 0.50	ug/L		09/13/16 08:23	09/16/16 22:01	JMT	SW 8082*
Aroclors- Total	< 1.0	ug/L		09/13/16 08:23	09/16/16 22:01	JMT	SW 8082
<b>Semivolatile Organics - PIA</b>							
1,2,4-Trichlorobenzene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
1,2-Dichlorobenzene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
1,2-Diphenylhydrazine	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625*
1,3-Dichlorobenzene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
1,4-Dichlorobenzene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
2,3,7,8-TCDD Screen	< 50	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625*
2,4,6-Trichlorophenol	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
2,4-Dichlorophenol	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
2,4-Dimethylphenol	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625



PDC Laboratories, Inc.  
2231 West Altorfer Drive  
Peoria, IL 61615  
(800) 752-6651

## ANALYTICAL RESULTS

Sample: 6091468-01  
Name: SN#1870 JN#7570  
Matrix: Waste Water - Composite

Sampled: 09/07/16 00:00  
Received: 09/09/16 09:20

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
2,4-Dinitrophenol	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
2,4-Dinitrotoluene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
2,6-Dinitrotoluene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
2-Chloronaphthalene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
2-Chlorophenol	< 6.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
2-Nitrophenol	< 6.7	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
3,3'-Dichlorobenzidine	< 12	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625*
4,6-Dinitro-2-methylphenol	< 10	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
4-Bromophenyl phenyl ether	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
4-Chloro-3-methylphenol	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
4-Chlorophenylphenyl ether	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
4-Nitrophenol	< 6.1	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Acenaphthene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Acenaphthylene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Anthracene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Benzidine	< 26	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Benzo(a)anthracene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Benzo(a)pyrene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Benzo(b)fluoranthene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Benzo(g,h,i)perylene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Benzo(k)fluoranthene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Bis(2-chloroethoxy) methane	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Bis(2-chloroethyl) ether	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Bis(2-chloroisopropyl) ether	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Bis(2-ethylhexyl) phthalate	< 3.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Butyl benzyl phthalate	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Chrysene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Dibenzo(a,h)anthracene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Diethyl phthalate	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Dimethyl phthalate	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Di-n-butyl phthalate	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Di-n-octyl phthalate	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Fluoranthene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Fluorene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Hexachlorobenzene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Hexachlorobutadiene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Hexachlorocyclopentadiene	< 4.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Hexachloroethane	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Indeno(1,2,3-cd)pyrene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Isophorone	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Naphthalene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Nitrobenzene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
N-Nitrosodimethylamine	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625



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2231 West Altorfer Drive  
Peoria, IL 61615  
(800) 752-6651

## ANALYTICAL RESULTS

**Sample:** 6091468-01  
**Name:** SN#1870 JN#7570  
**Matrix:** Waste Water - Composite

**Sampled:** 09/07/16 00:00  
**Received:** 09/09/16 09:20

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
N-Nitrosodi-n-propylamine	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
N-Nitrosodiphenylamine	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Pentachlorophenol	< 10	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Phenanthrene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Phenol	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625
Pyrene	< 5.0	ug/L		09/12/16 07:52	09/15/16 15:57	psb/kaf	EPA 625



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2231 West Altorfer Drive  
Peoria, IL 61615  
(800) 752-6651

## ANALYTICAL RESULTS

Sample: 6091468-02  
Name: SN#1871 JN#7570  
Matrix: Waste Water - Grab

Sampled: 09/07/16 00:00  
Received: 09/09/16 09:20

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
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### General Chemistry - PIA

Total Organic Carbon (TOC)	7.0	mg/L		09/12/16 17:43	09/12/16 17:43	TAS	SM 5310C
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### Volatile Organics - PIA

1,1,1-Trichloroethane	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
1,1,2,2-Tetrachloroethane	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
1,1,2-Trichloroethane	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
1,1-Dichloroethane	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
1,1-Dichloroethene	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
1,2-Dichlorobenzene	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
1,2-Dichloroethane	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
1,2-Dichloropropane	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
1,3-Dichlorobenzene	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
1,3-Dichloropropene - Total	< 15	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624*
1,4-Dichlorobenzene	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
2-Chloroethylvinyl ether	< 5.0	ug/L		09/13/16 00:00	09/13/16 16:00	JJI	EPA 624
Acrolein	< 50	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Acrylonitrile	< 50	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Benzene	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Bromodichloromethane	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Bromoform	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Bromomethane	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Carbon tetrachloride	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Chlorobenzene	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Chloroethane	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Chloroform	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Chloromethane	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
cis-1,2-Dichloroethene	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624*
cis-1,3-Dichloropropene	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Dibromochloromethane	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Ethylbenzene	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Methylene chloride	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Tetrachloroethene	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Toluene	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
trans-1,2-Dichloroethene	< 20	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
trans-1,3-Dichloropropene	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Trichloroethane	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Trichlorofluoromethane	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Vinyl chloride	< 5.0	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624
Xylenes- Total	< 15	ug/L		09/13/16 00:00	09/13/16 18:58	MAB	EPA 624

**PDC Laboratories, Inc.**

2231 West Altorfer Drive

Peoria, IL 61615

(800) 752-6651

**ANALYTICAL RESULTS**

Sample: 6091468-03  
Name: SN#1872 JN#7570  
Matrix: Waste Water

*SBR  
influent*

Sampled: 09/07/16 00:00  
Received: 09/09/16 09:20

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
<b>General Chemistry - PIA</b>							
Phenolics	0.034	mg/L		09/15/16 08:02	09/16/16 10:48	LAM	EPA 420.4 - QC 10-210-00-1-A
<b>Volatile Organics - PIA</b>							
Benzene	< 5.0	ug/L		09/13/16 00:00	09/13/16 19:27	MAB	EPA 624
Ethylbenzene	< 5.0	ug/L		09/13/16 00:00	09/13/16 19:27	MAB	EPA 624
m,p-Xylene	< 5.0	ug/L		09/13/16 00:00	09/13/16 19:27	MAB	EPA 624
o-Xylene	< 5.0	ug/L		09/13/16 00:00	09/13/16 19:27	MAB	EPA 624
Toluene	< 5.0	ug/L		09/13/16 00:00	09/13/16 19:27	MAB	EPA 624
Xylenes- Total	< 15	ug/L		09/13/16 00:00	09/13/16 19:27	MAB	EPA 624

Sample: 6091468-04  
Name: SN#1873 JN#7570  
Matrix: Waste Water

*alga  
effluent*

Sampled: 09/07/16 00:00  
Received: 09/09/16 09:20

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
<b>General Chemistry - PIA</b>							
Phenolics	< 0.0050	mg/L		09/15/16 08:02	09/16/16 10:49	LAM	EPA 420.4 - QC 10-210-00-1-A
<b>Volatile Organics - PIA</b>							
Benzene	< 5.0	ug/L		09/13/16 00:00	09/13/16 19:55	MAB	EPA 624
Ethylbenzene	< 5.0	ug/L		09/13/16 00:00	09/13/16 19:55	MAB	EPA 624
m,p-Xylene	< 5.0	ug/L		09/13/16 00:00	09/13/16 19:55	MAB	EPA 624
o-Xylene	< 5.0	ug/L		09/13/16 00:00	09/13/16 19:55	MAB	EPA 624
Toluene	< 5.0	ug/L		09/13/16 00:00	09/13/16 19:55	MAB	EPA 624
Xylenes- Total	< 15	ug/L		09/13/16 00:00	09/13/16 19:55	MAB	EPA 624





PDC Laboratories, Inc.  
2231 West Altorfer Drive  
Peoria, IL 61615  
(800) 752-6651

## ANALYTICAL RESULTS

Sample: 6091468-05  
Name: SN#1874 JN#7570  
Matrix: Waste Water

*cel gregor*

Sampled: 09/07/16 00:00  
Received: 09/09/16 09:20

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
<b>General Chemistry - PIA</b>							
Phenolics	0.023	mg/L		09/15/16 08:02	09/16/16 12:07	LAM	EPA 420.4 - QC 10-210-00-1-A
<b>Volatile Organics - PIA</b>							
Benzene	< 5.0	ug/L		09/13/16 00:00	09/13/16 20:23	MAB	EPA 624
Ethylbenzene	< 5.0	ug/L		09/13/16 00:00	09/13/16 20:23	MAB	EPA 624
m,p-Xylene	< 5.0	ug/L		09/13/16 00:00	09/13/16 20:23	MAB	EPA 624
o-Xylene	< 5.0	ug/L		09/13/16 00:00	09/13/16 20:23	MAB	EPA 624
Toluene	< 5.0	ug/L		09/13/16 00:00	09/13/16 20:23	MAB	EPA 624
Xylenes- Total	< 15	ug/L		09/13/16 00:00	09/13/16 20:23	MAB	EPA 624



**PDC Laboratories, Inc.**

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Peoria, IL 61615

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**NOTES**

Specific method revisions used for analysis are available upon request.

**Certifications**

**PIA - Peoria, IL**

TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230

Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553

Missouri Department of Natural Resources Certificate of Approval for Microbiological Laboratory Service No. 870

Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)

Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

**SPMO - Springfield, MO**

USEPA DMR-QA Program

**STL - St. Louis, MO**

TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389

Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050

Drinking Water Certifications: Missouri (1050)

Missouri Department of Natural Resources

\* Not a TNI accredited analyte

Certified by: Kurt Stepping, Senior Project Manager



60091468-5  
JAH

1113 Fay Street \* Columbia, Missouri 65201 \* (573) 449-2646  
802 El Dorado Drive \* Jefferson City, Missouri 65101 \* (573) 636-3303  
1175 W. Main Street \* Sedalia, Missouri 65301 \* (660) 826-8618

Sample ID	Date/Time Collected	Tests Requested	Sample Container	Preserv.	Comments
SN 1870 Wastewater composite	9-7-16	Semi-volatile organics - 625" Residues - 8081 PCBs - 8082	2 - 1000cc	NP	JN 7570
SN 1871 Wastewater Grab	9-7-16	Volatile organics - 624 extended include 2-CBVE Total organic carbon (TOC)	vial vial 2 vials 2 vials	HCl H <sub>2</sub> SO <sub>4</sub> NP H <sub>2</sub> SO <sub>4</sub>	
SN 1872 Wastewater	9-7-16	BTEX Total Phenols	2 vials 500cc	HCl H <sub>2</sub> SO <sub>4</sub>	
SN 1873 SN 1874 Wastewater	9-6-16	BTEX Total Phenols	2 vials 500cc	HCl H <sub>2</sub> SO <sub>4</sub>	↓
		Please report these in Excel form			

Sample Collected By \_\_\_\_\_ Company/Organization Engineering Surveys & Services

Date/Time \_\_\_\_\_ Address Columbia, Mo

Samples Relinquished By/Phone	Samples Received By	Date/Time
[Signature] Adams		8 Sep 16 12:00 p.m.
	[Signature]	9/9/16 SC