

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

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

Permit No.	MO-0022853
Owner:	City of Jackson
Address:	101 Court Street, Jackson, MO 63755
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Jackson WWTP
Facility Address:	2230 Lee Avenue, Jackson, MO 63755
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.

January 1, 2020
Effective Date

December 31, 2024
Expiration Date


Edward B. Galbraith, Director, Division of Environmental Quality


Chris Wieberg, Director, Water Protection Program

FACILITY DESCRIPTION (continued):

Outfall #001 – POTW – SIC #4952

The use or operation of this facility shall be by or under the supervision of a Certified “B” Operator.

Screening / influent lift station / 2 oxidation ditches / 3 final clarifiers / UV disinfection / effluent lift station / aerobic digester / sludge processing tank / sludge holding tank / 2 sludge storage tanks/ sludge is land applied

Design population equivalent is 17,900.

Design flow is 2.4 million gallons per day.

Actual flow is 1.73 million gallons per day.

Design sludge production is 376 dry tons/year.

Legal Description:	Landgrant 00220, Cape Girardeau County
UTM Coordinates:	X=794152, Y=4140178
Receiving Stream:	Goose Creek (C)
First Classified Stream and ID:	Goose Creek (C) (2201)
USGS Basin & Sub-watershed No.:	(07140107-0602)

Permitted Feature INF – Influent Monitoring Location – Headworks

Legal Description:	Landgrant 00244, Cape Girardeau County
UTM Coordinates:	X=793971, Y=4140233

Permitted Feature SM2 – Instream Monitoring

Instream monitoring location – Downstream – Goose Creek – See Special Conditions #18.

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 Table A-1 shall become effective on January 1, 2020 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: M						
Flow	MGD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand ₅	mg/L		20	20	once/week	composite**
Total Suspended Solids	mg/L		45	30	once/week	composite**
<i>E. coli</i> (Note 1, Page 6)	#/100mL		1,030	206	once/week	grab
Ammonia as N	mg/L	*		*	once/week	composite**
Total Phosphorus	mg/L	*		*	once/month	composite**
Total Kjeldahl Nitrogen	mg/L	*		*	once/month	composite**
Nitrate + Nitrite	mg/L	*		*	once/month	composite**
EFFLUENT PARAMETER(S)	UNITS	MINIMUM		MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
pH – Units***	SU	6.5		9.0	once/week	grab
EFFLUENT PARAMETER(S)			UNITS	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Biochemical Oxygen Demand ₅ – Percent Removal (Note 2, Page 6)			%	85	once/month	calculated
Total Suspended Solids – Percent Removal (Note 2, Page 6)			%	85	once/month	calculated
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY ; THE FIRST REPORT IS DUE FEBRUARY 28, 2020 . 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.

OUTFALL #001	TABLE A-2. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations in Table A-2 shall become effective on January 1, 2020 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: Q						
Oil & Grease	mg/L	*		*	once/quarter****	grab
Cadmium, Total Recoverable	µg/L	*		*	once/quarter****	composite**
Chromium III, Total Recoverable	µg/L	*		*	once/quarter****	composite**
Chromium VI, Dissolved	µg/L	*		*	once/quarter****	composite**
Copper, Total Recoverable	µg/L	*		*	once/quarter****	composite**
Cyanide, amenable to chlorination (Note 3)	µg/L	*		*	once/quarter****	composite**
Iron, Total Recoverable	µg/L	*		*	once/quarter****	composite**
Lead, Total Recoverable	µg/L	*		*	once/quarter****	composite**
Nickel, Total Recoverable	µg/L	*		*	once/quarter****	composite**
Silver, Total Recoverable	µg/L	*		*	once/quarter****	composite**
Thallium, Total Recoverable	µg/L	*		*	once/quarter****	composite**
Zinc, Total Recoverable	µg/L	*		*	once/quarter****	composite**
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY ; THE FIRST REPORT IS DUE APRIL 28, 2020 .						

* Monitoring requirement only.

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

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

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

Note 3 – The Department has determined the current acceptable ML of Cyanide amenable to chlorination to be 10 µg/L when using SM 4500-CN-G. Cyanides Amenable to Chlorination after Distillation in *Standard Methods for the Examination of Water and Wastewater*, 22nd Edition. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values.

OUTFALL #001	TABLE A-3. WHOLE EFFLUENT TOXICITY FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS			
	EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS	MONITORING REQUIREMENTS
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations in Table A-3 shall become effective on January 1, 2020 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:				
Limit Set: WC				
Chronic Whole Effluent Toxicity (Note 4)		TU _c	*	once/year composite**
WET TEST REPORTS SHALL BE SUBMITTED ANNUALLY ; THE FIRST REPORT IS DUE JANUARY 28, 2021 .				

* Monitoring requirement only.

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

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

Note 2 – Influent sampling is not required when the facility does not discharge effluent during the reporting period. Samples are to be collected prior to any treatment process. Percent Removal is calculated by the following formula: [(Average Influent – Average Effluent) / Average Influent] x 100% = 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.

Note 4 –The Chronic WET test shall be conducted once per year. See Special Condition #17 for additional requirements.

PERMITTED FEATURE INF	TABLE B-1. INFLUENT MONITORING REQUIREMENTS					
	PARAMETER(S)	UNITS	DAILY MAXIMUM	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: IM						
The monitoring requirements in Table B-1 shall become effective on January 1, 2020 and remain in effect until expiration of the permit. The influent wastewater shall be monitored by the permittee as specified below:						
Total Phosphorus		mg/L	*	*	once/month	composite**
Total Kjeldahl Nitrogen		mg/L	*	*	once/month	composite**
Ammonia as N		mg/L	*	*	once/month	composite**
Nitrites + Nitrates		mg/L	*	*	once/month	composite**
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY ; THE FIRST REPORT IS DUE FEBRUARY 28, 2020 .						

* Monitoring requirement only.

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

PERMITTED FEATURE <u>SM2</u>	TABLE C-1. INSTREAM MONITORING REQUIREMENTS					
The monitoring requirements in Table C-1 shall become effective on <u>January 1, 2020</u> and remain in effect until expiration of the permit. The stream shall be monitored by the permittee as specified below:						
PARAMETER(S)	UNITS	MONITORING REQUIREMENTS				
		DAILY MAXIMUM		MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: DM						
Hardness, Total	mg/L	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY ; THE FIRST REPORT IS DUE <u>FEBRUARY 28, 2020</u> .						

* Monitoring requirement only.

D. STANDARD CONDITIONS

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

E. 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 Intent to discharge (NOIs);
 - (2) Notices of Termination (NOTs);
 - (3) No Exposure Certifications (NOEs);
 - (4) Low Erosivity Waivers and Other Waivers from Stormwater Controls (LEWs); and
 - (5) Bypass reporting, See Special Condition #10 for 24-hr. bypass reporting requirements.
- (d) Electronic Submissions. To access the eDMR system, use the following link in your web browser: <https://edmr.dnr.mo.gov/edmr/E2/Shared/Pages/Main/Login.aspx>.
- (e) Waivers from Electronic Reporting. The permittee must electronically submit compliance monitoring data and reports unless a waiver is granted by the Department in compliance with 40 CFR Part 127. The permittee may obtain an electronic reporting waiver by first submitting an eDMR Waiver Request Form: <http://dnr.mo.gov/forms/780-2692-f.pdf>. The Department will either approve or deny this electronic reporting waiver request within 120 calendar days. Only permittees with an approved waiver request may submit monitoring data and reports on paper to the Department for the period that the approved electronic reporting waiver is effective.

E. SPECIAL CONDITIONS (continued)

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. This does not include instream monitoring locations.
4. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(2)(B) within the timeframe allotted by the continuing authority with its notice of its availability. The permittee shall obtain Department approval for closure according to section 10 CSR 20-6.010(12) or alternate use of these facilities.
5. Report as no-discharge when a discharge does not occur during the report period. For instream samples, report as “no flow” if no stream flow occurs during the report period.
6. 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) 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 calculating monthly averages, one-half of the method detection limit (MDL) should be used instead of a zero. Where all data are below the MDL, the “<MDL” shall be reported as indicated in item (c).
7. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
8. The permittee shall comply with any applicable requirements listed in 10 CSR 20-9, unless the facility has received written notification that the Department has approved a modification to the requirements. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. To request a modification of the operational control testing requirements listed in 10 CSR 20-9, the permittee shall submit a permit modification application and fee to the Department requesting a deviation from the operational control monitoring requirements. If the request is approved, the Department will modify the permit.
9. 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 via the Electronic Discharge Monitoring Report (eDMR) Submission System annually, by January 28th, for the previous calendar year. The report shall contain the following information:

- (a) A summary of the efforts to locate and eliminate sources of excessive infiltration and inflow into the collection system serving the facility for the previous year.
- (b) A summary of the general maintenance and repairs to the collection system serving the facility for the previous year.
- (c) A summary of 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.

E. SPECIAL CONDITIONS (continued)

10. 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 Southeast 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.
11. The facility must be sufficiently secured to restrict entry by children, livestock and unauthorized persons as well as to protect the facility from vandalism.
12. An all-weather access road shall be provided to the treatment facility.
13. 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.
14. The outfall sewer shall be protected against the effects of floodwater, ice or other hazards as to reasonably insure its structural stability and freedom from stoppage. The outfall shall be maintained so that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters.
15. 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 February 2009.
 - (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.
 - i. 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.
 - ii. 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.
 - iii. The routine inspection reports must be kept onsite with the SWPPP and maintained for a period of five (5) years.
 - iv. 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;

E. SPECIAL CONDITIONS (continued)

- vi. Any incidence of noncompliance observed or a certification stating that the facility is in compliance with Special Condition E.18.
 - (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.
16. 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.
 - (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.
17. 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:
 - o The fathead minnow, *Pimephales promelas* (Survival and Growth Test Method 1000.0).
 - o 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 Allowable Effluent Concentration (AEC) is 100%, the dilution series is: 100%, 50%, 25%, 12.5%, and 6.25%.
 - (e) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
 - (f) 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.

E. SPECIAL CONDITIONS (continued)

18. Receiving Water Monitoring Conditions

- (a) Downstream receiving water samples should be taken at a point downstream of the effluent, where the water is visibly flowing down stream, and at least 50 feet downstream of the outfall pipe. In the event that a safe, accessible location is not present at the location(s) listed, a suitable location can be negotiated with the Department. Samples should be taken at least four feet from the bank or from the middle of the stream (whichever is less) and 6-inches below the surface if possible.
- (b) When conducting in-stream monitoring, the permittee shall record observations that include: the time of day, weather conditions, unusual stream characteristics (e.g., septic conditions, algae growth, etc.), the stream segment (e.g., riffle, pool or run) from where the sample was collected. These observations shall be submitted with the sample results.
- (c) Samples shall not be collected from areas with especially turbulent flow, still water or from the stream bank, unless these conditions are representative of the stream reach or no other areas are available for sample collection. Sampling should not be made when significant precipitation has occurred recently. The sampling event should be terminated and rescheduled if any of the following conditions occur:
 - If turbidity in the stream increases notably; or
 - If rainfall over the past two weeks exceeds 2.5 inches or exceeds 1 inch in the last 24 hours
- (d) Always use the correct sampling technique and handling procedure specified for the parameter of interest. Please refer to the latest edition of Standard Methods for the Examination of Water and Wastewater for further discussion of proper sampling techniques. All analyses must be conducted in accordance with an approved EPA method. Meters shall be calibrated immediately (within 1 hour) prior to the sampling event.
- (e) Please contact the Department if you need additional instructions or assistance.

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

- (a) The permittee shall submit to the Department via the Electronic Discharge Monitoring Report (eDMR) Submission System on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year. At a minimum, the report shall include the following:
 - (1) An updated list of the Permittee's Industrial Users, including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Permittee shall provide a brief explanation of each deletion. This list shall identify which Industrial Users are subject to categorical pretreatment Standards and specify which Standards are applicable to each Industrial User. The list shall indicate which Industrial Users are subject to local standards that are more stringent than the categorical Pretreatment Standards. The Permittee shall also list the Industrial Users that are subject only to local Requirements;
 - (2) A summary of the status of Industrial User compliance over the reporting period;
 - (3) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and
 - (4) Any other relevant information requested by the Department.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0022853
JACKSON WWTP

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.

Part I – Facility Information

Facility Type: POTW - SIC #4952

Facility Description: Screening / influent lift station / 2 oxidation ditches / 3 final clarifiers / UV disinfection / effluent lift station / aerobic digester / sludge processing tank / sludge holding tank / 2 sludge storage tanks/ sludge is land applied

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

✓ No.

Application Date: 07/05/2017

Expiration Date: 12/31/2017

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
#001	3.72	Secondary	Domestic

Facility Performance History:

The facility failed to meet final effluent limits for Ammonia on the March 2015 Discharge Monitoring Report (DMR). The facility failed to meet final effluent limits for Biochemical Oxygen Demand₅ on the May 2014 and March 2015 DMRs. The facility failed to meet final effluent limits for Total Recoverable Copper on the 3rd and 4th Quarter 2015, and 2nd Quarter 2016 DMRs. The facility failed to meet final limits for *E. coli* on the April and May 2017 DMRs. The facility failed to meet final effluent limits for Total Recoverable Silver on the 3rd Quarter 2013 DMR. The facility failed to meet final effluent limits for Total Suspended Solids on the May 2014 and March 2015 DMRs. The facility failed to meet the final effluent limits for Total Recoverable Zinc on the 1st, 2nd, and 3rd Quarter 2013 DMRs. The City conducted a Water Effects Ratio study in 2012 to address the Total Recoverable Copper violations. This facility was last inspected on March 27, 2014. The conditions of the facility at the time of inspection were found to be satisfactory.

Comments:

Changes in this permit include the addition of Thallium and Iron monitoring, influent and effluent monitoring for Total Kjeldahl Nitrogen, Nitrate + Nitrite, and Ammonia (influent only), changed Ammonia to Monitoring Only, and the removal of effluent limits for Oil & Grease, Ammonia (Summer), Lead, and Zinc and changing them to a monitoring only requirement. The permit also includes the removal of the Acute Whole Effluent Toxicity (WET) Test, and the addition of annual Chronic WET tests. See Part VI of the Fact Sheet for further information regarding the addition, revision, and removal of effluent parameters. Special conditions were updated to include the addition of the pretreatment requirement regarding the streamlining update. Low-flow values for the receiving stream were obtained from USGS StreamStats tool, located at <https://streamstats.usgs.gov/ss/>.

Part II – Operator Certification Requirements

- ✓ This facility is required to have a certified operator.

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

Owned or operated by or for a

☒ - Municipalities

☐ - Federal agency

☐ - County

☐ - Public Sewer District

☐ - State agency

☐ - Private Sewer Company regulated by the Public Service Commission

☐ - Public Water Supply Districts

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

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

Operator's Name: Kenny J. Gibbar

Certification Number: 4715

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 facility is a mechanical plant and is required to conduct operational control monitoring as follows:

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)
Dissolved Oxygen – Aerobic Digester	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)
Goose Creek	C	2201	AQL, WBC-B, SCR, HHP, IRR, LWW	07140107-0602	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 1st 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 which may be 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 (C, E, P, P1)	LOW-FLOW VALUES (CFS)*		
	1Q10	7Q10	30Q10
Goose Creek (C)	0.0555	0.077	0.106

* Low-flow values obtained from USGS StreamStats. <https://streamstats.usgs.gov/ss/>. See Appendix: Receiving Stream Low-Flow Values

MIXING CONSIDERATIONS

MIXING CONSIDERATIONS TABLE:

MIXING ZONE (CFS) [10 CSR 20-7.031(5)(A)4.B.(I)(a)]			ZONE OF INITIAL DILUTION (CFS) [10 CSR 20-7.031(5)(A)4.B.(I)(b)]		
1Q10	7Q10	30Q10	1Q10	7Q10	30Q10
0	0	0	0	0	N/A

RECEIVING STREAM MONITORING REQUIREMENTS:

Facilities with a design flow greater than 100,000 gallons per day are required to sample their effluent quarterly for Total Phosphorus, Total Kjeldahl Nitrogen, Ammonia, and Nitrate + Nitrite per 10 CSR 20-7.015(9)(D)8.

Downstream sampling for Total Hardness is included as the permit includes metals that the toxicity of the metals are hardness dependent.

Permitted Feature SM2. (Downstream)

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.
 - Ammonia limits were removed as the permit writer did not observe a reasonable potential to violate Water Quality Standards and changed to a monitoring only requirement.
 - Zinc limits were removed as the permit writer did not observe a reasonable potential to violate Water Quality Standards and changed to a monitoring only requirement.
 - Oil & Grease limits were removed as the permit writer did not observe a reasonable potential to violate Water Quality Standards and changed to a monitoring only requirement.
 - Lead limits were removed as the permit writer conducted a Reasonable Potential Analysis and that analysis showed that there was no reasonable potential to violate Water Quality Standards, and was changed to a monitoring only requirement.
 - The Department determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b).
 - **General Criteria.** The previous permit contained a special condition which described a specific set of prohibitions related to general criteria found in 10 CSR 20-7.031(4). In order to comply with 40 CFR 122.44(d)(1), the permit writer has conducted reasonable potential determinations for each general criterion and established numeric effluent limitations where reasonable potential exists. While the removal of the previous permit special condition creates the appearance of backsliding, since this permit establishes numeric limitations where reasonable potential to cause or contribute to an excursion of the general criteria exists the permit maintains sufficient effluent limitations and monitoring requirements in order to protect water quality, this permit is equally protective as compared to the previous permit. Therefore, given this new information, and the fact that the previous permit special condition was not consistent with 40 CFR 122.44(d)(1), an error occurred in the establishment of the general criteria as a special condition of the previous permit. Please see Part VI – Effluent Limits Determination for more information regarding the reasonable potential determinations for each general criterion related to this facility.

ANTIDEGRADATION:

In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(3)], 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, a statement waiving preferential status from each existing higher preference authority, providing the waiver does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the Department.

BIOSOLIDS & SEWAGE SLUDGE:

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

<http://extension.missouri.edu/main/DisplayCategory.aspx?C=74>, items WQ422 through WQ449.

- ✓ 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 for optional use and can be 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>. A request must be made for each facility. If more than one facility is owned or operated by a single entity, then the entity must submit a separate request for each facility based on its specific circumstances. An approved waiver is non-transferable.

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

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

NUMERIC LAKE NUTRIENT CRITERIA

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

PRETREATMENT PROGRAM:

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

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

Several special conditions pertaining to the permittee's pretreatment program may be included in the permit, and are as follows:

- Implementation and enforcement of the program,
 - Annual pretreatment report submittal,
 - Submittal of list of industrial users,
 - Technical evaluation of need to establish local limitations, and
 - Submittal of the results of the evaluation
- ✓ This permittee has an approved pretreatment program in accordance with the requirements of [40 CFR Part 403] and [10 CSR 20-6.100] and is expected to implement and enforce its approved program.

REASONABLE POTENTIAL ANALYSIS (RPA):

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

In accordance with [40 CFR Part 122.44(d)(1)(iii)] if the permit writer determines that any given pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

- ✓ 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 (BOD₅) 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 does not have a Department approved Sewer Extension Authority Supervised Program.

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_e = effluent concentration
Cs = upstream concentration Q_e = effluent flow
Q_s = 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 BOD₅ 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 NH₃)
- ☒ 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, or to a stream with an EPA approved TMDL.

Part VI – Effluent Limits Determination

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

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

- | | |
|---|---|
| <input type="checkbox"/> Missouri or Mississippi River [10 CSR 20-7.015(2)] | <input type="checkbox"/> Special Streams [10 CSR 20-7.015(6)] |
| <input type="checkbox"/> Lakes or Reservoirs [10 CSR 20-7.015(3)] | <input type="checkbox"/> Subsurface Waters [10 CSR 20-7.015(7)] |
| <input type="checkbox"/> Losing Streams [10 CSR 20-7.015(4)] | <input checked="" type="checkbox"/> All Other Waters [10 CSR 20-7.015(8)] |
| <input type="checkbox"/> Metropolitan No-Discharge Streams [10 CSR 20-7.015(5)] | |

OUTFALL #001 – MAIN FACILITY OUTFALL

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

EFFLUENT LIMITATIONS TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
Flow	MGD	1	*		*	*/	1/day	monthly	T
BOD ₅	mg/L	1		20	20	20/20	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	*		*	5.4/1.0 11.8/2.8	1/week	monthly	C
Total Phosphorus	mg/L	1	*		*	*/	1/month	monthly	C
Total Kjeldahl Nitrogen	mg/L	1	*		*	*/	1/month	monthly	C
Nitrate + Nitrite	mg/L	1	*		*	*/	1/month	monthly	C
Chronic Whole Effluent Toxicity	TUc	1, 9	*			*	1/year	annually	C
PARAMETER	Unit	Basis for Limits	Minimum		Maximum	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
pH	SU	1	6.5		9.0	6.5-9.0	1/week	monthly	G
PARAMETER	Unit	Basis for Limits	Daily Minimum		Monthly Avg Min	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
BOD ₅ Percent Removal	%	1			85	85	1/month	monthly	M
TSS Percent Removal	%	1			85	85	1/month	monthly	M
PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
Oil & Grease	mg/L	1, 3	*		*	15/10	1/quarter	quarterly	G
Cadmium, TR	µg/L	7	*		*	*/	1/quarter	quarterly	C
Chromium III, TR	µg/L	7	*		*	*/	1/quarter	quarterly	C
Chromium VI, D	µg/L	7	*		*	*/	1/quarter	quarterly	C
Copper, TR	µg/L	7	*		*	*/	1/quarter	quarterly	C
Cyanide, amenable to chlorination	µg/L	7	*		*	*/	1/quarter	quarterly	C
Iron, TR	µg/L	7	*		*	*/	1/quarter	quarterly	C
Lead, TR	µg/L	7	*		*	16.2/7.7	1/quarter	quarterly	C
Nickel, TR	µg/L	7	*		*	*/	1/quarter	quarterly	C
Silver, TR	µg/L	7	*		*	*/	1/quarter	quarterly	C
Thallium, TR	µg/L	7	*		*	*/	1/quarter	quarterly	C
Zinc, TR	µg/L	7	*		*	249.8/ 107.4	1/quarter	quarterly	C

* - 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

Basin 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. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.

- **Biochemical Oxygen Demand (BOD₅)**. Operating permit retains 20 mg/L as a Weekly Average and 20 mg/L as a Monthly Average from the previous permits.
- **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. Please see the **CATEGORIZATION OF WATERS OF THE STATE** sub-section of the **Effluent Limits Determination**.
- **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), to protect Whole Body Contact Recreation (B) designated use of the receiving stream, as per 10 CSR 20-7.031(5)(C). 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 = 5th root of (1)(4)(6)(10)(5) = 5th root of 1,200 = 4.1 #/100mL.
- **Total Ammonia Nitrogen**. The permit writer did not observe a reasonable potential to violate Water Quality Standards for this parameter. Limits were removed and replaced with monitoring only requirements. This data will be reviewed during the next permit renewal.
- **Oil & Grease**. The permit writer did not observe a reasonable potential to violate Water Quality Standards for this parameter. Limits were moved and replaced with monitoring only requirements. This data will be reviewed during the next permit renewal.
- **Total Phosphorus, Total Kjeldahl Nitrogen, Nitrate + Nitrite**. Monitoring required for facilities greater than 100,000 gpd design flow per 10 CSR 20-7.015(9)(D)8. Nitrate + Nitrite can be analyzed together or separately.
- **pH**. – 6.5-9.0 SU. pH limitations of 6.0-9.0 SU [10 CSR 20-7.015] are not protective of the in-stream Water Quality Standard, which states that water contaminants shall not cause pH to be outside the range of 6.5-9.0 SU.
- **Cyanide, Amenable to Chlorination**. Staff conducted a RPA on Cyanide, Amenable to Chlorination and determined that effluent from this facility does not have potential to cause or contribute to excursions of Missouri's Water Quality Standards. However, this facility receives industrial process wastewater from a Categorical Industry with an Effluent Limitation Guideline that establishes Cyanide as a Pollutant of Concern. Therefore, the monitoring only requirement shall be retained. Please see **Appendix – RPA Results**.
- **Biochemical Oxygen Demand (BOD₅) 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 Biochemical Oxygen Demand 5-day (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for BOD₅.
- **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 Biochemical Oxygen Demand 5-day (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for TSS.

Metals

Due to the absence of contemporaneous effluent and instream data for total recoverable metals, dissolved metals, hardness, and total suspended solids with which to calculate metals translators, partitioning between the dissolved and absorbed phases was assumed to be minimal (Section 5.7.3, EPA/505/2-90-001). Freshwater criteria conversion factors for dissolved metals were used as the metals translator as recommended in guidance (Section 1.3, 1.5.3, and Table 1, EPA 823-B-96-007). If concurrent site-specific data for total recoverable metals, dissolved metals, hardness, and total suspended solids are provided to the Department, partitioning evaluations may be considered and site-specific translators developed. A downstream water hardness of 295 mg/L was calculated. This value represents the 50th percentile (median) for all sample data submitted to the Department by the facility in compliance with the In-stream monitoring requirements of the operating permit.

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Cadmium	0.899	0.864
Copper	0.960	0.960

Conversion factors for Cd are hardness dependent. Values calculated using equation found in Section 1.3 of EPA 823-B-96-007 and hardness = 295 mg/L.

- **Cadmium, Total Recoverable.** Staff conducted a RPA on Total Recoverable Cadmium and determined that effluent from this facility does not have potential to cause or contribute to excursions of Missouri's Water Quality Standards. However, this facility receives industrial process wastewater from a Categorical Industry with an Effluent Limitation Guideline that establishes Cadmium as a Pollutant of Concern. Therefore, the monitoring only requirement shall be retained. Please see Appendix – RPA Results.
- **Copper, Total Recoverable.** Staff conducted a RPA on Total Recoverable Copper and determined that effluent from this facility does not have potential to cause or contribute to excursions of Missouri's Water Quality Standards. However, this facility receives industrial process wastewater from a Categorical Industry with an Effluent Limitation Guideline that establishes Copper as a Pollutant of Concern. Therefore, the monitoring only requirement shall be retained. Please see Appendix – RPA Results.
- **Zinc, Total Recoverable.** Staff conducted a RPA on Total Recoverable Zinc and determined that effluent from this facility does not have potential to cause or contribute to excursions of Missouri's Water Quality Standards. However, this facility receives industrial process wastewater from a Categorical Industry with an Effluent Limitation Guideline that establishes Zinc as a Pollutant of Concern. Therefore, the monitoring only requirement shall be retained. Please see Appendix – RPA Results.
- **Chromium III, Total Recoverable.** Staff conducted a RPA on Total Recoverable Chromium III and determined that effluent from this facility does not have potential to cause or contribute to excursions of Missouri's Water Quality Standards. However, this facility receives industrial process wastewater from a Categorical Industry with an Effluent Limitation Guideline that establishes Chromium as a Pollutant of Concern. Therefore, the monitoring only requirement shall be retained. Please see Appendix – RPA Results.
- **Chromium VI, Dissolved.** Staff conducted a RPA on Dissolved Chromium VI and determined that effluent from this facility does not have potential to cause or contribute to excursions of Missouri's Water Quality Standards. However, this facility receives industrial process wastewater from a Categorical Industry with an Effluent Limitation Guideline that establishes Chromium as a Pollutant of Concern. Therefore, the monitoring only requirement shall be retained. Please see Appendix – RPA Results.
- **Iron, Total Recoverable.** This facility receives industrial wastewater from an industry that uses iron in their processes. The wastewaters from this type of industry may contain this pollutant. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards for Iron (Total Recoverable). The data collected will be reviewed during the next permit renewal.
- **Lead, Total Recoverable.** Staff conducted a RPA on Total Recoverable Lead and determined that effluent from this facility does not have potential to cause or contribute to excursions of Missouri's Water Quality Standards. However, this facility receives industrial process wastewater from a Categorical Industry with an Effluent Limitation Guideline that establishes Lead as a Pollutant of Concern. Therefore, the monitoring only requirement shall be retained. Please see Appendix – RPA Results.
- **Nickel, Total Recoverable.** Staff conducted a RPA on Total Recoverable Nickel and determined that effluent from this facility does not have potential to cause or contribute to excursions of Missouri's Water Quality Standards. However, this facility receives industrial process wastewater from a Categorical Industry with an Effluent Limitation Guideline that establishes Nickel as a Pollutant of Concern. Therefore, the monitoring only requirement shall be retained. Please see Appendix – RPA Results.
- **Silver, Total Recoverable.** Staff conducted a RPA on Total Recoverable Silver and determined that effluent from this facility does not have potential to cause or contribute to excursions of Missouri's Water Quality Standards. However, this facility receives industrial process wastewater from a Categorical Industry with an Effluent Limitation Guideline that establishes Silver as a Pollutant of Concern. Therefore, the monitoring only requirement shall be retained. Please see Appendix – RPA Results.
- **Thallium, Total Recoverable.** The expanded effluent test conducted by the facility and submitted with the permit renewal application documented a Thallium sample result of non-detect ($< 20 \mu\text{g/L}$), however the detection limit was above the Water Quality Standards for that pollutant ($6.3 \mu\text{g/L}$). Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards for Thallium (Total Recoverable). The data collected will be reviewed during the next permit renewal.
- **Removed Parameter.** The permit writer removed the Acute WET test as it was replaced by an annual Chronic WET test.

Whole Effluent Toxicity

- **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.

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

Sampling Frequency Justification: Sampling and Reporting Frequency was retained from previous permit, except for Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite sampling, which was set to monthly per 10 CSR 20-7.015(9)(D)8. Weekly sampling is required for *E. coli*, per 10 CSR 20-7.015(9)(D)6.A.

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

Chronic Whole Effluent Toxicity

- ☒ -No less than **ONCE/YEAR:**
☒ -Facility incorporates a pretreatment program and dilution of the receiving stream is less than 100:1.

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

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 ****
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 + Nitrates	mg/L	1	*		*	***	1/month	monthly	C

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

**** - C = 24-hour composite
 G = Grab

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 | |

Permitted Feature INF – DERIVATION AND DISCUSSION OF MONITORING REQUIREMENTS

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

Sampling Frequency Justification: The sampling and reporting frequency for Total Phosphorus, Total Kjeldahl Nitrogen, Ammonia, and Nitrate + Nitrite per 10 CSR 20-7.015(9)(D)8.B.

Sampling Type Justification: Sample types for Total Phosphorus, Total Kjeldahl Nitrogen, Ammonia, and Nitrate + Nitrite align with those same effluent parameters. Samples should be analyzed as soon as possible after collection and/or properly preserved according to method requirements.

PERMITTED FEATURE SM2 – INSTREAM MONITORING (DOWNSTREAM)

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.

MONITORING REQUIREMENTS TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
Total Hardness	mg/L	1, 3	*		*	***	monthly	monthly	G

* - Monitoring requirement only.

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

**** - C = 24-hour composite

G = Grab

M = Measured /calculated

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 | |

PERMITTED FEATURE SM2 – DERIVATION AND DISCUSSION OF MONITORING REQUIREMENTS:

- **Total Hardness.** Monitoring only requirement as the metals parameters contained in the permit are hardness based. This data will be used in the next permit renewal.

Sampling Frequency Justification: The sampling and reporting frequency for Total Hardness has been established as monthly to ensure that adequate data representing the seasonal and monthly fluctuations, is provided.

Sampling Type Justification: As Total Hardness samples must be immediately preserved; these samples are to be collected as a grab.

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 recent Report of Compliance Inspection for the inspection conducted March 27, 2014, 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 effluent limitations that are more stringent than 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 Jackson

New Permit Requirements			
New monthly influent monitoring requirements for Total Phosphorus, Total Kjeldahl Nitrogen, Nitrate + Nitrite, and Ammonia, new monthly effluent monitoring requirements for Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite, new quarterly monitoring requirements for Total Recoverable Thallium and Total Recoverable Iron, and new annual requirements for Chronic WET tests.			
Estimated Annual Cost	Annual Median Household Income (MHI)	Estimated Monthly User Rate	User Rate as a Percent of MHI
\$11,273	\$59,101	\$28.59	0.6%

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 contains a permit requirement for Cadmium, Copper, and Zinc which water quality criteria has been modified by twenty-five percent or more since the issuance of the previous permit. The change and pending approval of these parameters by the EPA is environmentally necessary to ensure the criteria are reflective of the most current science available while protecting the water quality standards of the receiving stream without placing needless and overly burdensome requirements on regulated entities.

PERMIT SYNCHRONIZATION:

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

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 October 11, 2019 to November 11, 2019. Responses to the Public Notice of this operating permit did not warrant the modification of effluent limits. The responses did warrant the modification of the terms and conditions of this permit. Changes that were made included: Correcting the design flow of the facility to 2.4 million gallons per day and removing Permitted Feature SM1.

DATE OF FACT SHEET: NOVEMBER 25, 2019

COMPLETED BY:

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

Appendices

APPENDIX - CLASSIFICATION WORKSHEET:

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Maximum Population Equivalent (P.E.) served , peak day	1 pt./10,000 PE or major fraction thereof. (Max 10 pts.)	2
Design Flow (avg. day) or peak month's flow (avg. day) whichever is larger	1 pt. / MGD or major fraction thereof. (Max 10 pts.)	3
Effluent Discharge		
Missouri or Mississippi River	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	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	
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	
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 ONE (1)	----	35

APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Solids Handling		
Sludge Holding	5	5
Anaerobic digestion	10	
Aerobic digestion	6	6
Evaporative sludge drying	2	
Mechanical dewatering	8	
Solids reduction (incineration, wet oxidation)	12	
Land application	6	6
Disinfection		
Chlorination or comparable	5	
On-site generation of disinfectant (except UV light)	5	
Dechlorination	2	
UV light	4	4
Required Laboratory Control Performed by Plant Personnel (highest level only)		
Lab work done outside the plant	0	
Push – button or visual methods for simple test such as pH, settleable solids	3	
Additional procedures such as DO, COD, BOD, titrations, solids, volatile content	5	5
More advanced determinations, such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	7	
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	
Total from page TWO (2)	----	26
Total from page ONE (1)	---	35
Grand Total	---	61

- ☐ - 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	0.76	1.5	0.76	54.00	0.557/0.01	1.84	1.37	NO
Total Ammonia as Nitrogen (Winter) mg/L	12.1	0.33	3.1	0.33	52.00	0.334/0.025	1.42	0.99	NO
Cadmium, TR	15.2	1.24	1.9	1.24	11.00	0.5/0.038	0.7	2.48	NO
Chromium III, TR	3940.6	3.03	188.4	3.03	36.00	3/2	0.1	1.01	NO
Chromium VI, D	15.0	2.50	10.0	2.50	36.00	2.5/2.5	0.0	1.00	NO
Copper, TR	108.6	61.06	65.8	61.06	40.00	32/2	0.6	1.91	NO
Cyanide	22.0	2.50	5.0	2.50	36.00	2.5/2.5	0.0	1.00	NO
Lead, TR	275.1	6.19	10.7	6.19	22.00	2.5/0.131	0.9	2.48	NO
Nickel, TR	1052.8	67.08	117.0	67.08	36.00	47/2.7	0.9	1.43	NO
Silver, TR	19.6	5.00	NA	NA	36.00	5/0.5	0.7	1.00	NO
Zinc, TR	269.6	82.19	267.4	82.19	18.00	50.5/14	0.3	1.63	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).

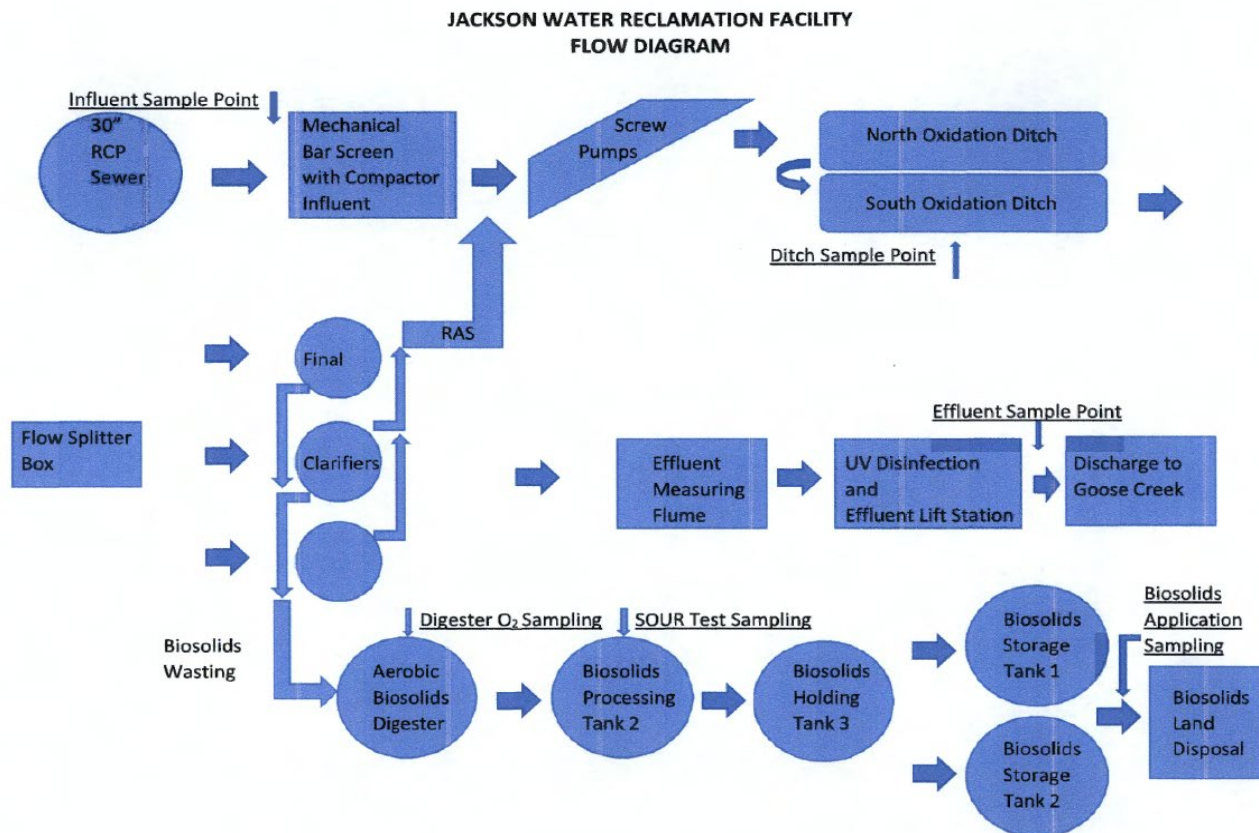
n – Is the number of samples.

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 – ALTERNATIVE: Flow diagram



FORM B, PART A, 7.1

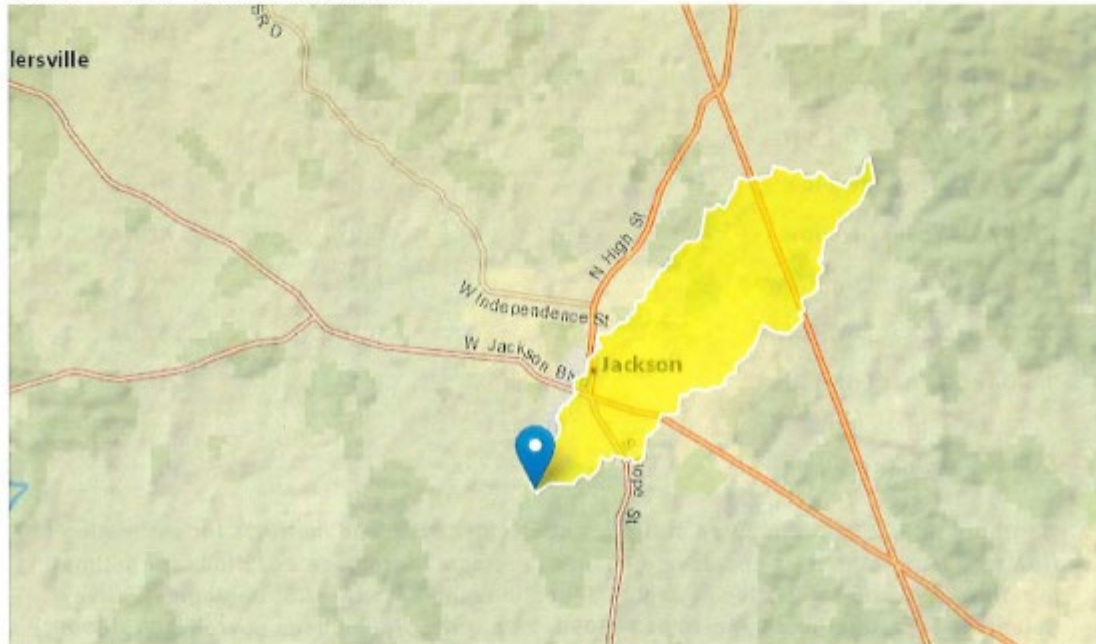
APPENDIX – Receiving Stream Low-Flow Values

10/24/2019

StreamStats

City of Jackson StreamStats Report

Region ID: MO
Workspace ID: M020191024185336379000
Clicked Point (Latitude, Longitude): 37.36071, -89.67929
Time: 2019-10-24 13:53:53 -0500



Watershed delineated from facility outfall location

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	5.68	square miles
STREAM_VARG	Streamflow variability index as defined in WRIR 02-4068, computed from regional grid	0.51	dimensionless

Low-Flow Statistics Parameters [LowFlow Region 2 SIR 2013 5090]

10/24/2019

StreamStats

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	5.68	square miles	0.21	7380
STREAM_VARG	Streamflow Variability Index from Grid	0.51	dimensionless	0.273	0.926
Low-Flow Statistics Flow Report(LowFlow Region 2 SIR 2013 5090)					
Statistic		Value		Unit	
1 Day 10 Year Low Flow		0.0555		ft^3/s	
2 Day 10 Year Low Flow		0.0622		ft^3/s	
3 Day 10 Year Low Flow		0.066		ft^3/s	
7 Day 10 Year Low Flow		0.077		ft^3/s	
10 Day 10 Year Low Flow		0.0832		ft^3/s	
30 Day 10 Year Low Flow		0.106		ft^3/s	
60 Day 10 Year Low Flow		0.14		ft^3/s	
Low-Flow Statistics Citations					
Southard, R.E.,2013, Computed statistics at streamgages, and methods for estimating low-flow frequency statistics and development of regional regression equations for estimating low-flow frequency statistics at ungaged locations in Missouri: U.S. Geological Survey Scientific Investigations Report 2013-5090, 28 p. (http://pubs.usgs.gov/sir/2013/5090/)					

USGS Data Disclaimer: Unless otherwise stated, all data, metadata and related materials are considered to satisfy the quality standards relative to the purpose for which the data were collected. Although these data and associated metadata have been reviewed for accuracy and completeness and approved for release by the U.S. Geological Survey (USGS), no warranty expressed or implied is made regarding the display or utility of the data for other purposes, nor on all computer systems, nor shall the act of distribution constitute any such warranty.

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Application Version: 4.3.8

APPENDIX – COST ANALYSIS FOR COMPLIANCE:

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

**Jackson WWTP, Permit Renewal
City of Jackson
Missouri State Operating Permit #MO-0022853**

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

New Permit Requirements

The permit requires compliance with new monthly influent and instream monitoring requirements for Total Phosphorus, Total Kjeldahl Nitrogen, Nitrate + Nitrite, and Ammonia, new monthly effluent monitoring requirements for Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite, new quarterly monitoring requirements for Total Recoverable Thallium and Total Recoverable Iron, and new annual requirements for Chronic WET tests.

Connections

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

Connection Type	Number
Residential	6,013
Commercial	579
Industrial	6
Total	6,598

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 Jackson	
Current Monthly User Rates per 5,000 gallons*	\$28.45
Median Household Income (MHI) ¹	\$59,101
Current Annual Operating Costs (excludes depreciation)	\$946,445

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

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

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

Criterion 2A Table. Estimated Cost Breakdown of New Permit Requirements			
New Requirement	Frequency	Estimated Cost	Estimated Annual Cost
Total Phosphorus (influent)	monthly	\$24 x 12	\$288
Total Phosphorus (effluent)	monthly §	\$24 x 8	\$192
Total Kjeldahl Nitrogen (influent)	monthly	\$33 x 12	\$396
Total Kjeldahl Nitrogen (effluent)	monthly §	\$33 x 8	\$264
Nitrate + Nitrite (influent)	monthly	\$40 x 12	\$480
Nitrate + Nitrite (effluent)	monthly §	\$40 x 8	\$320
Ammonia (influent)	monthly	\$20 x 12	\$240
Total Recoverable Thallium sampling	quarterly	\$32 x 4	\$128
Total Recoverable Iron sampling	quarterly	\$17 x 4	\$68
Total Metal Concentration lab charge	quarterly	\$13 x 4	\$52
Chronic WET test	annually	\$1,769	\$8,845
Total Estimated Annual Cost of New Permit Requirements			\$11,273

Criterion 2B Table. Estimated Costs for New Permit Requirements		
(1)	Estimated Annual Cost	\$11,273
(2)	Estimated Monthly User Cost for New Requirements ²	\$0.14
	Estimated Monthly User Cost for New Requirements as a Percent of MHI ³	0.003%
(3)	Total Monthly User Cost*	\$28.59
	Total Monthly User Cost as a Percent of MHI ⁴	0.6%

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

(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 \$3,955,000. The community reported that each user pays \$28.45 monthly, of which, \$14.94 (52.5%) is used toward payments on the current outstanding debt.

- (5) An inclusion of ways to reduce economic impacts on distressed populations in the community, including but not limited to low and fixed income populations. This requirement includes but is not limited to:**
- (a) Allowing adequate time in implementation schedules to mitigate potential adverse impacts on distressed populations resulting from the costs of the improvements and taking into consideration local community economic considerations.
 - (b) Allowing for reasonable accommodations for regulated entities when inflexible standards and fines would impose a disproportionate financial hardship in light of the environmental benefits to be gained.

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

Criterion 5 Table. Socioeconomic Data ^{1, 5-9} for the City of Jackson

No.	Administrative Unit	Jackson City	Missouri State
1	Population (2017)	14,690	6,075,300
2	Percent Change in Population (2000-2017)	23.0%	8.6%
3	2017 Median Household Income (in 2018 Dollars)	\$59,101	\$52,801
4	Percent Change in Median Household Income (2000-2017)	-3.0%	-7.7%
5	Median Age (2017)	35.7	38.4
6	Change in Median Age in Years (2000-2017)	0.0	2.3
7	Unemployment Rate (2017)	5.8%	5.8%
8	Percent of Population Below Poverty Level (2017)	13.3%	14.6%
9	Percent of Household Received Food Stamps (2017)	11.1%	12.2%
10	(Primary) County Where the Community Is Located	Cape Girardeau County	

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

The City reported that the Water System Facility Plan was completed in 2012. A \$10 million bond issue passed in 2015 and projects are ongoing. City budgets \$100,000 per year for I&I abatement in sanitary sewer system. The Wastewater Facility Plan completed in 2017 includes over \$12 million in needed projects. Current projects under design include \$1.7 million in Lift Station and Force Main upgrades.

- (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 Jackson to seek funding from an outside source.

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

The City reported that sales tax revenues have experienced an average increase of 2% over the last 5 years. Sewer, water, and electric rates all increased in the past 5 years. Annual increases are expected for maintenance and to meet regulatory compliance.

Currently, the City Electric Utility has \$1.8 million in substation and transmission line upgrades in progress or scheduled within the next year.

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.
(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.
(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. $(\$11,273/6,598)/12 = \0.14 (Estimated Monthly User Cost for New Requirements)
3. $(\$0.14/(\$59,101/12))100\% = 0.003\%$ (New Sampling Only)
4. $(\$28.59/(\$59,101/12))100\% = 0.6\%$ (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. (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.
(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.
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.
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



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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 28th 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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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 factor¹).
¹ 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:
$$(\text{Nitrate} + \text{nitrite nitrogen}) + (\text{organic nitrogen} \times 0.2) + (\text{ammonia nitrogen} \times \text{volatilization factor}^1).$$
¹ 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 ¹	Priority Pollutants ²
319 or less	1/year	1 per month	1/year
320 to 1650	4/year	1 per month	1/year
1651 to 16,500	6/year	1 per month	1/year
16,501+	12/year	1 per month	1/year

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

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

Note 1: Total solids: A grab sample of sludge shall be tested one per day during land application periods for percent total solids. This data shall be used to calculate the dry tons of sludge applied per acre.

Note 2: Table 5 is not applicable for incineration and permit holders that landfill their sludge.

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

SECTION K – RECORD KEEPING AND REPORTING REQUIREMENTS

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

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

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

5. Annual report contents. The annual report shall include the following:
 - a. Biosolids and sludge testing performed. If testing was conducted at a greater frequency than what is required by the permit, all test results must be included in the report.
 - b. Biosolids or sludge quantity shall be reported as dry tons for the quantity produced and/or disposed.
 - c. Gallons and % solids data used to calculate the dry ton amounts.
 - d. Description of any unusual operating conditions.
 - e. Final disposal method, dates, and location, and person responsible for hauling and disposal.
 - i. This must include the name and address for the hauler and sludge facility. If hauled to a municipal wastewater treatment facility, sanitary landfill, or other approved treatment facility, give the name of that facility.
 - ii. Include a description of the type of hauling equipment used and the capacity in tons, gallons, or cubic feet.
 - f. Contract Hauler Activities:

If using a contract hauler, provide a copy of a signed contract from the contractor. Permittee shall require the contractor to supply information required under this permit for which the contractor is responsible. The permittee shall submit a signed statement from the contractor that he has complied with the standards contained in this permit, unless the contract hauler has a separate biosolids or sludge use permit.
 - g. Land Application Sites:
 - i. Report the location of each application site, the annual and cumulative dry tons/acre for each site, and the landowners name and address. The location for each spreading site shall be given as a legal description for nearest ¼, ¼, Section, Township, Range, and county, or UTM coordinates. The facility shall report PAN when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kg TN; or 2) when biosolids are land applied at an application rate greater than two dry tons per acre per year.
 - ii. If the “Low Metals” criteria are exceeded, report the annual and cumulative pollutant loading rates in pounds per acre for each applicable pollutant, and report the percent of cumulative pollutant loading which has been reached at each site.
 - iii. Report the method used for compliance with pathogen and vector attraction requirements.
 - iv. Report soil test results for pH and phosphorus. If no soil was tested during the year, report the last date when tested and the results.

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MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

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**

FACILITY NAME Jackson Municipal Wastewater Treatment Plant	
PERMIT NO. MO-0022853	COUNTY Cape Girardeau
APPLICATION OVERVIEW	
Form B2 has been developed in a modular format and consists of Parts A, B and C and a Supplemental Application Information (Parts D, E, F and G) packet. All applicants must complete Parts A, B and C. Some applicants must also complete parts of the Supplemental Application Information packet. The following items explain which parts of Form B2 you must complete. Submittal of an incomplete application may result in the application being returned.	
BASIC APPLICATION INFORMATION	
A. Basic application information for all applicants. All applicants must complete Part A. B. Additional application information for all applicants. All applicants must complete Part B. C. Certification. All applicants must complete Part C.	
SUPPLEMENTAL APPLICATION INFORMATION	
D. Expanded Effluent Testing Data. A treatment works that discharges effluent to surface water of the United States and meets one or more of the following criteria must complete <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> .	
ALL APPLICANTS MUST COMPLETE PARTS A, B and C	

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MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

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**

FOR AGENCY USE ONLY	
CHECK NUMBER	
DATE RECEIVED	FEE SUBMITTED
7/5/17	0.88

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- 0022853 Expiration Date 12/31/17
- ☐ 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 Jackson Municipal Wastewater Treatment Plant		TELEPHONE NUMBER WITH AREA CODE 573-243-4290	
ADDRESS (PHYSICAL) 2230 Lee Ave.	CITY Jackson	STATE MO	ZIP CODE 63701

2.1 LEGAL DESCRIPTION (Facility Site): see 1/4, 1/4, 1/4, Sec. , T , R Attached COUNTY See Attached

2.2 UTM Coordinates Easting (X): 3221423 Northing (Y): -08940436
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

2.3 Name of receiving stream: Goose Creek

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

3. OWNER

NAME City of Jackson		EMAIL ADDRESS city@jacksonmo.org		TELEPHONE NUMBER WITH AREA CODE 573-243-3568	
ADDRESS 101 Court St	CITY Jackson	STATE MO	ZIP CODE 63755		

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

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 Jackson		EMAIL ADDRESS city@jacksonmo.org		TELEPHONE NUMBER WITH AREA CODE 573-243-3568	
ADDRESS 101 Court St	CITY Jackson	STATE MO	ZIP CODE 63755		

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 Kenny Gibbar		TITLE Wastewater Foreman		CERTIFICATE NUMBER (IF APPLICABLE) 4715	
EMAIL ADDRESS kgibbar@jacksonmo.org		TELEPHONE NUMBER WITH AREA CODE 573-243-4290			

6. FACILITY CONTACT

NAME Kent Peetz		TITLE Director of Wastewater Utilities			
EMAIL ADDRESS kpeetz@jacksonmo.org		TELEPHONE NUMBER WITH AREA CODE 573-243-4290			
ADDRESS 2233 Lee Ave	CITY Jackson	STATE MO	ZIP CODE 63755		

FACILITY NAME Jackson Municipal Wastewater	PERMIT NO. MO- 0022853	OUTFALL NO. 1
PART A – BASIC APPLICATION INFORMATION		
7. FACILITY INFORMATION		
<p>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.</p> <p>See attached flow diagram. Influent is received into the treatment facility at the 1/4" mechanical bar screen. Influent samples are taken prior to the bar screen. Screenings are dewatered by a screw compactor and deposited into a dumpster for transport by the City trash department to a local transfer station, and ultimately to a landfill. Influent is lifted by 4 screw pumps and flows to the north oxidation ditch. The two oxidation ditches operate in series. Flow enters the south ditch through a gate between the two ditches. Samples for system operating parameters are routinely taken from the south ditch as shown. Flow leaves the south ditch over a depth control weir and flows through a splitter box for distribution to the three circular final clarifiers. Return activated sludge (RAS) is recirculated back to the screw pumps. Effluent leaves the clarifiers, flows through a parshall flume for measurement and then enters the ultraviolet disinfection unit. Effluent leaving the UV unit either leaves the plant by gravity and is discharged to Goose Creek, or when Goose Creek is at flood stage it will enter the effluent lift station and be pumped to Goose Creek.</p> <p>Biosolids are wasted from the return activated sludge line and pumped to the digester. Biosolids are aerobically digested and dewatered in the digester, then transferred to Tank 2 for further processing until they pass the tests to qualify as Class B biosolids. Biosolids storage capacity is provided by Holding Tank 3, and Storage Tanks 1 and 2. Biosolids are land applied by City wastewater operators to private farm property surrounding the City.</p>		

FACILITY NAME Jackson Municipal Wastewater Treatment	PERMIT NO. MO-0022853	OUTFALL NO. 1
PART A – BASIC APPLICATION INFORMATION		
7. FACILITY INFORMATION (continued)		
<p>7.2 Topographic Map. Attach to this application a topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information.</p> <ul style="list-style-type: none"> a. The area surrounding the treatment plant, including all unit processes. b. The location of the downstream landowner(s). (See Item 10.) c. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable. d. The actual point of discharge. e. Wells, springs, other surface water bodies and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant. f. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed. g. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored, or disposed. 		
<p>7.3 Facility SIC Code: 4952</p>	<p>Discharge SIC Code: 4952</p>	
<p>7.4 Number of people presently connected or population equivalent (P.E.): <u>14,869</u> Design P.E. <u>17,900</u></p>		
<p>7.5 Connections to the facility:</p> <p>Number of units presently connected:</p> <p>Homes <u>4619</u> Trailers <u>43</u> Apartments <u>1225</u> Other (including industrial) <u>6</u></p> <p>Number of Commercial Establishments: <u>572</u></p>		
<p>7.6 Design Flow 2.4 MGD</p>	<p>Actual Flow 1.80</p>	
<p>7.7 Will discharge be continuous through the year? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Discharge will occur during the following months: How many days of the week will discharge occur?</p>		
<p>7.8 Is industrial wastewater discharged to the facility? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, describe the number and types of industries that discharge to your facility. Attach sheets as necessary</p> <p>We have 2 Significant Industrial Users. 1) Farrow Fabrication is a metal plating shop that performs chrome plating of automobile exhaust pipe tips. 2) Rubbermaid performs powder coating of wire shelving.</p> <p>Refer to the APPLICATION OVERVIEW to determine whether additional information is needed for Part F.</p>		
7.9 Does the facility accept or process leachate from landfills?:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
7.10 Is wastewater land applied? If yes, is Form I attached?	Yes <input type="checkbox"/> Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>
7.11 Does the facility discharge to a losing stream or sinkhole?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
7.12 Has a wasteload allocation study been completed for this facility?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
8. LABORATORY CONTROL INFORMATION		
LABORATORY WORK CONDUCTED BY PLANT PERSONNEL		
Lab work conducted outside of plant.	Yes <input checked="" type="checkbox"/>	No <input 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 type="checkbox"/>	No <input checked="" type="checkbox"/>
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

FACILITY NAME Jackson Municipal Wastewater Treatment	PERMIT NO. MO- 0022853	OUTFALL NO. 1
PART A – BASIC APPLICATION INFORMATION		
9. SLUDGE HANDLING, USE AND DISPOSAL		
9.1 Is the sludge a hazardous waste as defined by 10 CSR 25? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
9.2 Sludge production (Including sludge received from others): Design Dry Tons/Year 376 Actual Dry Tons/Year 228		
9.3 Sludge storage provided: _____ Cubic feet; <u>120</u> Days of storage; <u>2.77</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"/> Building <input type="checkbox"/> Basin <input type="checkbox"/> Lagoon <input type="checkbox"/> Concrete Pad <input type="checkbox"/> Other (Describe) _____ </div>		
9.5 Sludge Treatment: <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div> <input checked="" type="checkbox"/> Anaerobic Digester <input type="checkbox"/> Storage Tank <input type="checkbox"/> Aerobic Digester <input type="checkbox"/> Air or Heat Drying </div> <div> <input 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> <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> <input 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 type="checkbox"/> By Others (complete below)		
NAME		EMAIL ADDRESS
ADDRESS	CITY	STATE ZIP CODE
CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO. MO-
9.8 Sludge use or disposal facility: <input checked="" type="checkbox"/> By Applicant <input type="checkbox"/> By Others (Complete below)		
NAME		EMAIL ADDRESS
ADDRESS	CITY	STATE ZIP CODE
CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO. MO-
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)		
END OF PART A		

FACILITY NAME Jackson Municipal Wastewater Treatment	PERMIT NO. MO-0022853	OUTFALL NO. 1
PART B – ADDITIONAL APPLICATION INFORMATION		
10. COLLECTION SYSTEM		
10.1 Length of sanitary sewer collection system in miles 111		
10.2 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: The City budgets for repairs to the collection system by outside contractors annually. In the past five years there have been 9,521 feet of VCP sewer lined with CIPP and 62 manholes have been lined or repaired. In addition, City forces have installed 687 manhole rain caps, and smoke tested 258,984 feet of sewer. All new gravity pipes are air tested, all new manholes are vacuum tested, and all new sewer construction is CCTV inspected. As part of the Facility Plan, in 2016 four flow meters were installed for 60 days. The Facility Plan recommends additional flow monitoring to further identify areas with high I&I. Additional funding for I&I testing and elimination is expected to be included in a bond campaign scheduled for 2020/2021.		
11. BYPASSING		
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: In 2016 an overflow occurred during an extreme rain event at the Kimbeland Lift Station. In 2017 an overflow event occurred from manholes located at Adams and Union Streets during regional flooding.		
12. OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)		
Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of the contractor? Yes <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		
13. SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION		
Provide information about any uncompleted implementation schedule or uncompleted plans for improvements that will affect the wastewater treatment, effluent quality, or design capacity of the treatment works. If the treatment works has several different implementation schedules or is planning several improvements, submit separate responses for each. A Wastewater Facility Plan performed by Horner and Shifrin Engineering recommends the following projects around the collection system and within the treatment facility. Implementation will depend on funding, and growth within the community. Kimbeland Lift Station Bypass project. It is proposed that the Hwy 61 Lift Station which pumps to the Kimbeland Lift Station could bypass the Kimbeland Lift Station with minor losses in capacity. The Kimbeland lift station pumps would be replaced due to age and inability to get parts. The Kimbeland lift station would pump to the common force main with the Hwy 61 lift station. The Hwy 61 lift station was built with enough excess capacity and large enough pumps to serve its watershed far into the future, allowing time for additional land lower in the Kimbeland water shed to be annexed into the City and present an appropriate site for relocation. A rate analysis will be conducted during the second and third quarter of 2017 to determine if existing funds are sufficient to proceed with this project in 2017. Biosolids processing upgrade at the treatment facility. The existing digester and biosolids processing tanks have fixed ports that are not efficient at draining water out of the settled biosolids. Blowers must be shut off to allow biosolids to settle, lengthening the time required to achieve Class B biosolids requirements, restricting the amount of wasting, and causing wear and tear on the blowers. The Ovivo Mem/Tad biosolids thickening/treatment system which utilizes plate membrane thickening technology has been recommended for installation. Results of the rate analysis will dictate the timing of this project.		

FACILITY NAME Jackson Municipal Wastewater Treatment	PERMIT NO. MO-0022853	OUTFALL NO. 1
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PART B – ADDITIONAL APPLICATION INFORMATION

14. EFFLUENT TESTING DATA

Applicants must provide effluent testing data for the following parameters. Provide the indicated effluent data **for each outfall through which effluent is discharged**. Do not include information of combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least **three samples** and must be no more than four and one-half years apart.

Outfall Number

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	7.16	S.U.	7.32	S.U.	145
pH (Maximum)	8.24	S.U.	7.76	S.U.	145
Flow Rate	10.0	MGD	1.6	MGD	349

*For pH report a minimum and a maximum daily value

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Conc.	Units	Number of Samples		

Conventional and Nonconventional Compounds

BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD ₅	9	mg/L	4.3	mg/L	50	5210B	2.0
	CBOD ₅		mg/L		mg/L			
E. COLI		4800	#/100 mL	327	#/100 mL	28	SM-9222 D-97	2
TOTAL SUSPENDED SOLIDS (TSS)		17	mg/L	5.8	mg/L	146	2540D	0.1
AMMONIA (as N)		<0.050	mg/L	<0.050	mg/L	48	Lachat-10-107-06-	0.5
CHLORINE* (TOTAL RESIDUAL, TRC)		NA	mg/L		mg/L			
DISSOLVED OXYGEN		7.45	mg/L	6.5	mg/L	150	Hach HQ40d	0.01
OIL and GREASE		<5	mg/L	<5	mg/L	4	EPA-1664A	5
OTHER			mg/L		mg/L			

*Report only if facility chlorinates

END OF PART B

FACILITY NAME Jackson Municipal Wastewater Treatment	PERMIT NO. MO- 0022853	OUTFALL NO. 1
PART C – CERTIFICATION		
15. ELECTRONIC DISCHARGE MONITORING REPORT (eDMR) SUBMISSION SYSTEM		
<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. One of the following must be checked in order for this application to be considered complete. Please visit http://dnr.mo.gov/env/wpp/edmr.htm to access the Facility Participation Package.</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>		
16. CERTIFICATION		
<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>		
ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.		
<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 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 Dwain Hahs	OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL) Mayor	
SIGNATURE		
TELEPHONE NUMBER WITH AREA CODE 573-243-3568		
DATE SIGNED		
<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>		
END OF PART C		
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH PARTS OF FORM B2 YOU MUST COMPLETE.		
<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"> 1. Your facility design flow is equal to or greater than 1,000,000 gallons per day. 2. Your facility is a pretreatment treatment works. 3. Your facility is a combined sewer system. 		
<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>		

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME Jackson Municipal Wastewater Treatment	PERMIT NO. MO- 0022853	OUTFALL NO. 1
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PART D – EXPANDED EFFLUENT TESTING DATA

17. EXPANDED EFFLUENT TESTING DATA

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

If the treatment works has a design flow greater than or equal to 1 million gallons per day or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information **for each outfall through which effluent is discharged**. Do not include information of combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. Indicate in the blank rows provided below any data you may have on pollutants not specifically listed in this form. At a minimum, effluent testing data must be based on at least **three pollutant scans** and must be no more than four and one-half years apart.

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		

METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS AND HARDNESS

ALUMINUM	See	Attache	d	Spread	sheet						
ANTIMONY											
ARSENIC											
BERYLLIUM											
CADMIUM											
CHROMIUM III											
CHROMIUM VI											
COPPER											
IRON											
LEAD											
MERCURY											
NICKEL											
SELENIUM											
SILVER											
THALLIUM											
ZINC											
CYANIDE											
TOTAL PHENOLIC COMPOUNDS											
HARDNESS (as CaCO ₃)											

VOLATILE ORGANIC COMPOUNDS

ACROLEIN	See	Attache	d	Lab	Report	s	for	TTOs			
ACRYLONITRILE											
BENZENE											
BROMOFORM											
CARBON TETRACHLORIDE											

FACILITY NAME Jackson Wastewater Treatment				PERMIT NO. MO- 0022853				OUTFALL NO. 1			
PART D – EXPANDED EFFLUENT TESTING DATA											
17. EXPANDED EFFLUENT TESTING DATA											
Complete Once for Each Outfall Discharging Effluent to Waters of the State											
POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
CHLOROBENZENE											
CHLORODIBROMO-METHANE											
CHLOROETHANE											
2-CHLORO-ETHYL VINYL ETHER											
CHLOROFORM											
DICHLOROBROMO-METHANE											
1,1-DICHLORO-ETHANE											
1,2-DICHLORO-ETHANE											
TRANS-1,2-DICHLOROETHYLENE											
1,1-DICHLORO-ETHYLENE											
1,2-DICHLORO-PROPANE											
1,3-DICHLORO-PROPYLENE											
ETHYLBENZENE											
METHYL BROMIDE											
METHYL CHLORIDE											
METHYLENE CHLORIDE											
1,1,2,2-TETRA-CHLOROETHANE											
TETRACHLORO-ETHANE											
TOLUENE											
1,1,1-TRICHLORO-ETHANE											
1,1,2-TRICHLORO-ETHANE											
TRICHLORETHYLENE											
VINYL CHLORIDE											
ACID-EXTRACTABLE COMPOUNDS											
P-CHLORO-M-CRESOL											
2-CHLOROPHENOL											
2,4-DICHLOROPHENOL											
2,4-DIMETHYLPHENOL											
4,6-DINITRO-O-CRESOL											
2,4-DINITROPHENOL											
2-NITROPHENOL											
4-NITROPHENOL											

FACILITY NAME Jackson Wastewater Treatment	PERMIT NO. MO- 0022853	OUTFALL NO. 1
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PART D – EXPANDED EFFLUENT TESTING DATA
17. EXPANDED EFFLUENT TESTING DATA

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
PENTACHLOROPHENOL											
PHENOL											
2,4,6-TRICHLOROPHENOL											
BASE-NEUTRAL COMPOUNDS											
ACENAPHTHENE											
ACENAPHTHYLENE											
ANTHRACENE											
BENZIDINE											
BENZO(A)ANTHRACENE											
BENZO(A)PYRENE											
3,4-BENZO-FLUORANTHENE											
BENZO(GH) PHERYLENE											
BENZO(K) FLUORANTHENE											
BIS (2-CHLOROTHOXY) METHANE											
BIS (2-CHLOROETHYL) – ETHER											
BIS (2-CHLOROISO-PROPYL) ETHER											
BIS (2-ETHYLHEXYL) PHTHALATE											
4-BROMOPHENYL PHENYL ETHER											
BUTYL BENZYL PHTHALATE											
2-CHLORONAPHTHALENE											
4-CHLORPHENYL PHENYL ETHER											
CHRYSENE											
DI-N-BUTYL PHTHALATE											
DI-N-OCTYL PHTHALATE											
DIBENZO (A,H) ANTHRACENE											
1,2-DICHLORO-BENZENE											
1,3-DICHLORO-BENZENE											
1,4-DICHLORO-BENZENE											
3,3-DICHLORO-BENZIDINE											
DIETHYL PHTHALATE											
DIMETHYL PHTHALATE											

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME Jackson Wastewater Treatment	PERMIT NO. MO- 0022853	OUTFALL NO. 1
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PART E – TOXICITY TESTING DATA**18. 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: 0 ____ chronic 4 ____ 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 ND Most Recent	3 RD Most Recent
A. Test Information			
Test Method Number	See	Attached	Reports
Final Report Number			
Outfall Number			
Dates Sample Collected			
Date Test Started			
Duration			
B. Toxicity Test Methods Followed			
Manual Title			
Edition Number and Year of Publication			
Page Number(s)			
C. Sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used			
24-Hour Composite	x	x	x
Grab			
D. Indicate where the sample was taken in relation to disinfection (Check all that apply for each)			
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"/>
E. Describe the point in the treatment process at which the sample was collected			
Sample Was Collected:	After UV Disinfection	After UV Disinfection	After UV Disinfection
F. Indicate whether the test was intended to assess chronic toxicity, acute toxicity, or both			
Chronic Toxicity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Acute Toxicity	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
G. Provide the type of test performed			
Static	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Static-renewal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flow-through	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Source of dilution water. If laboratory water, specify type; if receiving water, specify source			
Laboratory Water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Receiving Water	<input checked="" type="checkbox"/> Goose Creek	<input checked="" type="checkbox"/> Goose Creek	<input checked="" type="checkbox"/> Goose Creek

FACILITY NAME Jackson Municipal Wastewater	PERMIT NO. MO- 0022853	OUTFALL NO. 1
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PART E – TOXICITY TESTING DATA

18. 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

	See Attached	See Attached	See Attached

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

pH			
Salinity			
Temperature			
Ammonia			
Dissolved Oxygen			

L. Test Results

Acute:

Percent Survival in 100% Effluent			
LC ₅₀			
95% C.I.			
Control Percent Survival			
Other (Describe)			

Chronic:

NOEC			
IC ₂₅			
Control Percent Survival			
Other (Describe)			

M. Quality Control/ Quality Assurance

Is reference toxicant data available?			
Was reference toxicant test within acceptable bounds?			
What date was reference toxicant test run (MM/DD/YYYY)?			
Other (Describe)			

Is the treatment works involved in a toxicity reduction evaluation?

☐ Yes

☒ No

If yes, describe:

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

Date Submitted (MM/DD/YYYY)

Summary of Results (See Instructions)

All samples passed.

END OF PART E

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME Jackson Municipal Wastewater	PERMIT NO. MO- 0022853	OUTFALL NO. 1
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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.

19. GENERAL INFORMATION**19.1** Does the treatment works have, or is it subject to, an approved pretreatment program?☒ Yes ☐ No**19.2** 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 2**20. 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 Rubbermaid			
MAILING ADDRESS 1901 Lee Ave	CITY Jackson	STATE MO	ZIP CODE 63755

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

Wire Fabrication, Powder Coating/Metal Finishing, Particle Board Lamination

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

Principal Product(s): Wire and Particle Board Shelving

Raw Material(s): Wire, particle board

20.3 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.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.gpd ☒ Continuous ☐ Intermittent**20.4** 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?

40 CFR Ch. 1, Part 433 Metal Finishing

20.5 Problems at the treatment works attributed to waste discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?☐ Yes ☒ No

If Yes, describe each episode

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME

PERMIT NO.

OUTFALL NO.

MO-

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

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

19. GENERAL INFORMATION**19.1** Does the treatment works have, or is it subject to, an approved pretreatment program?☒ Yes☐ No**19.2** 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

2**20. 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

Farrow Fabricating

MAILING ADDRESS

506 S. Georgia

City

Jackson

STATE

MO

ZIP CODE

63755

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

Cut, shape, polish, steel and stainless steel tubing, electroplate with Ni and Cr.

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

Principal Product(s): Chromed steel and stainless tail pipe extensions

Raw Material(s): Steel/stainless tubing, Ni, Cr.

20.3 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.

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.

gpd

☒ Continuous☐ Intermittent**20.4** 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?

40 CFR Ch. 1 Part 433, Metal Finishing

20.5 Problems at the treatment works attributed to waste discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?☐ Yes☒ No

If Yes, describe each episode

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL		
FACILITY NAME Jackson Municipal Wastewater Treatment	PERMIT NO. MO- 0022853	OUTFALL NO. 1
PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES		
21. RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE		
21.1 Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail or dedicated pipe? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
21.2 Method by which RCRA waste is received. (Check all that apply) <input type="checkbox"/> Truck <input type="checkbox"/> Rail <input type="checkbox"/> Dedicated Pipe		
21.3 Waste Description		
EPA Hazardous Waste Number	Amount (volume or mass)	Units
22. CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER		
22.1 Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Provide a list of sites and the requested information for each current and future site.		
22.2 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). 		
22.3 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) 		
22.4 Waste Treatment a. Is this waste treated (or will it be treated) prior to entering the treatment works? <input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, describe the treatment (provide information about the removal efficiency): b. Is the discharge (or will the discharge be) continuous or intermittent? <input type="checkbox"/> Continuous <input type="checkbox"/> Intermittent If intermittent, describe the discharge schedule: 		
END OF PART F		
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM B2 YOU MUST COMPLETE.		

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME Jackson Municipal Wastewater Treatment	PERMIT NO. MO- 0022852	OUTFALL NO. 1
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PART G – COMBINED SEWER SYSTEMS

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

23. GENERAL INFORMATION**23.1 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.

23.2 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.

23.3 Percent of collection system that is combined sewer 0**23.4** Population served by combined sewer collection system**23.5** Name of any satellite community with combined sewer collection system**24. CSO OUTFALLS. COMPLETE THE FOLLOWING ONCE FOR EACH CSO DISCHARGE POINT****24.1** 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?

24.2 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

24.3 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)

24.4 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.

1.1 Fees Information:

DOMESTIC OPERATING PERMIT FEES – PRIVATE

Annual operating permit fees are based on flow.

Annual fee/Design flow	Annual fee/Design flow	Annual fee/Design flow
\$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.

PUBLIC SEWER SYSTEM OPERATING PERMIT FEES (City, public sewer district, public water district, or other publicly owned treatment works) Annual fee is based on number of service connections. 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.

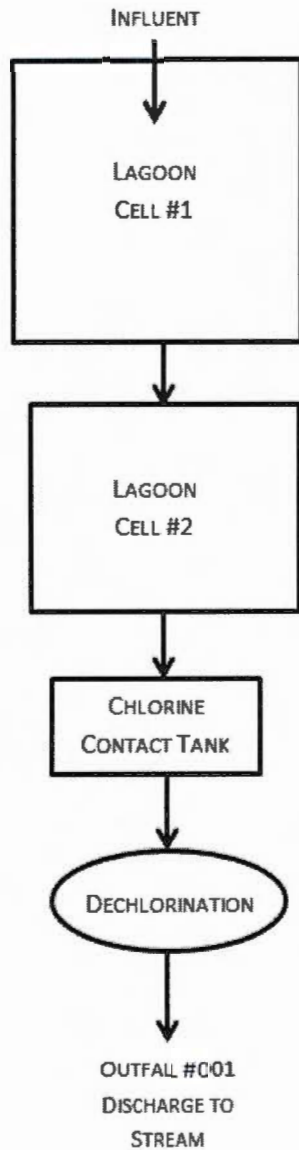
OPERATING PERMIT MODIFICATIONS, including transfers, are subject to the following fees:

- 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.

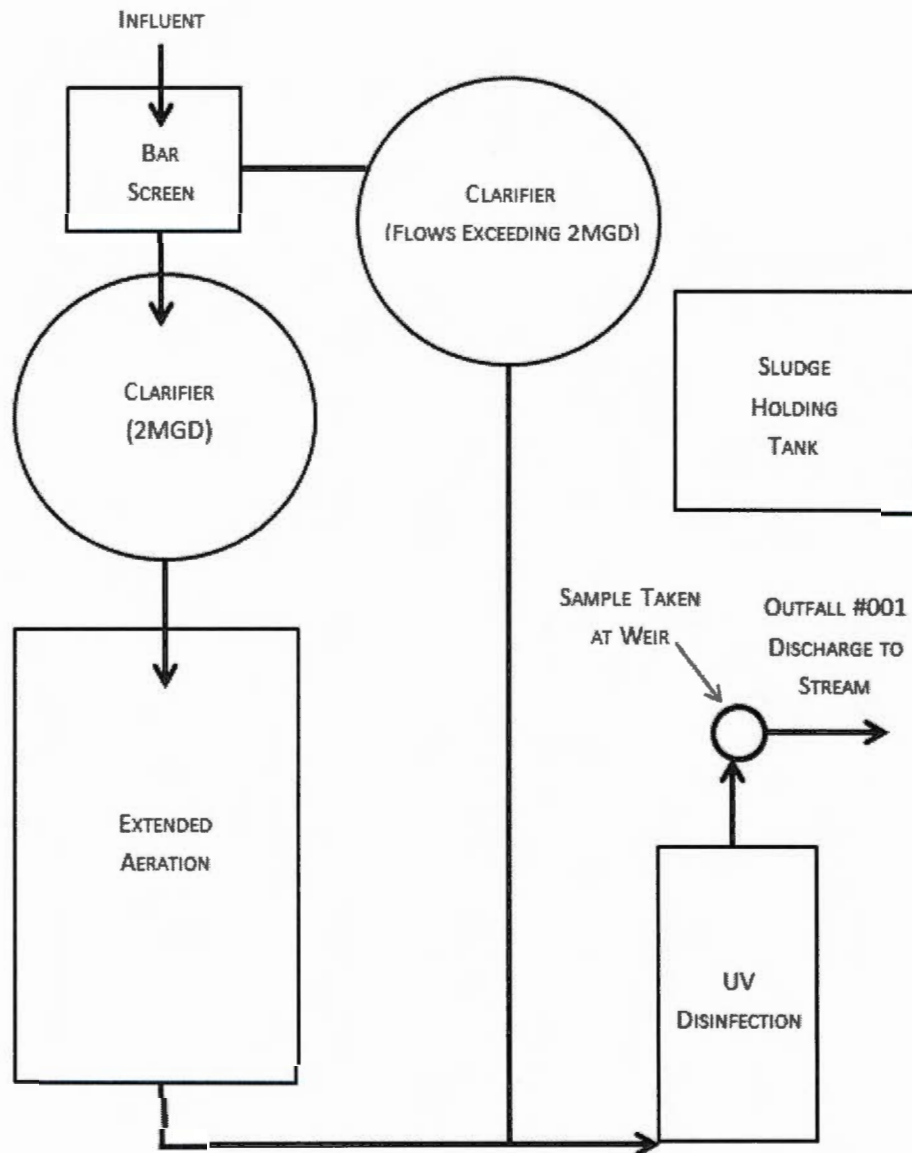
2. Name of Facility – Include the name by which this facility is locally known. Example: Southwest Sewage Treatment Plant, Country Club Mobile Home Park, etc. Provide the street address or location of the facility. If the facility lacks a street name or route number, provide the names of the closest 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 www.dnr.mo.gov/internetmapviewer/.
 - 2.3-2.4 Self-explanatory.
3. Owner – Provide the legal name, mailing address, phone number, and email address of the owner.
 - 3.1 Prior to submitting a permit to public notice, the Department of Natural Resources shall provide the permit applicant 15 days to review the draft permit for nonsubstantive drafting errors. In the interest of expediting permit issuance, permit applicants may waive the opportunity to review draft permits prior to public notice.
 - 3.2-3.4 Self-explanatory.
4. Continuing Authority – Provide information for the permanent organization which will serve as the continuing authority for the operation, maintenance, and modernization of the facility. The regulatory requirement regarding continuing authority is available at <http://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c20-6.pdf> or contact the Department of Natural Resources Water Protection Program (see contact information below).
5. Operator – Provide the name, certificate number, title, mailing address, phone number, and email address of the operator of the facility.
6. Provide the name, title, mailing address, work 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.

7.1 Process Flow Diagram Examples

WASTEWATER TREATMENT LAGOON



WASTEWATER TREATMENT FACILITY



- 7.2 A topographic map is available on the web at www.dnr.mo.gov/internetmapviewer/ or from the Department of Natural Resources' Geological Survey in Rolla at 573-368-2125.
- 7.3 For Standard Industrial Codes visit www.osha.gov/pls/imis/sicsearch.html and for the North American Industry Classification System, visit www.census.gov/naics or contact the Department of Natural Resources' Water Protection Program.
- 7.4-7.8 Self-explanatory.
- 7.9 If wastewater is land-applied submit form I: www.dnr.mo.gov/forms/780-1686-f.pdf.
- 7.10-8. Self-explanatory
- 9.1 A copy of 10 CSR 25 is available at www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp#10-25.
- 9.2-9.9 Self-explanatory.

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

PART B – ADDITIONAL APPLICATION INFORMATION

10.-14. Self-explanatory

PART C – CERTIFICATION

15. Electronic Discharge Monitoring Report (eDMR) Submission System – Visit the eDMR site at <http://dnr.mo.gov/env/wpp/edmr.htm> and click on the "Facility Participation Package" link. The eDMR Permit Holder and Certifier Registration Form and information about the eDMR system can be found in the Facility Participation Package.

Waivers to electronic reporting may be granted by the Department per 40 CFR 127.15 under certain, special circumstances. A written request must be submitted to the Department for approval. Waivers may be granted to facilities owned or operated by:

- a. members of religious communities that choose not to use certain technologies or
 - b. permittees located in areas with limited broadband access. The National Telecommunications and Information Administration (NTIA) in collaboration with the Federal Communications Commission (FCC) have created a broadband internet availability map: <http://www.broadbandmap.gov/>. Please contact the Department if you need assistance.
16. Signature – All applications must be signed as follows and the signatures must be original:
- a. For a corporation, by an officer having responsibility for the overall operation of the regulated facility or activity or for environmental matters.
 - b. For a partnership or sole proprietorship, by a general partner or the proprietor.
 - c. For a municipal, state, federal or other public facility, by either a principal executive officer or by an individual having overall responsibility for environmental matters at the facility.

PART D – EXPANDED EFFLUENT TESTING DATA

17. Self-explanatory. ML/MDL means minimum limit or minimum detection limit.

PART E – TOXICITY TESTING DATA

18. Self-explanatory.

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

19. Federal regulations are available through the U.S. Government Printing Office at <https://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR>.
- 19.1 Self-explanatory
- 19.2 A noncategorical significant industrial user is an industrial user that is not a CIU and meets one or more of the following:
- i. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions).
 - ii. Contributes a process waste stream that makes up 5 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.
- 20.-22.4 Self-explanatory.

PART G – COMBINED SEWER SYSTEMS

- 23.-24.4 Self-explanatory.

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

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

Department of Natural Resources
Water Protection Program
ATTN: NPDES Permits and Engineering Section
P.O. Box 176
Jefferson City, MO 65102-0176

Map of regional offices with addresses and phone numbers are available on the web at <http://dnr.mo.gov/regions/>. If there are any questions concerning this form, contact the appropriate regional office or the Department of Natural Resources, Water Protection Program, Operating Permits Section at 800-361-4827 or 573-751-6825.

 COGENT	Vandevanter Engineering Service Center
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Service Order #	1325747	Date	6/28/2017
SUID #	70934	Salesman	Joe Beffa
Customer	Jackson, MO	Split Salesman	-
Ship To / Lift Station	Hwy 61 LS	Receiver Tag #	-
Contact Name, First	Kenny	Service Type	Service
Contact Name, Last	Gibbar	Brand	Vandevanter Engineering
Contact Phone	573-270-5528	Market	Municipal
Contact Cell	-	Fluid Being Pumped	Water
Contact Email	-	Equipment Location	VA1A

Manufacturer	Flygt
Model	0033001813068
Serial #	0140050
Item Type / Description	CP463-6 88/460/3 50' FLS FV
Additional Items	None
Level of Repair	L1 - Disassemble, Inspect, Estimate

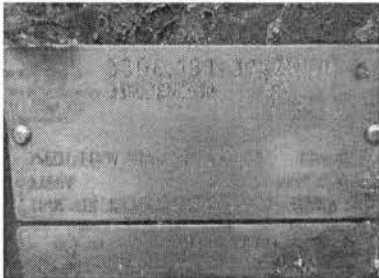
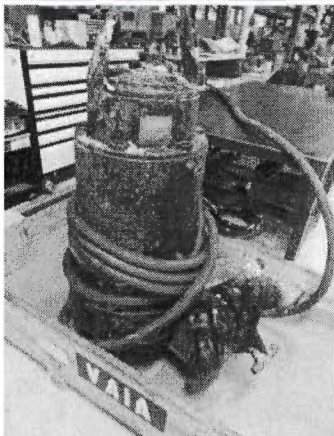
DCI Technician	JJ	DCI Date	
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Initial Inspection					
HP	88	FLA	107	Voltage	460V
Phase	Three	RPM	1200	IMP Code	463
Power Cable Length	50.00'	Power Cable Condition	Water in Cable	Cable Disposition	Replace
Sensor Cable Length		Sensor Cable Condition		Paint Color & Type	
FLS Sensor Model	FLS	FLS OHM Standard Open	1530	FLS OHM Actual Open	1.527
		FLS OHM Standard Closed	330	FLS OHM Actual Closed	
Thermal Sensor	Flygt	Thermal OHM Standard	< 1	Thermal OHM Reading	0.2
Bearing Sensor Model		Bearing OHM Standard		Bearing OHM Actual	
Control Box		Control Box Condition			
Condition Of Oil	Milky	Mechanical Seal Pressure Test	Fail		

Electrical Inspection								
OEM Ohm Standard	R/B	0.083	R/W	0.083	B/W	0.083	Junction Chamber Cond	Wet
Cable OHM Reading	R/B	0.082	R/W	0.082	B/W	0.082	Junction Therm Reading	
Junction OHM Reading	R/B		R/W		B/W		Junction FLS Reading	
Cable Meg Reading	R	1.19	B	1.17	W	1.16	Electrical Notes:	
Junction Meg Reading	R	INF	B	INF	W	INF		
Does the Pump Pass Electrical Checks?			Fail					

Pump As Found/Received

Notes:



Wet End

Volute Condition

Good - Reuse

Discharge Flange

Good - Reuse

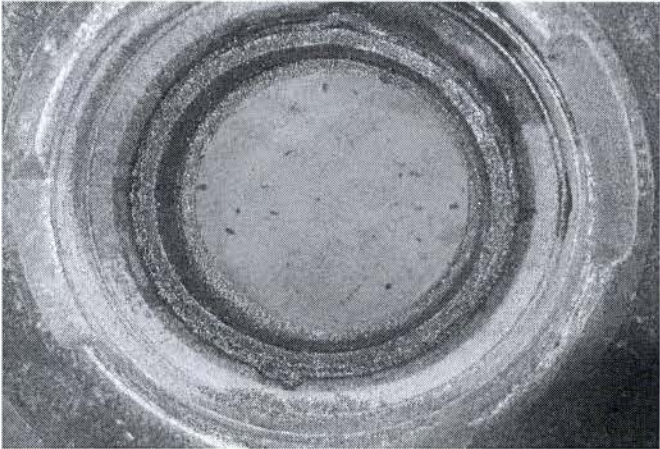
Discharge Size

6"

Wear Ring

Good - Reuse

Notes:



Wet End Disposition

Reuse

Impeller

Condition

Minimal Wear

463 Impeller Clearance


.002"

Balance Required?

No

Notes:

Minor cavitation on the impeller but will not impact the performance of the impeller



Impeller Disposition

Reuse

Mechanical Seals

Upper Seal ConditionMinimal Wear

Lower Seal ConditionMinimal Wear

Seal Material

UpperTungsten Carbide

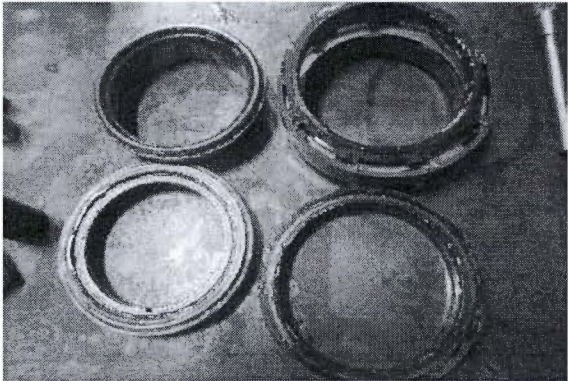
LowerTungsten Carbide

Seal Fit on Shaft

Upper

Lower

Notes:



Upper Seal DispositionReplace

Lower Seal DispositionReplace

Bearing Housing

Housing ConditionNo Signs of Wear

Bearing Condition

UpperMinimal Wear


LowerMinimal Wear

Bearing Housing Fit

Upper

Lower

Notes:



Housing DispositionReuse

Rotor

Rotor Condition

No Signs of Wear

Bearing Condition

Upper

Minimal Wear

Lower

Minimal Wear

Rotor Shaft Fit

Upper

Lower


Notes:

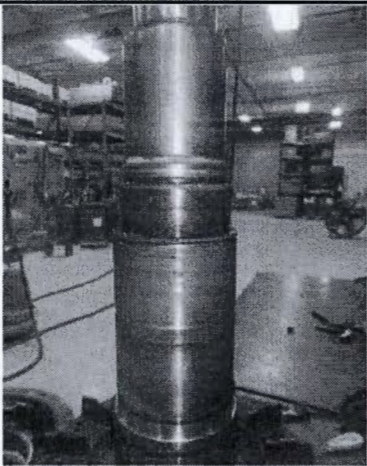
Rotor Disposition

Reuse

Bearing Disposition

Replace





Stator

Wash and Bake?

Yes

Winding Analyzer

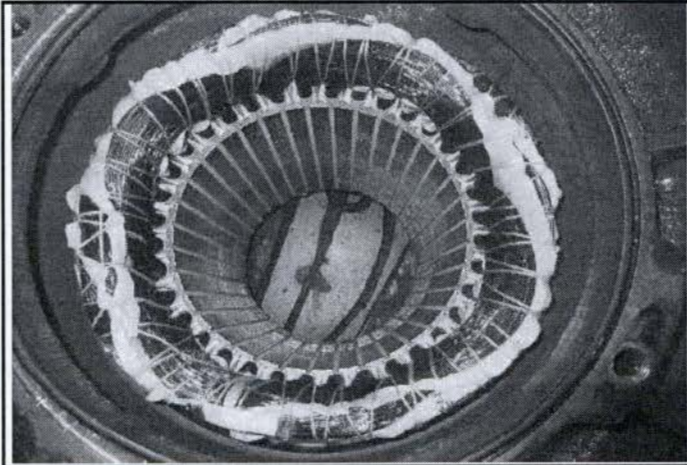
Pass

Notes:

Meg INF X 3
RB-.071 RW-.071 BW-.071
THERM .3

Stator Disposition

Reuse



Conclusions

O-Rings Condition	Squared	Bin Location	VA1A
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Primary Cause of Failure

Damaged cable allowed product into the pump junction chamber

Additional Notes & Suggestions

Water came in through the cable and into the junction chamber. The stator passed electrical checks but was cleaned and baked because the outside was dirty.

Parts Required

Flygt White Mineral Oil		
GROMMET,CR 41ID 60OD 22L	CABLE,SUBCAB AWG 1/3-2-1-GC+	SPRING,COMPRESSION SS
TERMINAL BOARD UNIT	KIT,REPAIR BASIC 3300.180 NI	SANDBLASTING

Inspection Reviewed By	Nathan Albers	Date	5/17/2017
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Repair Estimate**Disassembly, Cleaning, and Inspection Charges:**

Amount due if this unit is not repaired. An invoice for this charge will automatically generate within 90 days of this estimate. All units left at our facility for more than 6 months will be scrapped, unless written notification is given by the customer

DCI Total:	\$	665.00
------------	----	--------

Customer responsible to pay either the DCI charge OR for the repair/replacement of the pump. Customers who choose to repair/replace the pump are not required to pay the DCI charges.

Estimate For Repair:

Parts Total:	\$	10,997.20
Labor Total:	\$	1,615.00
Pump Repair Total:	\$	12,612.20

Repair Pump Total:	\$	12,612.20
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Estimate For Replacement Pumps:

CP3300 464-6 88/460/3 50' FLS FV - Direct Replacement	\$	60,256.00
NP3301 464-6 85/460/3 50' FLS FV - Hard Iron Impeller	\$	50,097.00

Estimated Lead Time:	2-4 WEEKS ARO (REPAIR) / 12-16 WEEKS (NEW)	Return to Customer Method:
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Estimate Prepared By:	Nathan Albers
-----------------------	---------------

STANDARD TERMS AND CONDITIONS

Price is FOB factory. Price does not include any freight charges. Price does not include any applicable duties or sales tax, use tax, excise tax, value-added or other similar taxes that may apply to this equipment and/or project. Unless specifically stated, price does not include manual or automatic controls, starters, protective or signal devices, wiring, anchor bolts, gauges, vibration isolation devices, installation, startup or testing.

If the price is included in a proposal, the price is firm for receipt of an order within 30 days of the date shown on the proposal. Any additional terms and conditions included in the proposal are specifically included in these terms and conditions.

Payment terms are net 30 days with approved credit. An interest charge of 1-1/2% per month will be added to balances over 30 days. Retainage of any invoiced amount is unacceptable unless specifically agreed to by Company at the time of order, and shall in no case exceed a period of 120 days. If payments are not timely received by Company, and this account is turned over to an attorney for collections, Customer agrees to pay all reasonable costs and attorney fees incurred in collection of the past due amounts.

All equipment either rented from or through Company is subject to all of the terms and conditions listed on the back of the rental contract. Pricing does not include any overtime running of power equipment.

In no event shall Company's obligations and liabilities under this Agreement include any direct, indirect, punitive, special, incidental or consequential damages or losses that Customer may suffer or incur in connection with this sale, service or rental, including, but not limited to, loss of revenue or profits, damages or losses as a result of Customer's inability to operate, perform its obligations to third persons or injuries to goodwill; nor shall Company's liability extend to damages or losses Customer may suffer or incur as a result of such claims, suits or other proceedings made or instituted against Customer by third parties. Customer ~~remises~~, releases and discharges Company from any and all liability or damages which might be caused by failure to deliver any equipment within the agreed time by Company.

Customer shall be responsible for determining the good operating condition of all materials and equipment prior to accepting the materials and equipment. NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE IS MADE UNLESS THE SAME IS SPECIFICALLY SET FORTH IN WRITING AND ACCEPTED IN WRITING BY COMPANY, BUT IN SUCH CASE THE WARRANTY OR GUARANTEE IS LIMITED AS ABOVE PROVIDED. Notwithstanding the foregoing, Company will pass through to the Customer any warranty provided by the manufacturer of any equipment supplied by Company.

Customer covenants and agrees to defend, indemnify and hold Company harmless from any claims, damages or liability arising out of the use, maintenance or delivery of the equipment or materials purchased or rented hereunder. Customer shall further defend, indemnify and hold Company harmless from any and all damages to third persons or to property caused by Customer's use or possession of the equipment or materials, to the fullest extent allowable by law.

In connection with a proposal, if Customer has any further questions or comments regarding the proposal, please feel free to contact Company. If the proposal meets with Customer's approval, please sign, date and mail or fax a copy of the proposal back to Company's office, and the identified equipment will be ordered and/or scheduled for delivery.

This agreement shall be governed by the laws of the state where the Company's branch office is located from which the equipment is rented or purchased. Customer further agrees that venue and jurisdiction shall be appropriate in the county in which Company's branch office is located from which the equipment was rented or purchased. Any provisions hereof which may prove unenforceable under any law shall not affect the validity of any other provision hereof.

Revised September 2013



City of Jackson

June 28, 2017

RECEIVED

JUL 05 2017

Water Protection Program

Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102

**RE: Form B Permit Renewal
Permit MO-0022853**

Enclosed you will find our Form B, renewal application for Permit MO0022853.

Please note that the application is incomplete. We are waiting on the return of sampling results for 5 metals and phenols. We were also unable to get the mayor's signature as he is on vacation this week. As instructed by Chris Wieberg today, I am submitting the incomplete application and will forward the additional testing data and a signature page when it is all available.

If you have any questions or concerns, please contact me at 573-243-4290 or kpeetz@jacksonmo.org.

Sincerely,

Kent A. Peetz, P.E.
Director of Wastewater Utilities
City of Jackson

June 28, 2017

The following pages provide additional information for Form B2 including answers to questions where there was insufficient space or the format of our answer was different than the space provided.

Part A, Question 2.1. Legal Description (Plant Site):

US Survey 220, NE ¼, SE ¼, T31N, R12E, Cape Girardeau County

Part A, Question 7.1.

See the attached flow diagram. Narrative description is on Form B.

Part A, Question 7.2

The following maps are attached:

- Area surrounding treatment plant showing all unit processes including sludge storage and treatment processes.
- Area surrounding treatment plant with collection system pipes leading to plant shown with one mile radius indicated. No known wells or springs within ¼ mile of facility. Water bodies shown include Hubble Creek and Goose Creek, discharge point on Goose Creek is indicated.
- Map showing downstream landowner from Cape Girardeau County Tax Maps.
- Topographical map showing one mile radius around treatment plant and location of discharge.

7.5 Our information was broken down by:

(There was no blank for duplexes on Form B, so they were added to apartments)

4619 Residential (single family dwelling)

478 Residential (duplex)

747 Residential (apartment)

43 Residential (mobile homes)

572 Commercial/Non-Residential (this includes house meters for apartment complexes)

6 Industrial

6465 total connections

7.6 Note: The value of 1.68 MGD reported here for Actual Flow is a 5-year average. This number differs from the answer of 1.6 MGD in Part B, Question 14, Effluent Testing Data as the number reported there is an annual average over the past 12 months.

Part A

9.3 Sludge storage provided: 115,466 cubic feet;

Please Note, in the Form B PDF file there is not enough room to enter more than 4 numbers in the box for cubic feet, ours needed 6 characters.

16. Certification

The signature line requires the City Official to sign it. In our case, that would be the Mayor. Our mayor is on vacation this week. We will get Item 16 completed and send it along with the completed Page 9 when the final metal testing results are received as outlined below.

Part D: Expanded Effluent Testing Data

Metals (Total Recoverable), Cyanide, Phenols, and Hardness

- See the attached spreadsheet as there was not room in the PDF of Form B to fit some of the numbers and Analytical Methods.
- **Five of the metals and Phenols are missing.** We are still waiting on the test results for these items. We will send the completed spreadsheet with information for Page 9 when they are received.

Volatile Organic Compounds, Acid-Extractable Compounds, and Base-Neutral Compounds:

TTO testing results from 2014, 2015, and 2016 are attached. Please see email from the contract laboratory, PDC Laboratories, stating that all required organic chemicals are included in their tests although some may be under slightly different names.

Part E: TOXICITY TESTING DATA

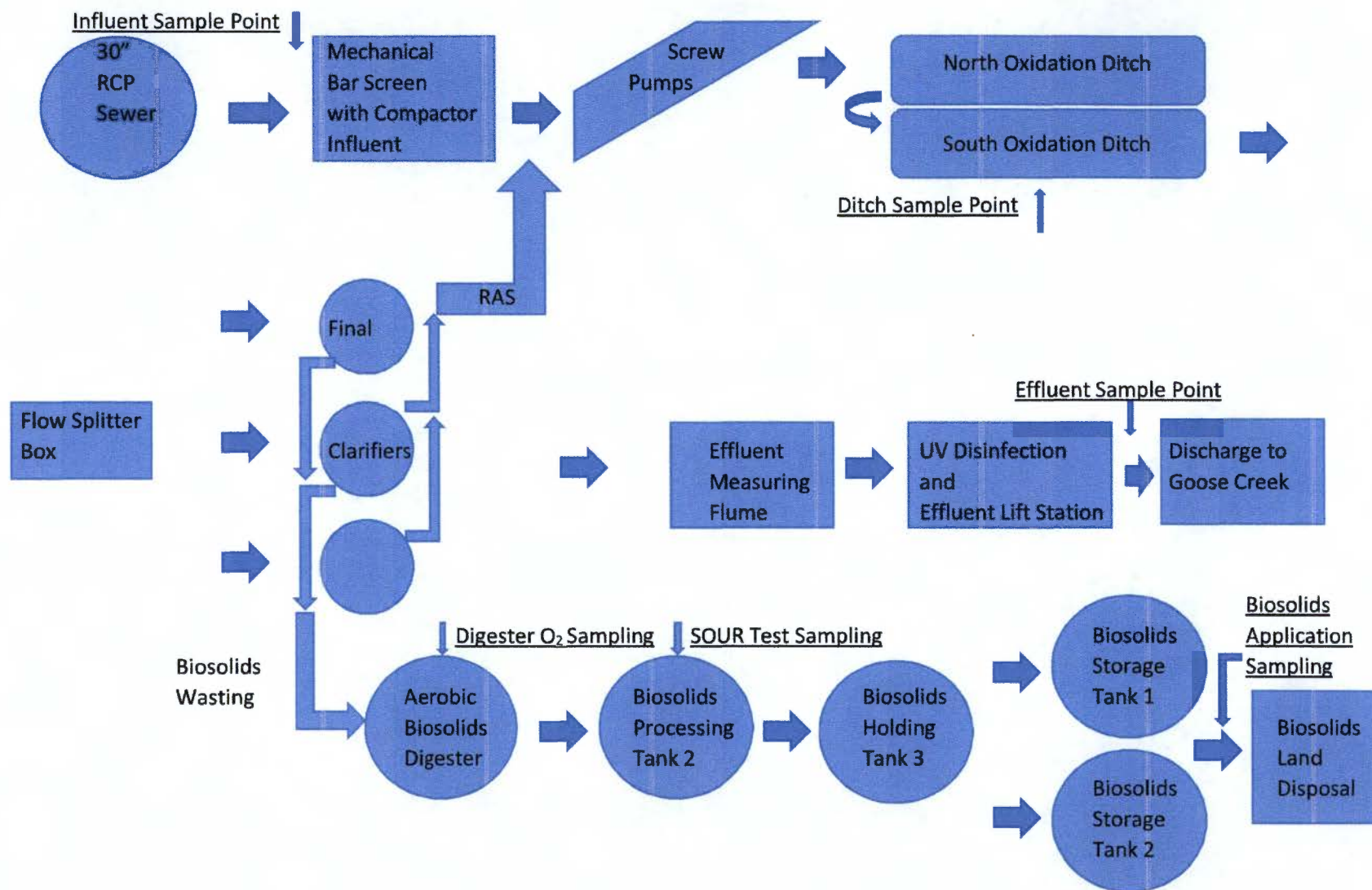
Please see the attached Acute Toxicity Testing results from 2014, 2015, and 2016.

Part F: INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

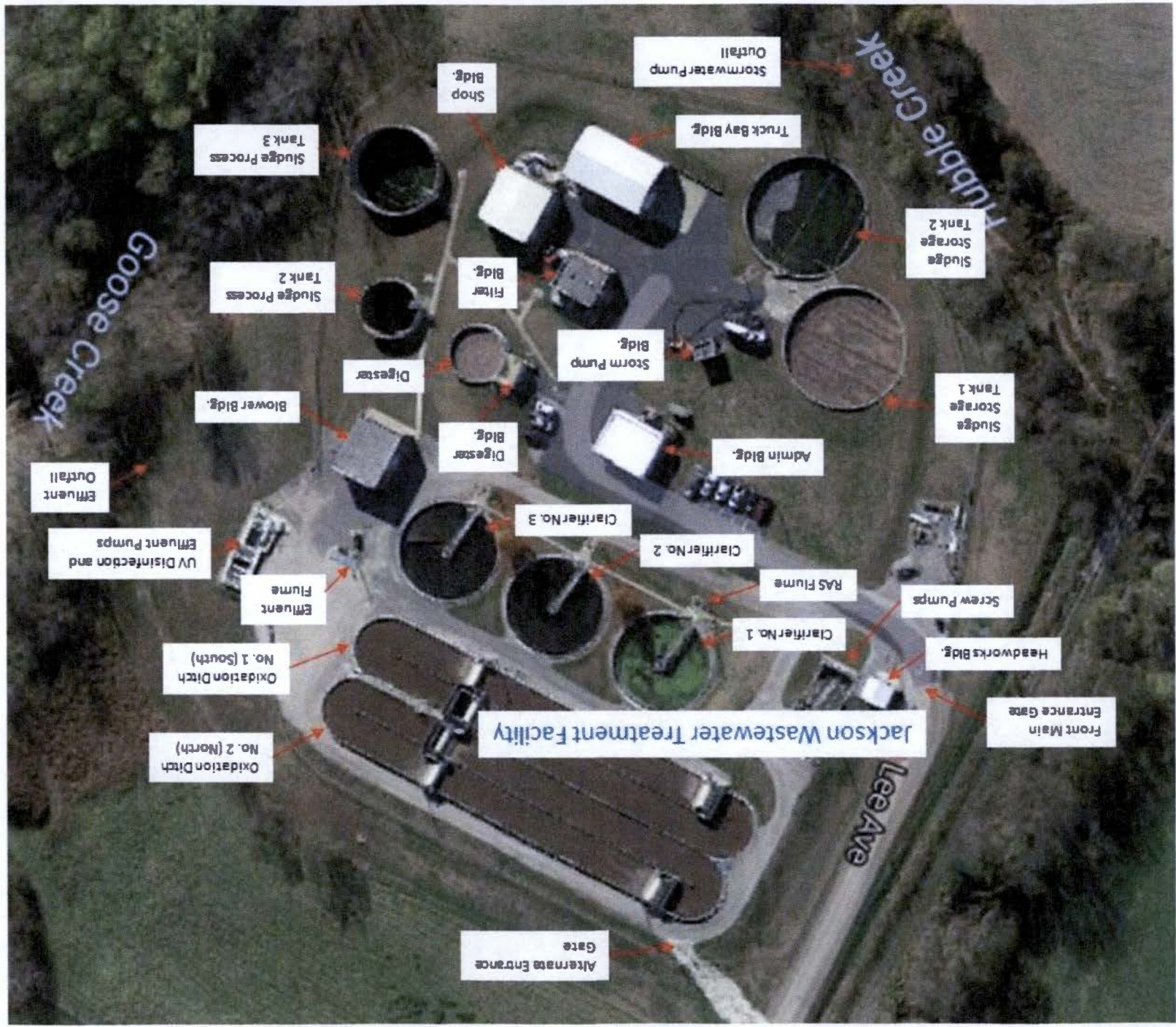
We have two SIUs so I have included a second Page 15.

If there are any questions concerning the information included with Form B, please contact Kent Peetz, Director of Wastewater Utilities, at 573-243-4290, or kpeetz@jacksonmo.org.

JACKSON WATER RECLAMATION FACILITY FLOW DIAGRAM



FORM B, PART A, 7.1



Jackson Municipal Wastewater Treatment Plant
View of area around treatment facility.



No known wells within $\frac{1}{4}$ mile of treatment plant.

One mile radius shown.

Water bodies include Hubble Creek and Goose Creek as shown.

All wastewater collection system shown.

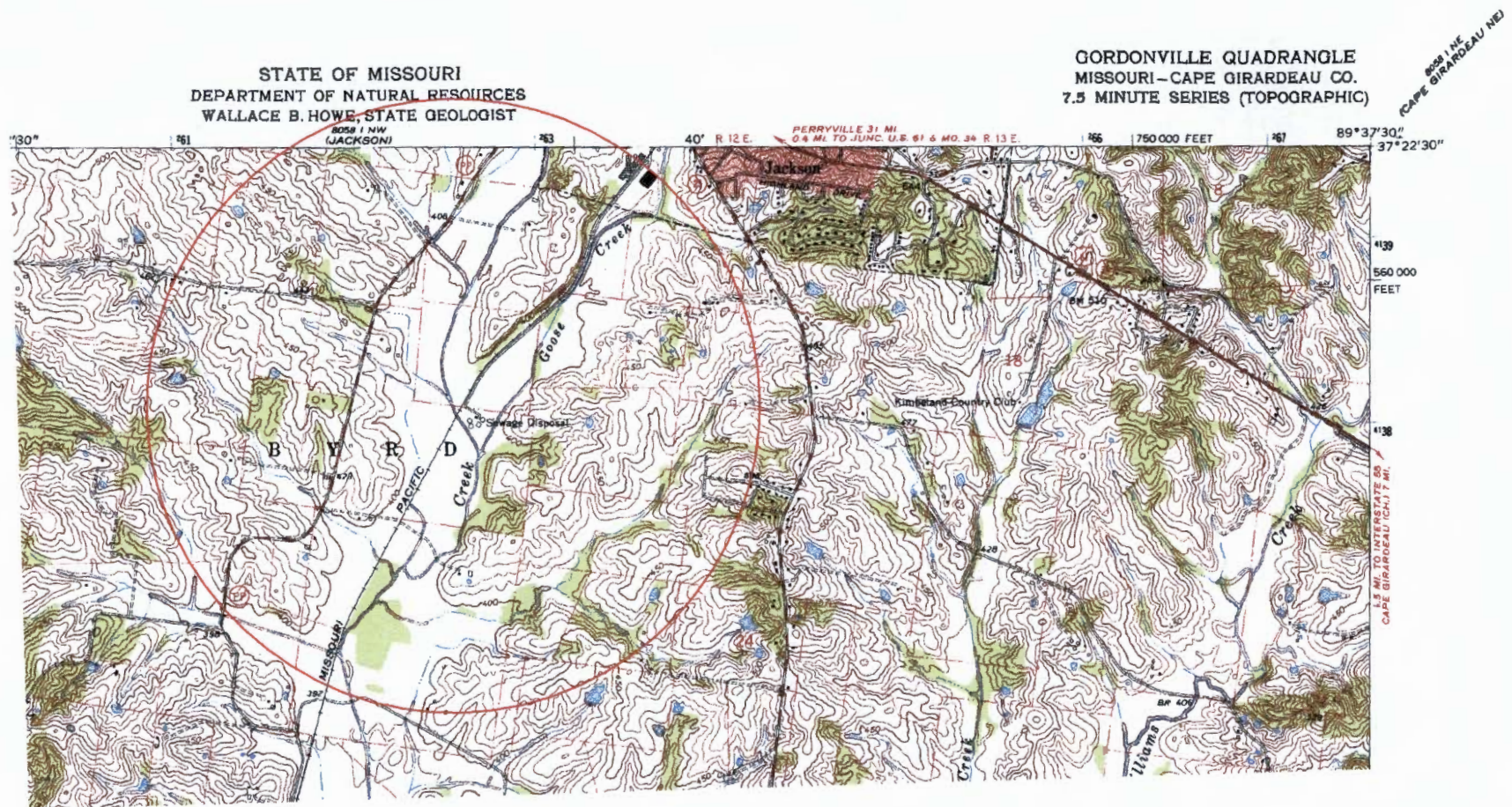
One sludge disposal area shown within 1 mile of plant.



Downstream Landowner
Paul W. & Eileen C. Meier Trust

Jackson Water Pollution Control Facility Location with Approximate One Mile Radius Shown
MO-0022853

MO-0022853



Part D - Expanded Effluent Testing Data
17. Expanded Effluent Testing Data

Pollutant	Maximum Daily Discharge *				Average Daily Discharge						
	conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of	Analytical	ML/MDL
									Samples	Method	
Metals(Total Recoverable), Cyanide, Phenols and Hardness											
Aluminum	Waiting on 3rd sample results										
Antimony	Waiting on 3rd sample results										
Arsenic	0.00087	mg/l	6.030	lb/d	0.000867	mg/l	0.0130154	lb/d	3	EPA-200.8	
Beryllium	Waiting on 3rd sample results										
Cadmium	<0.0003	mg/l	<0.025	lb/d	<0.0003	mg/l	<0.0045	lb/d	3	GLI ME-71	
Chromium III	<0.005	mg/l	<0.417	lb/d	<0.005	mg/l	<0.075	lb/d	3	SM-3111B/3500-Cr B-01	
Chromium IV	<0.005	mg/l	<0.417	lb/d	<0.005	mg/l	<0.075	lb/d	3	SM-3500-Cr B-01	
Copper	0.015	mg/l	1.251	lb/d	0.015	mg/l	0.225	lb/d	3	SM-3111 B-99	
Iron	Waiting on 3rd sample results										
Lead	0.000141	mg/l	0.286	lb/d	0.000141	mg/l	0.002	lb/d	3	EPA-200.8	
Mercury	<0.0002	mg/l	<0.017	lb/d	<0.0002	mg/l	<0.003	lb/d	3	SM-3111 B-99	
Nickel	<0.015	mg/l	<0.251	lb/d	<0.015	mg/l	<0.225	lb/d	3	SM-3111 B-99	
Selenium	<0.0020	mg/l	<0.167	lb/d	<0.0020	mg/l	<0.030	lb/d	3	EPA-200.8	
Silver	<0.0020	mg/l	<0.167	lb/d	<0.0020	mg/l	<0.030	lb/d	3	EPA-200.8	
Thallium	Waiting on 3rd sample results										
Zinc	0.039667	mg/l	3.308	lb/d	0.0396667	mg/l	0.595476	lb/d	3	EPA-200.8	
Cyanide	<0.005	mg/l	<0.417	lb/d	<0.005	mg/l	<0.075	lb/d	3	Lachat-CN2/SM-4500 CN G	
Total Phenolics	Waiting on 3rd sample results										
Hardness	319	mg/l	26,605	lb/d	319	mg/l	4,789	lb/d	3	SM-2340B-97	

* Note: All testing was performed at Average Daily Flows. Maximum Daily Discharge computed using Average Daily Concentration.

Ann Wagoner

From: Barb Pandolfo [bpandolfo@pdclab.com]
Sent: Wednesday, May 31, 2017 2:01 PM
To: 'Ann Wagoner'
Subject: RE: Need your help on this

They are all on our normal list but do have different names. Just ask for full TTO list and you should get all t=of them.
Thanks.

Barbara Pandolfo
Project Manager
PDC Laboratories, Inc.
D: 314.595.7336 | bpandolfo@pdclab.com

This communication including any attachments is for the exclusive and confidential use of the designated recipient and any other distribution or use is unauthorized and strictly prohibited. If you have received this communication in error, please notify the sender by replying to this message and then deleting the message from your system.

From: Ann Wagoner [<mailto:awagoner@easouth.com>]
Sent: Wednesday, May 31, 2017 1:27 PM
To: Barb Pandolfo
Subject: Need your help on this

Barb

Our client City of Jackson did a TTO analysis last year and they just discovered they were missing 9 compounds. I don't need to go back to 2016 but when they do the analysis this year they want to be sure they get these 9. I have attached the list they are going off of and circled the 9 they couldn't find. I also made a note beside two of them which may already be on the list?? I also know sometimes a compound can be referred to in two different ways. I also attached a copy of your analysis from 2016 so you can see what was run. Just let me know what I need to ask for when I send in their samples to get the complete list. Maybe I got it wrong when I asked for a TTO volatile and semi volatile instead of a general volatile list?? Or maybe they will need to pay for two different volatile runs to get all these compounds? Just let me know what you find out.

Thank you
Ann

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME Jackson Municipal Wastewater Treatment	PERMIT NO. MO- 0022853	OUTFALL NO. 1
---	---------------------------	------------------

PART D - EXPANDED EFFLUENT TESTING DATA
17. EXPANDED EFFLUENT TESTING DATA

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

If the treatment works has a design flow greater than or equal to 1 million gallons per day or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information for **each outfall through which effluent is discharged**. Do not include information of combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. Indicate in the blank rows provided below any data you may have on pollutants not specifically listed in this form. At a minimum, effluent testing data must be based on at least **three pollutant scans** and must be no more than four and one-half years apart.

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS AND HARDNESS											
ALUMINUM	See	Attache	d	Reports							
ANTIMONY											
ARSENIC											
BERYLLIUM											
CADMIUM											
CHROMIUM III											
CHROMIUM VI											
COPPER											
IRON											
LEAD											
MERCURY											
NICKEL											
SELENIUM											
SILVER											
THALLIUM											
ZINC											
CYANIDE											
TOTAL PHENOLIC COMPOUNDS											
HARDNESS (as CaCO ₃)											
VOLATILE ORGANIC COMPOUNDS											
ACROLEIN											
ACRYLONITRILE											
BENZENE											
BROMOFORM											
CARBON TETRACHLORIDE											

FACILITY NAME Jackson Wastewater Treatment	PERMIT NO. MO- 0022853	OUTFALL NO. 1
---	---------------------------	------------------

PART D - EXPANDED EFFLUENT TESTING DATA

17. EXPANDED EFFLUENT TESTING DATA

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
CHLORO BENZENE											
CHLORODIBROMO-METHANE											
CHLOROETHANE											
2-CHLORO-ETHYL VINYL ETHER											
CHLOROFORM											
DICHLOROBROMO-METHANE											
1,1-DICHLORO-ETHANE											
1,2-DICHLORO-ETHANE											
TRANS-1,2-DICHLOROETHYLENE											
1,1-DICHLORO-ETHYLENE											
1,2-DICHLORO-PROPANE											
1,3-DICHLORO-PROPYLENE											
ETHYL BENZENE											
METHYL BROMIDE											
METHYL CHLORIDE											
METHYLENE CHLORIDE											
1,1,2,2-TETRA-CHLOROETHANE											
TETRACHLORO-ETHANE											
TOLUENE											
1,1,1-TRICHLORO-ETHANE											
1,1,2-TRICHLORO-ETHANE											
TRICHLOROETHYLENE											
VINYL CHLORIDE											

ACID-EXTRACTABLE COMPOUNDS

P-CHLORO-M-CRESOL											
2-CHLOROPHENOL											
2,4-DICHLOROPHENOL											
2,4-DIMETHYLPHENOL											
4,6-DINITRO-O-CRESOL											
2,4-DINITROPHENOL											
2-NITROPHENOL											
4-NITROPHENOL											

FACILITY NAME Jackson Wastewater Treatment	PERMIT NO. MO- 0022853	OUTFALL NO. 1
--	----------------------------------	-------------------------

PART D - EXPANDED EFFLUENT TESTING DATA

17. EXPANDED EFFLUENT TESTING DATA

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

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

They found this compound on the list but spelled "methene" & didn't know if it was the same as this one spelled with a "a"



SUMMIT
ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

TTO
2014

LABORATORY REPORT

Client

Environmental Analysis South
4000 East Jackson Blvd.
Jackson, MO 63755

Order Number

1400351

Project Number

N/A

Issued

Wednesday, February 19, 2014

Total Number of Pages

7 (excluding C.O.C. and cooler receipt form)

Approved By:


QA Manager



Certifications: A2LA/DOD 0724.01, Alabama 41600, Arkansas 88-0735, California 07256CA, Colorado, Connecticut PH-0105, Delaware, Florida NELAC E87688, Georgia E87688 and 943, Idaho OH00923, Illinois 200061 and Reg.5, Indiana C-OH-13, Kansas E-10347, Kentucky (underground Storage Tank) 3, Kentucky 90146, Louisiana 04061 and LA12004, Maine 2012015, Maryland 339, Massachusetts M-OPH923, Michigan (Reg.5), Minnesota 409711, Montana CERT0099, New Hampshire 2996, New Jersey OH006, New York 11777, North Carolina 39705 and 631, Ohio 4170, Ohio VAP CL0052, Oklahoma 9940, Oregon OH200001, Pennsylvania 68-01335, Rhode Island LA000317, South Carolina 92016001, Tennessee TN04018, Texas T104704468-11-5, Region 5 WG-15J, Region 8 8TMS-L, USDA/APHIS P330-11-00244, Utah OH009232011-1, Vermont VT-87688, Virginia 00440 and 1581, Washington C891, West Virginia 248 and 9957C and E87688, Wisconsin 399013010

"Analytical Integrity" • EPA Certified • NELAP Certified

3310 Win Street • Cuyahoga Falls, Ohio 44223 • Phone: 330-253-8211 • Fax: 330-253-4489

Web Site: www.settek.com



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ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

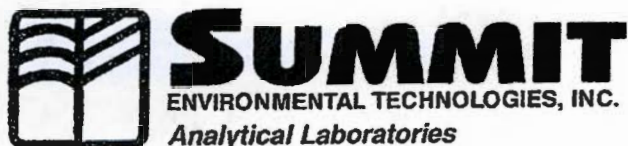
2

Sample Summary

Client: Environmental Analysis South

Order Number: 1400351

Laboratory ID	Client ID	Matrix	Sampling Date
1400351-01	1701515	Liquid	2/11/2014



3

Report Narrative

Client: Environmental Analysis South

Order Number: 1400351

No problems were encountered during analysis of this order number, except as noted.

Method numbers, unless specified as SM or ASTM, are EPA methods.

Data Qualifiers:

B = Analyte found in the method blank
J = Estimated concentration of analyte between MDL (LOD) and Reporting Limit (LOQ)
C = Analyte has been confirmed by another instrument or method
E = Analyte exceeds the upper limit of the calibration curve.
D = Sample or extract was analyzed at a higher dilution
X = User defined data qualifier.
S = Surrogate out of control limits
U = Undetected
a = Not Accredited by NELAC

ND = Non Detected at LOQ

DF = Dilution Factor

Limit Of Quantitation (LOQ) = Laboratory Reporting Limit (not adjusted for dilution factor)

Limit Of Detection (LOD) = Method Detection Limit

Practical Quantitation Limit (PQL) = (same as LOQ)

Method Detection Limit (MDL) = (same as LOD)

Reporting Detection Limit (RDL) = (same as LOD)

Matrices:

A = Air
C = Cream
DW = Drinking Water
L = Liquid
O = Oil
SL = Sludge
SO = Soil
S = Solid
T = Tablet
TC = TCLP Extract
WW = Waste Water
W = Wipe

Estimated uncertainty values are available upon request.

The test results meet the requirements of the NELAC standard, except where noted. The information contained in this analytical report is the sole property of Summit Environmental Technologies, Inc. and that of the client. It cannot be reproduced in any form without the consent of Summit Environmental Technologies, Inc. or the client for which this report was issued. The results contained in this report are only representative of the samples received. Conditions can vary at different times and at different sampling conditions. Summit Environmental Technologies, Inc. is not responsible for use or interpretation of the data included herein.

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3310 Win Street • Cuyahoga Falls, Ohio 44223 • Phone: 330-253-8211 • Fax: 330-253-4489

Web Site: www.settek.com



SUMMIT

ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

February 19, 2014

Client: Environmental Analysis South
Address: 4000 East Jackson Blvd.
Jackson, MO 63755

Received: 2/12/2014

Project #: N/A

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	LOQ	Run	Analyst
1701515	1400351-01	11-Feb-14	TTO	ND	mg/L	L	624,625, 608	1	1	18-Feb-14	JBN

TTO(Pest/PCB608)

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	LOQ	Run	Analyst
1701515	1400351-01	11-Feb-14	Dieldrin	ND	mg/L	L	608	1	0.0003	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	4,4' - DDE	ND	mg/L	L	608	1	0.0003	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	4,4' - DDT	ND	mg/L	L	608	1	0.0003	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	Aldrin	ND	mg/L	L	608	1	0.0003	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	Alpha - BHC	ND	mg/L	L	608	1	0.0003	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	Alpha-Endosulfan (I)	ND	mg/L	L	608	1	0.0005	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	Beta - BHC	ND	mg/L	L	608	1	0.0003	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	Beta-Endosulfan (II)	ND	mg/L	L	608	1	0.0005	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	4,4' - DDD	ND	mg/L	L	608	1	0.0003	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	Delta - BHC	ND	mg/L	L	608	1	0.0003	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	Toxaphene	ND	mg/L	L	608	1	0.02	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	Endosulfan Sulfate	ND	mg/L	L	608	1	0.0003	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	Endrin	ND	mg/L	L	608	1	0.0003	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	Endrin Aldehyde	ND	mg/L	L	608	1	0.0003	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	Gamma - BHC	ND	mg/L	L	608	1	0.0003	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	Heptachlor	ND	mg/L	L	608	1	0.0003	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	Heptachlor Epoxide	ND	mg/L	L	608	1	0.0003	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	Chlordane	ND	mg/L	L	608	1	0.003	18-Feb-14	JBN
1701515	1400351-01	11-Feb-14	PCBs	ND	mg/L	L	608	1	0.003	18-Feb-14	JBN



SUMMIT

ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

February 19, 2014

Client: Environmental Analysis South
Address: 4000 East Jackson Blvd.
Jackson, MO 63755

Received: 2/12/2014

Project #: N/A

TTO(S-VOC625)

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	LOQ	Run	Analyst
1701515	1400351-01	11-Feb-14	Acenaphthene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Acenaphthylene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Anthracene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Benzidine	ND	ug/L	L	625	1	50	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Benzo (a) anthracene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Benzo(b)Fluoranthene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Benzo (k) Fluoranthene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Benzo (a) pyrene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Benzo (ghi) perylene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Butyl benzyl phthalate	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	bis (2-Chloroethyl) ether	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	bis (2-Chloroethoxy) metha	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	bis (2-Ethylhexyl) phthalate	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	bis (2-chloroisopropyl) ether	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	4-Bromophenyl phenyl ether	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	2-Chloronaphthalene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	4-Chlorophenyl phenyl ether	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Chrysene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Dibenzo (a,h)anthracene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Di-n-butyl phthalate	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	1,3-Dichlorobenzene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	1,2-Dichlorobenzene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	1,4-dichlorobenzene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Diethyl phthalate	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Dimethyl phthalate	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	2,4-Dinitrotoluene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	2,6-Dinitrotoluene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Di-n-octyl phthalate	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	1,2-Diphenylhydrazine	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Fluoranthene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Fluorene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Hexachlorobenzene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Hexachlorobutadiene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	3,3'-Dichlorobenzidine	ND	ug/L	L	625	1	50	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Hexachlorocyclopentadiene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Hexachloroethane	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Indeno (1,2,3-cd) pyrene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Isophorone	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Naphthalene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Nitrobenzene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	N-Nitrosodi-n-propylamine	ND	ug/L	L	625	1	10	18-Feb-14	AE

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SUMMIT

ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

February 19, 2014

Client: Environmental Analysis South
Address: 4000 East Jackson Blvd.
Jackson, MO 63755

Received: 2/12/2014

Project #: N/A

TTO(S-VOC625)

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	LOQ	Run	Analyst
1701515	1400351-01	11-Feb-14	N-Nitrosodimethylamine	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	N-Nitrosodiphenylamine	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Phenanthrene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Pyrene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	1,2,4-Trichlorobenzene	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	2-Chlorophenol	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	4-Chloro-3-methylphenol	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	2,4-Dichlorophenol	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	2,4-Dimethylphenol	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	2,4-Dinitrophenol	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	2-Methyl-4,6-dinitrophenol	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	2-Nitrophenol	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	4-Nitrophenol	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Pentachlorophenol	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	Phenol	ND	ug/L	L	625	1	10	18-Feb-14	AE
1701515	1400351-01	11-Feb-14	2,4,6-Trichlorophenol	ND	ug/L	L	625	1	10	18-Feb-14	AE



SUMMIT

ENVIRONMENTAL TECHNOLOGIES, INC.
Analytical Laboratories

February 19, 2014

Client: Environmental Analysis South
Address: 4000 East Jackson Blvd.
Jackson, MO 63755

Received: 2/12/2014

Project #: N/A

TTO(VOC624)

Client ID#	Lab ID#	Collected	Analyte	Result	Units	Matrix	Method	DF	LOQ	Run	Analyst
1701515	1400351-01	11-Feb-14	Acrolein	ND	ug/L	L	624	1	100	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Acrylonitrile	ND	ug/L	L	624	1	100	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Benzene	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Bromodichloromethane	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Bromoform	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Bromomethane	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Carbon Tetrachloride	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Chlorobenzene	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Chloroethane	ND	ug/L	L	624	1	10	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	2-Chloroethyl Vinyl Ether	ND	ug/L	L	624	1	10	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Chloroform	ND	ug/L	L	624	1	10	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Chloromethane	ND	ug/L	L	624	1	10	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Dibromochloromethane	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	1,2-Dichlorobenzene	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	1,3-Dichlorobenzene	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	1,4-Dichlorobenzene	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	1,1-Dichloroethane	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	1,2-Dichloroethane	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	1,1-Dichloroethene	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	trans-1,2-Dichloroethene	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	1,2-Dichloropropane	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Cis-1,3-dichloropropene	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	trans-1, 3-Dichloropropene	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Ethylbenzene	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Methylene Chloride	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	1,1,2,2-Tetrachloroethane	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Tetrachloroethene	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Toluene	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	1,1,1-Trichloroethane	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	1,1,2-Trichloroethane	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Trichloroethene	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Trichlorofluoromethane	ND	ug/L	L	624	1	10	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Vinyl Chloride	ND	ug/L	L	624	1	10	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Dichlorodifluoromethane	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Xylenes	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	Naphthalene	ND	ug/L	L	624	1	5	13-Feb-14	MS
1701515	1400351-01	11-Feb-14	%Dibromofluorometh Rec.	101.7		L	624	1		13-Feb-14	MS
1701515	1400351-01	11-Feb-14	%Toluene-d8 Rec.	102.2		L	624	1		13-Feb-14	MS
1701515	1400351-01	11-Feb-14	%4-Bromofluoroben Rec.	95.5		L	624	1		13-Feb-14	MS



PDC Laboratories, Inc.

PROFESSIONAL • DEPENDABLE • COMMITTED

February 23, 2016

Dave Warren
Environmental Analysis South
4000 E Jackson Blvd
Jackson, MO 63755

Dear Dave Warren:

Please find enclosed the analytical results for the sample(s) the laboratory received on 2/11/16 11:15 am and logged in under work order 6021866. 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,

Barb Pandolfo
Project Manager
(314) 432-0550
bpandolfo@pdclab.com





PDC Laboratories, Inc.

3278 North Highway 67

Florissant, MO 63033

(800) 333-3278

TTO
2/10/16

ANALYTICAL RESULTS

Sample: 6021866-01
Name: 1912725
Matrix: Waste Water

Sampled: 02/10/16 08:21
Received: 02/11/16 11:15
PO #: 6021866

Parameter	Result	Unit	Qualifier	Analyzed	Analyst	Method
Pesticides - PIA						
4,4'-DDD	< 1.0	ug/L		02/22/16 18:10	JMT	EPA 608
4,4'-DDE	< 1.0	ug/L		02/22/16 18:10	JMT	EPA 608
4,4'-DDT	< 1.0	ug/L		02/22/16 18:10	JMT	EPA 608
Aldrin	< 0.50	ug/L		02/22/16 18:10	JMT	EPA 608
Alpha-BHC	< 0.50	ug/L		02/22/16 18:10	JMT	EPA 608
Aroclor 1016	< 5.0	ug/L		02/22/16 18:10	JMT	EPA 608
Aroclor 1221	< 10	ug/L		02/22/16 18:10	JMT	EPA 608
Aroclor 1232	< 5.0	ug/L		02/22/16 18:10	JMT	EPA 608
Aroclor 1242	< 5.0	ug/L		02/22/16 18:10	JMT	EPA 608
Aroclor 1248	< 5.0	ug/L		02/22/16 18:10	JMT	EPA 608
Aroclor 1254	< 10	ug/L		02/22/16 18:10	JMT	EPA 608
Aroclor 1260	< 10	ug/L		02/22/16 18:10	JMT	EPA 608
Aroclors - Total	< 50	ug/L		02/22/16 18:10	JMT	EPA 608
ta-BHC	< 0.50	ug/L		02/22/16 18:10	JMT	EPA 608
Chlordane (technical)	< 5.0	ug/L		02/22/16 18:10	JMT	EPA 608
Delta-BHC	< 0.50	ug/L		02/22/16 18:10	JMT	EPA 608
Dieldrin	< 1.0	ug/L		02/22/16 18:10	JMT	EPA 608
Endosulfan I	< 0.50	ug/L		02/22/16 18:10	JMT	EPA 608
Endosulfan II	< 1.0	ug/L		02/22/16 18:10	JMT	EPA 608
Endosulfan sulfate	< 1.0	ug/L		02/22/16 18:10	JMT	EPA 608
Endrin	< 1.0	ug/L		02/22/16 18:10	JMT	EPA 608
Endrin aldehyde	< 1.0	ug/L		02/22/16 18:10	JMT	EPA 608
gamma-BHC (Lindane)	< 0.50	ug/L		02/22/16 18:10	JMT	EPA 608
Heptachlor	< 0.50	ug/L		02/22/16 18:10	JMT	EPA 608
Heptachlor epoxide	< 0.50	ug/L		02/22/16 18:10	JMT	EPA 608
Methoxychlor	< 5.0	ug/L		02/22/16 18:10	JMT	EPA 608
Toxaphene	< 5.0	ug/L		02/22/16 18:10	JMT	EPA 608
Semivolatile Organics - STL						
1,2,4-Trichlorobenzene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
1,2-Dichlorobenzene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625*
1,3-Dichlorobenzene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625*
1,4-Dichlorobenzene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625*
2,4,5-Trichlorophenol	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625*
2,4,6-Trichlorophenol	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
2,4-Dichlorophenol	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
2,4-Dimethylphenol	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
2,4-Dinitrophenol	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Dinitrotoluene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Dimethylaniline	< 5.00	ug/L		02/18/16 15:06	BP	EPA 625*
2,6-Dinitrotoluene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625

**PDC Laboratories, Inc.**

3278 North Highway 67

Florissant, MO 63033

(800) 333-3278

ANALYTICAL RESULTS

Sample: 6021866-01
Name: 1912725
Matrix: Waste Water

Sampled: 02/10/16 08:21
Received: 02/11/16 11:15
PO #: 6021866

Parameter	Result	Unit	Qualifier	Analyzed	Analyst	Method
2-Chloronaphthalene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
2-Chlorophenol	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
2-Nitrophenol	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
3,3'-Dichlorobenzidine	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
4,6-Dinitro-2-methylphenol	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625*
4-Bromophenyl phenyl ether	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
4-Chloro-3-methylphenol	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
4-Chlorophenylphenyl ether	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
4-Nitrophenol	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Acenaphthene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Acenaphthylene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Anthracene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Azobenzene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625*
Benzidine	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625*
Benzo(a)anthracene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Benzo(a)pyrene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Benzo(b)fluoranthene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Benzo(g,h,i)perylene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Benzo(k)fluoranthene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Bis(2-chloroethoxy) methane	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Bis(2-chloroethyl) ether	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Bis(2-chloroisopropyl) ether	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Bis(2-ethylhexyl) phthalate	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Butyl benzyl phthalate	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Chrysene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Dibenzo(a,h)anthracene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Diethyl phthalate	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Dimethyl phthalate	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Di-n-butyl phthalate	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Di-n-octyl phthalate	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Diphenylamine	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Fluoranthene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Fluorene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Hexachlorobenzene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Hexachlorobutadiene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Hexachlorocyclopentadiene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Hexachloroethane	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Indeno(1,2,3-cd)pyrene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Isophorone	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Naphthalene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Phenyl benzene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
N-Nitrosodimethylamine	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
N-Nitrosodi-n-propylamine	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625

**PDC Laboratories, Inc.**

3278 North Highway 67

Florissant, MO 63033

(800) 333-3278

ANALYTICAL RESULTS

Sample: 6021866-01
Name: 1912725
Matrix: Waste Water

Sampled: 02/10/16 08:21
Received: 02/11/16 11:15
PO #: 6021866

Parameter	Result	Unit	Qualifier	Analyzed	Analyst	Method
Pentachlorophenol	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Phenanthrene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Phenol	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Pyrene	< 10.0	ug/L		02/18/16 15:06	BP	EPA 625
Surrogate: 2-Fluorophenol	19 %	10-48.3		02/18/16 15:06	BP	EPA 625*
Surrogate: Phenol- d5	13 %	10-32.4		02/18/16 15:06	BP	EPA 625*
Surrogate: Nitrobenzene-d5	38 %	18.9-92.4		02/18/16 15:06	BP	EPA 625*
Surrogate: 2-Fluorobiphenyl	49 %	12.2-95.2		02/18/16 15:06	BP	EPA 625*
Surrogate: 2,4,6-Tribromophenol	67 %	10-102		02/18/16 15:06	BP	EPA 625*
Surrogate: p-Terphenyl-d14	58 %	15.8-107		02/18/16 15:06	BP	EPA 625*

Volatile Organics - STL

1,1,1-Trichloroethane	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
1,1,2,2-Tetrachloroethane	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
1,1,2-Trichloroethane	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
1,2-Dichloroethane	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
1,1-Dichloroethene	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
1,2-Dichlorobenzene	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
1,2-Dichloroethane	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
1,2-Dichloropropane	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
1,3-Dichlorobenzene	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
1,4-Dichlorobenzene	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
2-Chloroethylvinyl ether	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
Acrolein	< 50	ug/L		02/17/16 14:43	BP	EPA 624
Acrylonitrile	< 10	ug/L		02/17/16 14:43	BP	EPA 624
Benzene	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
Bromodichloromethane	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
Bromoform	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
Bromomethane	< 10	ug/L		02/17/16 14:43	BP	EPA 624
Carbon tetrachloride	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
Chlorobenzene	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
Chloroethane	< 10	ug/L		02/17/16 14:43	BP	EPA 624
Chloroform	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
Chloromethane	< 10	ug/L		02/17/16 14:43	BP	EPA 624
cis-1,3-Dichloropropene	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
Dibromochloromethane	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
Ethylbenzene	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
m,p-Xylene	< 10	ug/L		02/17/16 14:43	BP	EPA 624*
Methylene chloride	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
o-Xylene	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624*
1,2-Dichloroethene	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
Styrene	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624
trans-1,2-Dichloroethene	< 5.0	ug/L		02/17/16 14:43	BP	EPA 624

**PDC Laboratories, Inc.**

3278 North Highway 67

Florissant, MO 63033

(800) 333-3278

ANALYTICAL RESULTS

Sample: 6021866-01
Name: 1912725
Matrix: Waste Water

Sampled: 02/10/16 08:21
Received: 02/11/16 11:15
PO #: 6021866

Parameter	Result	Unit	Qualifier	Analyzed	Analyst	Method
trans-1,3-Dichloropropene	< 5.0	ug/L		02/17/16 14:43	BP	EPA 824
Trichloroethene	< 5.0	ug/L		02/17/16 14:43	BP	EPA 824
Trichlorofluoromethane	< 5.0	ug/L		02/17/16 14:43	BP	EPA 824
Vinyl chloride	< 5.0	ug/L		02/17/16 14:43	BP	EPA 824
Surrogate: 1,2-Dichloroethane-d4	85 %	55.3-123		02/17/16 14:43	BP	EPA 624*
Surrogate: Toluene-d8	88 %	67.9-117		02/17/16 14:43	BP	EPA 624*
Surrogate: Bromofluorobenzene	102 %	69.4-134		02/17/16 14:43	BP	EPA 624*



PDC Laboratories, Inc.

3278 North Highway 67

Florissant, MO 63033

(800) 333-3278

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

Barbara G Pandolfo

Certified by: Barb Pandolfo, Project Manager



Client: FDC Labs

Address: _____

City/State/Zip: _____

PO Number: _____ Rush Requested (Due Date: _____)

Sampler's Signature: _____

Date: 2/18/16 Time: 08:21 See Table

Additional Comments:

*Container Code: P = Plastic V= VOA Vial C = Cube G = Glass A = Glass Amber

**Preservative Code: I = Iced F = Filtered N = Nitric Acid H = Hydrochloric Acid S = Sodium Hydroxide O = Sulfuric Acid T = Sodium Thiosulfate X = Other

Relinquished by:	Date	Time	Received by:	Date	Time	Carrier
Serial						
Relinquished by:	Date	Time	Received by:	Date	Time	Carrier
<i>[Signature]</i>	2/10/16	1400	Heather Gachet	2/11/16	1415	UPS

Revised June 29, 1999

SUBCONTRACT ORDER
Transfer Chain of Custody

PDC Laboratories, Inc.
6021866

SENDING LABORATORY

PDC Laboratories, Inc.
3278 N Highway 87
Florissant, MO 63033
(800) 333-3278

RECEIVING LABORATORY

PDC Laboratories, Inc.
2231 W Altorfer Dr
Peoria, IL 61615
(309) 692-9688

Sample: 6021866-01
Name: 1912725

Sampled: 02/10/16 08:21
Matrix: Water

Analysis	Due	Expires	Comments
M608	02/23/16 16:00	02/17/16 08:21	

Please email results to Barb Pandolfo at bpandolfo@pdclab.com

Date Shipped: 2/11/16 Total # of Containers: 1 Sample Origin (State): _____ PO #: _____
Turn-Around Time Requested ☒ NORMAL ☐ RUSH Date Results Needed: _____

Relinquished By		Date/Time		Received By		Date/Time		Sample Temperature Upon Receipt	<u>6</u> °C
H. [Signature]		2/11/16		[Signature]		2/12/16 930		Sample(s) Received on Ice	<u>Y</u> or N
Relinquished By		Date/Time		Received By		Date/Time		Proper Bottles Received in Good Condition	<u>Y</u> or N
[Signature]		[Signature]		[Signature]		[Signature]		Bottles Filled with Adequate Volume	<u>Y</u> or N
Relinquished By		Date/Time		Received By		Date/Time		Samples Received Within Hold Time	<u>Y</u> or N
[Signature]		[Signature]		[Signature]		[Signature]		Date/Time Taken From Sample Bottle	<u>Y</u> or N



PDC Laboratories, Inc.

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(314) 432-0550 • (800) 333-FAST • FAX (314) 432-4977



TTO 2015

Environmental Analysis South
4000 E Jackson Blvd
Jackson, MO 63755
Attn: Dave Warren

Date Received: 02/06/15 10:53
Report Date: 02/18/15
Customer #: 275325
PO#: 5020925

Laboratory Results

Sample No: 5020925-01
Sample Description: 1806926

Collect Date: 02/05/15 08:30
Matrix: Waste Water

Parameters	Result	Qual	Analysis Date	Analyst	Method
<u>Pesticides - PIA</u>					
4,4'-DDD	< 1.0 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
4,4'-DDE	< 1.0 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
4,4'-DDT	< 1.0 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Aldrin	< 0.50 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Alpha-BHC	< 0.50 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Aroclor 1016	< 5.0 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Aroclor 1221	< 10 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Aroclor 1232	< 5.0 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Aroclor 1242	< 5.0 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Aroclor 1248	< 5.0 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Aroclor 1254	< 10 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Aroclor 1260	< 10 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Aroclors - Total	< 50 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Beta-BHC	< 0.50 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Chlordane (technical)	< 5.0 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Delta-BHC	< 0.50 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Dieldrin	< 1.0 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Endosulfan I	< 0.50 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Endosulfan II	< 1.0 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Endosulfan sulfate	< 1.0 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Endrin	< 1.0 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Endrin aldehyde	< 1.0 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
gamma-BHC (Lindane)	< 0.50 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Heptachlor	< 0.50 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Heptachlor epoxide	< 0.50 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
Methoxychlor	< 5.0 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA
Toxaphene	< 5.0 ug/L		02/16/15 21:18	JMT	EPA 608 AR,IL,IA,KS
<u>Semivolatile Organics - STL</u>					
1,2,4-Trichlorobenzene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
1,2-Dichlorobenzene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625*
1,3-Dichlorobenzene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625*
1,4-Dichlorobenzene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625*
2,4,5-Trichlorophenol	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625*

5020925



PDC Laboratories, Inc.

3278 N Highway 67 • Florissant, MO 63033
(314) 432-0550 • (800) 333-FAST • FAX (314) 432-4977



Environmental Analysis South
4000 E Jackson Blvd
Jackson, MO 63755
Attn: Dave Warren

Date Received: 02/06/15 10:53
Report Date: 02/18/15
Customer #: 275325
PO#: 5020925

Laboratory Results

Sample No: 5020925-01
Sample Description: 1806926

Collect Date: 02/05/15 08:30
Matrix: Waste Water

Parameters	Result	Qual	Analysis Date	Analyst	Method
Semivolatile Organics - STL					
2,4,6-Trichlorophenol	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
2,4-Dichlorophenol	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
2,4-Dimethylphenol	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
2,4-Dinitrophenol	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
2,4-Dinitrotoluene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
2,6-Dimethylaniline	< 5.00 ug/L		02/11/15 12:46	BP	EPA 625*
2,6-Dinitrotoluene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
2-Chloronaphthalene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
2-Chlorophenol	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
2-Nitrophenol	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
3,3'-Dichlorobenzidine	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
4,6-Dinitro-2-methylphenol	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625*
4-Bromophenyl phenyl ether	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
4-Chloro-3-methylphenol	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
4-Chlorophenylphenyl ether	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
4-Nitrophenol	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Acenaphthene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Acenaphthylene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Anthracene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Azobenzene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625*
Benzidine	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625*
Benzo(a)anthracene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Benzo(a)pyrene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Benzo(b&k)fluoranthene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Benzo(b)fluoranthene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Benzo(g,h,i)perylene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Benzo(k)fluoranthene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Bis(2-chloroethoxy) methane	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Bis(2-chloroethyl) ether	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Bis(2-chloroisopropyl) ether	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Bis(2-ethylhexyl) phthalate	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Butyl benzyl phthalate	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Chrysene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS



PDC Laboratories, Inc.

3278 N Highway 67 • Florissant, MO 63033
(314) 432-0550 • (800) 333-FAST • FAX (314) 432-4977



Environmental Analysis South
4000 E Jackson Blvd
Jackson, MO 63755
Attn: Dave Warren

Date Received: 02/06/15 10:53
Report Date: 02/18/15
Customer #: 275325
PO#: 5020925

Laboratory Results

Sample No: 5020925-01
Sample Description: 1806926

Collect Date: 02/05/15 08:30
Matrix: Waste Water

Parameters	Result	Qual	Analysis Date	Analyst	Method
Semivolatile Organics - STL					
Dibenzo(a,h)anthracene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Diethyl phthalate	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Dimethyl phthalate	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Di-n-butyl phthalate	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Di-n-octyl phthalate	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Diphenylamine	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Fluoranthene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Fluorene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Hexachlorobenzene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Hexachlorobutadiene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Hexachlorocyclopentadiene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Hexachloroethane	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Indeno(1,2,3-cd)pyrene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Isophorone	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Naphthalene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Nitrobenzene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
N-Nitrosodimethylamine	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
N-Nitrosodi-n-propylamine	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Pentachlorophenol	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Phenanthrene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Phenol	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Pyrene	< 10.0 ug/L		02/11/15 12:46	BP	EPA 625 04KS
Surrogate: 2-Fluorophenol	17 % 10-121		02/11/15 12:46	BP	EPA 625
Surrogate: Phenol- d5	12 % 10-157		02/11/15 12:46	BP	EPA 625
Surrogate: Nitrobenzene-d5	73 % 10-109		02/11/15 12:46	BP	EPA 625
Surrogate: 2-Fluorobiphenyl	68 % 10-107		02/11/15 12:46	BP	EPA 625
Surrogate: 2,4,6-Tribromophenol	38 % 10-74		02/11/15 12:46	BP	EPA 625
Surrogate: p-Terphenyl-d14	65 % 10-133		02/11/15 12:46	BP	EPA 625
Volatile Organics - STL					
1,1,1-Trichloroethane	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
1,1,2,2-Tetrachloroethane	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
1,1,2-Trichloroethane	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
1,1-Dichloroethane	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS



PDC Laboratories, Inc.

3278 N Highway 67 • Florissant, MO 63033
(314) 432-0550 • (800) 333-FAST • FAX (314) 432-4977



Environmental Analysis South
4000 E Jackson Blvd
Jackson, MO 63755
Attn: Dave Warren

Date Received: 02/06/15 10:53
Report Date: 02/18/15
Customer #: 275325
PO#: 5020925

Laboratory Results

Sample No: 5020925-01
Sample Description: 1806926

Collect Date: 02/05/15 08:30
Matrix: Waste Water

Parameters	Result	Qual	Analysis Date	Analyst	Method
<u>Volatile Organics - STL</u>					
1,1-Dichloroethene	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
1,2-Dichlorobenzene	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
1,2-Dichloroethane	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
1,2-Dichloropropane	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
1,3-Dichlorobenzene	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
1,4-Dichlorobenzene	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
2-Chloroethylvinyl ether	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Acrolein	< 50 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Acrylonitrile	< 10 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Benzene	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Bromodichloromethane	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Bromoform	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Bromomethane	< 10 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Carbon tetrachloride	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Chlorobenzene	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Chloroethane	< 10 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Chloroform	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Chloromethane	< 10 ug/L		02/12/15 09:58	BP	EPA 624 04KS
cis-1,3-Dichloropropene	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Dibromochloromethane	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Ethylbenzene	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
m,p-Xylene	< 10 ug/L		02/12/15 09:58	BP	EPA 624*
Methylene chloride	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
o-Xylene	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624*
Tetrachloroethene	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Toluene	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
trans-1,2-Dichloroethene	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
trans-1,3-Dichloropropene	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Trichloroethene	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Trichlorofluoromethane	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Vinyl chloride	< 5.0 ug/L		02/12/15 09:58	BP	EPA 624 04KS
Surrogate: 1,2-Dichloroethane-d4	89 % 60.7-121		02/12/15 09:58	BP	EPA 624
Surrogate: Toluene-d8	89 % 60.6-116		02/12/15 09:58	BP	EPA 624



PDC Laboratories, Inc.

3278 N Highway 67 • Florissant, MO 63033
(314) 432-0550 • (800) 333-FAST • FAX (314) 432-4977



Environmental Analysis South
4000 E Jackson Blvd
Jackson, MO 63755
Attn: Dave Warren

Date Received: 02/06/15 10:53
Report Date: 02/18/15
Customer #: 275325
PO#: 5020925

Laboratory Results

Sample No: 5020925-01
Sample Description: 1806926

Collect Date: 02/05/15 08:30
Matrix: Waste Water

Parameters	Result	Qual	Analysis Date	Analyst	Method
<u>Volatile Organics - STL</u>					
Surrogate: Bromofluorobenzene	82 % 69.7-113		02/12/15 09:58	BP	EPA 624



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Environmental Analysis South
4000 E Jackson Blvd
Jackson, MO 63755
Attn: Dave Warren

Date Received: 02/06/15 10:53
Report Date: 02/18/15
Customer #: 275325
PO#: 5020925

Laboratory Results

Notes

This report shall not be reproduced, except in full, without the written approval of the laboratory.

PDC Laboratories participates in the following accreditation/certification and proficiency programs at the following locations.
Endorsement by Federal or State Governments or their agencies is not implied.

PIA PDC Laboratories - Peoria, IL

NELAC 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

Drinking Water Certifications: Kansas (E-10338); Missouri (870); Wisconsin (998284430); Iowa (240)

Wastewater Certifications: Arkansas (88-0677); Wisconsin (998284430); Iowa (240); Kansas (E-10335)

Hazardous/Solid Waste Certifications: Arkansas (88-0677); Wisconsin (998284430); Iowa (240); Kansas (E-10335)

UST Certification; Iowa (240)

SPM PDC Laboratories - Springfield, MO

EPA DMR-QA Program

STL PDC Laboratories - 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

Missouri Department of Natural Resources Drinking Water Certifications: Missouri (1050)

* Not a TNI accredited analyte

Specific method revisions used for analysis are available upon request.

Barbara G Pandolfo

Certified by: Barb Pandolfo, Project Manager

Telephone (573) 204-8817 * Fax (573) 204-8818

Client:

Address:

Date: 2/5/15 Time: 08:30 See Table

City/State/Zip:

Additional Comments:

PO Number: _____ Rush Requested (Due Date: _____)

Revised June 29, 1999

SUBCONTRACT ORDER

PDC Laboratories, Inc.

5020925

PDC LABORATORY:

PDC Laboratories, Inc., 2231 W Altorfer Peoria, IL 61615

PDC Laboratories, Inc., 1805 W Sunset, Springfield, MO 65807

X PDC Laboratories, Inc., 3278 N Highway 67, Florissant, MO 63033

Project Manager: Barb Pandolfo

bpandolfo@pdclab.com Phone: 314-595-7336

Date Shipped

2/9/15

Sample Origin (State)

PO#

Total # of Containers

PDC LABORATORY:

PDC Laboratories, Inc.

PO Box 9071

Peoria, IL 61612

Phone: (314) 992-9688

Analysis

Due

Expires

Comments

Sample ID: 5020925-01

Water

Sampled: 02/05/15 08:30

15.2

02/18/15 16:00

02/12/15 08:30

Turn Around Time Requested (circle one): NORMAL RUSH Date Results Needed:

Heathin Earhart 2/6/15		Sample Temperature Upon Receipt		Y or N
Date/Time		Sample(s) Received on Ice		Y or N
Received By		Proper Bottles Received in Good Condition		Y or N
Date/Time		Bottles Filled with Adequate Volume		Y or N
Received By		Samples Received Within Hold Time		Y or N
Date/Time		Date/Time Taken From Sample Bottle		Y or N

Environmental Analysis South, Inc.

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REPORT OF ACUTE TOXICITY TESTING
Jackson Municipal Wastewater Treatment Plant
Outfall 001 (24 hr composite) AEC = 100%
MO-0022853
EAS LOG#2002603
May 25, 2016 through May 27, 2016

Tests performed by:

John P. Clippard / Chemical Analyst at Environmental Analysis South (EAS)
Kelly J. Ray / Biologist at Environmental Analysis South (EAS)
Sara C. Shields / Lab Supervisor - Chemist at Environmental Analysis South (EAS)
David F. Warren / Lab Director - Chemist at Environmental Analysis South (EAS)

1. Report Summation
 - 1.1. Data Summation
 - 1.2. Conclusion
2. Method Summation
 - 2.1. Test Conditions and Methods
 - 2.2. Potassium chloride Reference Salt Test
 - 2.2.1. *Pimephales promelas* data
 - 2.2.2. *Ceriodaphnia dubia* data
 - 2.3. Literature Cited
3. Raw Data Bench Sheets
 - 3.1. Initial observations (page 1)
 - 3.2. Zero hour Observations (page 1)
 - 3.3. Twenty-four (24) hour Observations (page 1)
 - 3.4. Forty-eight (48) hour Observations (page 1)
 - 3.5. Survival Data Table (page 2)
 - 3.6. Test Comments (page 3)
4. Chain of Custody
5. MO DNR "Whole Effluent Toxicity (WET) Test Report (Form 780-1899)

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REPORT OF ACUTE TOXICITY TESTING
Jackson Municipal Wastewater Treatment Plant
Outfall 001 (24 hr composite) AEC = 100%
MO-0022853
EAS LOG#2002603
May 25, 2016 through May 27, 2016

1. REPORT SUMMATION:

1.1. Multiple Dilution Data Summation

Test Solution	<i>Pimephales promelas</i> Acute Toxicity Test 48 Hour Survival	<i>Ceriodaphnia dubia</i> Acute Toxicity Test 48 Hour Survival
Reconstituted Control (RC)	100%	100%
Upstream Control (UC)	100%	100%
6.25% Effluent	100%	100%
12.5% Effluent	100%	100%
25% Effluent	100%	100%
50% Effluent	100%	100%
100% Effluent	100%	100%
Estimated 48 Hour LC ₅₀ Value	>100% Effluent	>100% Effluent
To Pass: 1. Effluent - LC50 must be >100% and 2. All concentrations = or < AEC must not have significant difference to control in survival.	1. Yes 2. Yes	1. Yes 2. Yes
Result of Toxicity Test	PASS	PASS

* Indicates a significant difference at alpha = 0.5 between effluent and control survival data.

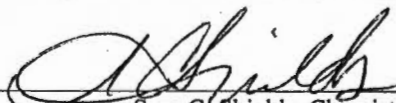
Conclusion:

Pimephales promelas 48 hour WET results: LC 50 > 100% using the Graphical Method
NOAEC = 100% by Steel's Many-One Rank Test

Ceriodaphnia dubia 48 hour WET results: LC 50 > 100% using the Graphical Method
NOAEC = 100% by Steel's Many-One Rank Test

Based on these results, the effluent passed the whole effluent toxicity test for both species.

Approved by _____


Sara C. Shields, Chemist

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REPORT OF ACUTE TOXICITY TESTING
Jackson Municipal Wastewater Treatment Plant
Outfall 001 (24 hr composite) AEC = 100%
MO-0022853
EAS LOG#2002603
May 25, 2016 through May 27, 2016

2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	<i>Ceriodaphnia dubia</i> :	<i>Pimephales promelas</i> :
Test duration:	48 hours	48 hours
Temperature:	24 - 26 degree Celsius	24 - 26 degree Celsius
Light quality:	Ambient laboratory illumination	Ambient laboratory illumination
Photoperiod:	16 hour light, 8 hours dark	16 hour light, 8 hours dark
Control Water:	Moderately Hard Reconstituted Water	Moderately Hard Reconstituted Water
Dilution Water:	Upstream Water - If unavailable or toxic, then control water will be used.	Upstream Water - If unavailable or toxic, then control water will be used.
Size of test vessel:	30 milliliters	250 milliliters
Volume of test solution:	15 milliliters	200 milliliters
Age of test organisms:	<24 hours	1 -14 days (all same age)
Number of organisms/test vessel:	5	10
Number of replicates/concentration:	4	2
Number of organisms/concentration:	20	40 for a single dilution test and 20 for a multiple dilution test
Feeding regime:	None (fed prior to test)	None (fed prior to test)
Aeration:	None	None
Test acceptability criterion:	90% or greater survival in controls	90% or greater survival in controls

The methodology used for the chemistry data was taken from the *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992). The exception was hardness, which was determined using a Hach EDTA titration test kit. The toxicity tests follow guidelines laid out in the permittee's NPDES permit and were conducted according to EPA approved methods (USEPA 2002).

All test organisms were cultured according to EPA approved methods (USEPA 2002). The *Ceriodaphnia dubia* and the *Pimephales promelas* were obtained from C-K Associates Inc. located in Baton Rouge, Louisiana and shipped overnight for use in the whole effluent toxicity test.

Environmental Analysis South, Inc.

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REPORT OF ACUTE TOXICITY TESTING
Jackson Municipal Wastewater Treatment Plant
Outfall 001 (24 hr composite) AEC = 100%
MO-0022853
EAS LOG#2002603
May 25, 2016 through May 27, 2016

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on May 4, 2016 using KCL Lot #41713. Following are the results:

2.2.1. *P. promelas* - 48 hr. Acute Test – LC_{50} = 1.138 g/l 95%CI (0.849-1.426 g/l)

EAS %CV = 12.7%

National Warning Limits (75th percentile) = 19%CV

National Control Limits (90th percentile) = 33%CV

2.2.2. *C. dubia* - 48 hr. Acute Test – LC_{50} = 0.527 g/l 95%CI (0.351-0.703g/l)

EAS %CV = 16.7%

National Warning Limits (75th percentile) = 29%CV

National Control Limits (90th percentile) = 34%CV

2.3. LITERATURE CITED:

1. APHA. 1992. *Standard methods for the examination of water and wastewater*, 18th Ed. American Public Health Association, Washington, D.C
2. USEPA. 2002. *Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms*, 5th Ed. EPA-821-R-02-012
3. USEPA 2000. *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2)*. June 2000. EPA 833-R-00-003.

CLIENT NAME: Jackson Municipal Wastewater Treatment Plant, Outfall 001, 24 hr composite

NPDES NUMBER: MO-0022853

TYPE OF METHOD: multiple Dilution, 48 hr WET, PP & CD, AEC=100%

DATE & TIME OF COLLECTION: 05/24/16 0818 hrs - 05/25/16 0818 hrs by Sharon Raines

DATE & TIME OF SUBMISSION: 05/25/16 0905 hrs by Sharon Raines

Upstream: Goose Creek

Collected: 05/25/16 0810 hrs by Sharon Raines

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC					
LOG NUMBER / ID NUMBER						2002603	2002603A	RC4157					
pH - SU	05/25/16	0915 hrs	SCS	SB114 (8.8-9.2)	8.96	7.34	7.32	8.26					
TEMPERATURE °C RECEIVED	05/25/16	0915 hrs	SCS	EAS 106		16	18	21					
SPECIFIC CONDUCTANCE umhos	05/25/16	0915 hrs	SCS	ERA243-506 (308-346)	327	984	582	199					
HARDNESS - ppm	05/25/16	0915 hrs	SCS	DMRQA34 (184-250)	240	260	280	80					
CHLORINE - ppm	05/25/16	0915 hrs	SCS	tap water	+	<0.04	<0.04	<0.04					
DISSOLVED OXYGEN - ppm	05/25/16	0915 hrs	SCS	cal@840		8.3	8.1	8.8					
TOTAL ALKALINITY - ppm	05/25/16	1400 hrs	SCS	P243-506 (48.8-58.3)	58.1	228	262	43.8					
INITIAL AMMONIA - ppm	05/27/16	1500 hrs	JPC	DMRQA35 (8.12-12.2)	11.3	<0.05	<0.05	<0.05					
TOTAL DISSOLVED SOLIDS -ppm													
0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	05/25/16	1100 hrs	SCS	SB114 (8.8-9.2)	8.96	7.05	7.85	7.82	7.80	7.82	7.82	7.82	
TEMPERATURE °C	05/25/16	1100 hrs	SCS	EAS 106		23.9	24.5	23.9	24.0	24.1	24.3	24.3	
SPECIFIC CONDUCTANCE umhos	05/25/16	1100 hrs	SCS	ERA243-506 (308-346)	327	197	564	948	756	648	605	587	
DISSOLVED OXYGEN - ppm	05/25/16	1100 hrs	SCS	cal@840		8.7	8.2	8.4	8.5	8.6	8.6	8.4	
24 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	05/26/16	1100 hrs	SCS	SB114 (8.8-9.2)	8.96	8.71	8.03	8.17	8.16	8.14	8.11	8.07	
TEMPERATURE °C	05/26/16	1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	05/26/16	1100 hrs	SCS	ERA229-506 (308-346)	337	213	560	944	757	650	606	586	
DISSOLVED OXYGEN - ppm	05/26/16	1100 hrs	SCS	cal@840		7.9	7.6	7.4	7.5	7.4	7.4	7.5	
48 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	05/27/16	1100 hrs	SCS	SB114 (8.8-9.2)	8.97	7.92	8.07	8.19	8.21	8.19	8.19	8.16	
TEMPERATURE °C	05/27/16	1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	05/27/16	1100 hrs	SCS	ERA243-506 (308-346)	318	249	574	1019	777	655	610	588	
DISSOLVED OXYGEN - ppm	05/27/16	1100 hrs	SCS	cal@840		7.6	7.8	7.7	7.7	7.7	7.6	7.5	
FINAL AMMONIA - ppm				DMRQA33 (10.0-16.8)									
24 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	05/26/16	1100 hrs	SCS	SB114 (8.8-9.2)	8.96	8.23	8.01	8.16	8.14	8.12	8.10	8.07	
TEMPERATURE °C	05/26/16	1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	05/26/16	1100 hrs	SCS	ERA243-506 (308-346)	337	199	555	928	733	643	607	580	
DISSOLVED OXYGEN - ppm	05/26/16	1100 hrs	SCS	cal@840		8.3	8.3	8.4	8.3	8.4	8.6	8.5	
48 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	05/27/16	1100 hrs	SCS	SB114 (8.8-9.2)	8.97	8.35	7.76	7.97	7.97	7.89	7.88	7.74	
TEMPERATURE °C	05/27/16	1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	05/27/16	1100 hrs	SCS	ERA243-506 (308-346)	318	282	581	924	736	647	614	592	
DISSOLVED OXYGEN - ppm	05/27/16	1100 hrs	SCS	cal@840		7.9	8.6	8.4	8.3	8.2	8.6	8.5	
FINAL AMMONIA - ppm				DMRQA33 (10.0-16.8)									

Approved by:



Date: 05/31/16

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

Page 2 of 3

Jackson Municipal Wastewater Treatment Plant, Outfall 001, 24 hr composite EAS LOG# 2002603

Date Test Began: May 25, 2016

Time Test Began: 1100 hrs

Analyst 1: DFW

Date Test Finished: May 27, 2016

Time Test Finished: 1100 hrs

Analyst 2: KJR

Analyst 3: SCS

P. promelas (PP)

AGE: 11 days

HATCH NUMBER: 9822 c-k

	RC	UC	100%	50%	25%	12.5%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
24 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
48 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	

Ceriodaphnia dubia (CD)

AGE: <24 hours

HATCH NUMBER: 3323 c-k

	RC	UC	100%	50%	25%	12.5%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
24 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
48 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	

Approved by:

M. Childs

Date:

05/31/16

[illegible]

Prepared by:

Chick

Date: 05/31/16

multiple 002

ENVIRONMENTAL ANALYSIS SOUTH, INC.

4000 East Jackson Blvd

Jackson, MO 63755

Phone: (573) 204-8817 Fax: (573) 204-8818



136261

**WHOLE EFFLUENT TOXICITY TESTING
CHAIN OF CUSTODY**

CLIENT: Jackson

NPDES PERMIT NUMBER: _____

EFFLUENT NAME: Effluent Outfall #001 GRAB ☐ 24 HR COMPOSITE ☒
(LEGAL NAME)

COLLECTION DATA: START DATE: 5-24-16 START TIME: 08:18

FINISH DATE: 5-25-16 FINISH TIME: 08:18

UPSTREAM NAME: Goose Creek (GRAB SAMPLE)
(LEGAL NAME)

COLLECTION DATA: DATE: 5-25-16 TIME: 0810

SAMPLER NAME: SHARON RAINES CARRIER: SHARON RAINES
(PRINT NAME)

Disclaimer: Environmental Analysis South, Inc. shall not be held financially liable for invalid whole effluent toxicity test (WET) or shipping charges resulting from the following reasons:

- Sampling & holding time errors (Will results in a setup charge of \$100 to the client)
- Commercial carrier delivery problems or errors (Will results in a setup charge of \$100 to the client)
- Problems with health or delivery of test organisms by vendor (No setup charge to client)

SAMPLER CHECK LIST

NO HEADSPACE IN BOTTLES ☐

SHIP SAMPLES BY NEXT DAY CARRIER OR DELIVER TO LAB ON 5, 25, 16 ☐

SAMPLES TO BE HAND DELIVERED TO LABORATORY SAME DAY AS TEST SETUP ☐

SUFFICIENT ICE TO COOL SAMPLES TO A RANGE OF 0 - 6° C WHEN SHIPPING OVERNIGHT ☐

RELINQUISHED BY: Sharon Raines DATE: 5-25-16 TIME: 905

LABORATORY USE ONLY

EFFLUENT

LOG NUMBER:

2002603

RECEIVED TEMPERATURE: 14 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO

SAMPLES ICED or DELIVERED SAME DAY AS TEST

UPSTREAM

LOG NUMBER:

2002603-A

RECEIVED TEMPERATURE: 18 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO

SAMPLES ICED or DELIVERED SAME DAY AS TEST

RECEIVED BY: Amelia

DATE:

5/25/16

TIME:

905



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM - P.O. BOX 176, JEFFERSON CITY MO, 65102
WHOLE EFFLUENT TOXICITY (WET) TEST REPORT
(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

PART A - TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME Jackson Municipal Wastewater Treatment Plant		DATE & TIME COLLECTED EFFLUENT <u>05/24/16 0818-05/25/16 0818</u> UPSTREAM <u>05/25/16 0810</u>	
PERMIT NUMBER MO-0022853		PERMIT OUTFALL NUMBER Outfall # 001	
COLLECTOR'S NAME Sharon Raines			
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION Goose Creek			
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC) 100%		EFFLUENT SAMPLE TYPE (CHECK ONE) <input checked="" type="checkbox"/> 24HR COMPOSITE <input type="checkbox"/> GRAB <input type="checkbox"/> OTHER	
SAMPLE NUMBER EFFLUENT <u>2002603</u> UPSTREAM <u>2002603A</u>		UPSTREAM SAMPLE TYPE (CHECK ONE) <input type="checkbox"/> 24HR COMPOSITE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> OTHER	
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR CHLORINE _____ mg/L		PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR AMMONIA _____ mg/L	

PART B - TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY Environmental Analysis South, Inc.		TEST TYPE Acute Static Non renewal Test Multiple Dilution	
FINAL REPORT NUMBER MO_2002603		TEST DURATION 48 hour	
DATE OF LAST REFERENCE TOXICANT TESTING May 4, 2016		TEST METHOD Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY 05/25/16 0905 hrs by Sharon Raines		TEST START DATE AND TIME 05/25/16 1100 hrs	TEST END DATE AND TIME 05/27/16 1100 hrs
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO EFFLUENT _____ UPSTREAM _____		TEST ORGANISM #1 AND AGE Pimephales promelas 11 days	TEST ORGANISM #2 AND AGE Ceriodaphnia dubia < 24 hours
SAMPLE FILTERED ¹ PRIOR TO ANALYSIS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO EFFLUENT _____ UPSTREAM _____		90% OR GREATER SURVIVAL IN SYNTHETIC CONTROL? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	DILUTION WATER USED TO ACHIEVE AEC upstream 2002603A
FILTER MESH SIEVE SIZE ² None		EFFLUENT ORGANISM #1 % MORTALITY AT AEC LC50>100%	EFFLUENT ORGANISM #2 % MORTALITY AT AEC LC50>100%
SAMPLE AERATED DURING TESTING? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		UPSTREAM ORGANISM #1 % MORTALITY 0%	UPSTREAM ORGANISM #2 % MORTALITY 0%
pH ADJUSTED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO EFFLUENT _____ UPSTREAM _____		TEST RESULT AT AEC FOR ORGANISM #1 <input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL	TEST RESULT AT AEC FOR ORGANISM #2 <input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% EFFLUENT SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	16	SM18 2550B stored at 4 degree C until test setup	05/25/16 0915 hrs
pH Standard Units	7.34	SM18 4500-H B	05/25/16 0915 hrs
Conductance µMols	984	SM18 2510B	05/25/16 0915 hrs
Dissolved Oxygen mg/L	8.3	03/12/14 0945 hrsSM18 4500-O G	05/25/16 0915 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	05/25/16 0915 hrs
Unionized Ammonia mg/L	<0.05x0.01<0.010	SM18 4500-NH3 F @ 25 degree C	05/27/16 1500 hrs
*Total Alkalinity mg/L	228	SM18 2320B	05/25/16 1400 hrs
*Total Hardness mg/L	260	SM18 2340 C	05/25/16 0915 hrs

*Recommended by USEPA guidance, not a required analysis.

¹ Samples shall only be filtered if indigenous organisms are present that may be confused with, or attack, the test organisms.

² Filters shall have a sieve size of 60 microns or greater.

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

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

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% UPSTREAM SAMPLE³

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	18	SM18 2550B stored at 4 degree C until test setup	05/25/16 0915 hrs
pH Standard Units	7.32	SM18 4500-H B	05/25/16 0915 hrs
Conductance µMohs	582	SM18 2510B	05/25/16 0915 hrs
Dissolved Oxygen mg/L	8.1	SM18 4500-O G	05/25/16 0915 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	05/25/16 0915 hrs
Unionized Ammonia mg/L	<0.05x0.01<0.010	SM18 4500-NH3 F @ 25 degree C	05/27/16 1500 hrs
*Total Alkalinity mg/L	262	SM18 2320B	05/25/16 1400 hrs
*Total Hardness mg/L	280	SM18 2340 C	05/25/16 0915 hrs

*Recommended by USEPA guidance, not a required analysis.

PRELIMINARY TEST ACCEPTABILITY MATRIX (FOR USE BY PERMITTEE IN DETERMINING TEST VALIDITY)

PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC): As indicated on permit. Test is invalid otherwise.

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

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

TEST DURATION: Forty-eight (48) hours or as indicated on permit. Test is invalid otherwise.

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

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

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

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

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

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

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

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

Environmental Analysis South, Inc.

4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818



REPORT OF ACUTE TOXICITY TESTING
Jackson Municipal Wastewater Treatment Plant
Outfall 001 (24 hr composite) AEC = 100%
MO-0022853
EAS LOG#1814432
June 3, 2015 through June 5, 2015

Tests performed by:

John P. Clippard / Chemical Analyst at Environmental Analysis South (EAS)
Kelly J. Ray / Biologist at Environmental Analysis South (EAS)
Sara C. Shields / Lab Supervisor - Chemist at Environmental Analysis South (EAS)
David F. Warren / Lab Director - Chemist at Environmental Analysis South (EAS)

1. Report Summation
 - 1.1. Data Summation
 - 1.2. Conclusion
2. Method Summation
 - 2.1. Test Conditions and Methods
 - 2.2. Potassium chloride Reference Salt Test
 - 2.2.1. *Pimephales promelas* data
 - 2.2.2. *Ceriodaphnia dubia* data
 - 2.3. Literature Cited
3. Raw Data Bench Sheets
 - 3.1. Initial observations (page 1)
 - 3.2. Zero hour Observations (page 1)
 - 3.3. Twenty-four (24) hour Observations (page 1)
 - 3.4. Forty-eight (48) hour Observations (page 1)
 - 3.5. Survival Data Table (page 2)
 - 3.6. Test Comments (page 3)
4. Chain of Custody
5. MO DNR "Whole Effluent Toxicity (WET) Test Report (Form 780-1899)

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REPORT OF ACUTE TOXICITY TESTING
Jackson Municipal Wastewater Treatment Plant
Outfall 001 (24 hr composite) AEC = 100%
MO-0022853
EAS LOG#1814432
June 3, 2015 through June 5, 2015

1. REPORT SUMMATION:

1.1. Multiple Dilution Data Summation

Test Solution	<i>Pimephales promelas</i> Acute Toxicity Test 48 Hour Survival	<i>Ceriodaphnia dubia</i> Acute Toxicity Test 48 Hour Survival
Reconstituted Control (RC)	100%	100%
Upstream Control (UC)	100%	100%
6.25% Effluent	100%	100%
12.5% Effluent	100%	100%
25% Effluent	100%	100%
50% Effluent	100%	100%
100% Effluent	100%	100%
Estimated 48 Hour LC ₅₀ Value	>100% Effluent	>100% Effluent
To Pass: 1. Effluent - LC50 must be >100% and 2. All concentrations = or < AEC must not have significant difference to control in survival.	1. Yes 2. Yes	1. Yes 2. Yes
Result of Toxicity Test	PASS	PASS

* Indicates a significant difference at alpha = 0.5 between effluent and control survival data.

Conclusion:

Pimephales promelas 48 hour WET results: LC 50 > 100% using the Graphical Method
NOAEC = 100% by Steel's Many-One Rank Test
Ceriodaphnia dubia 48 hour WET results: LC 50 > 100% using the Graphical Method
NOAEC = 100% by Steel's Many-One Rank Test

Based on these results, the effluent passed the whole effluent toxicity test for both species.

Approved by _____

Sara C. Shields, Chemist

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REPORT OF ACUTE TOXICITY TESTING
Jackson Municipal Wastewater Treatment Plant
Outfall 001 (24 hr composite) AEC = 100%
MO-0022853
EAS LOG#1814432
June 3, 2015 through June 5, 2015

2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	<i>Ceriodaphnia dubia</i> :	<i>Pimephales promelas</i> :
Test duration:	48 hours	48 hours
Temperature:	24 - 26 degree Celsius	24 - 26 degree Celsius
Light quality:	Ambient laboratory illumination	Ambient laboratory illumination
Photoperiod:	16 hour light, 8 hours dark	16 hour light, 8 hours dark
Control Water:	Moderately Hard Reconstituted Water	Moderately Hard Reconstituted Water
Dilution Water:	Upstream Water - If unavailable or toxic, then control water will be used.	Upstream Water - If unavailable or toxic, then control water will be used.
Size of test vessel:	30 milliliters	250 milliliters
Volume of test solution:	15 milliliters	200 milliliters
Age of test organisms:	<24 hours	1 -14 days (all same age)
Number of organisms/test vessel:	5	10
Number of replicates/concentration:	4	2
Number of organisms/concentration:	20	40 for a single dilution test and 20 for a multiple dilution test
Feeding regime:	None (fed prior to test)	None (fed prior to test)
Aeration:	None	None
Test acceptability criterion:	90% or greater survival in controls	90% or greater survival in controls

The methodology used for the chemistry data was taken from the *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992). The exception was hardness, which was determined using a Hach EDTA titration test kit. The toxicity tests follow guidelines laid out in the permittee's NPDES permit and were conducted according to EPA approved methods (USEPA 2002).

All test organisms were cultured according to EPA approved methods (USEPA 2002). The *Ceriodaphnia dubia* and the *Pimephales promelas* were obtained from C-K Associates Inc. located in Baton Rouge, Louisiana and shipped overnight for use in the whole effluent toxicity test.

Environmental Analysis South, Inc.

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REPORT OF ACUTE TOXICITY TESTING
Jackson Municipal Wastewater Treatment Plant
Outfall 001 (24 hr composite) AEC = 100%
MO-0022853
EAS LOG#1814432
June 3, 2015 through June 5, 2015

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on June 3, 2015 using KCL Lot #41713. Following are the results:

2.2.1. *P. promelas* - 48 hr. Acute Test – LC_{50} = 0.916 g/l 95%CI (0.662 g/l -1.417 g/l)

EAS %CV = 18.2%

National Warning Limits (75th percentile) = 19%CV

National Control Limits (90th percentile) = 33%CV

2.2.2. *C. dubia* - 48 hr. Acute Test – LC_{50} = 0.474 g/l 95%CI (0.293 g/l - 0.655g/l)

EAS %CV = 19.1%

National Warning Limits (75th percentile) = 29%CV

National Control Limits (90th percentile) = 34%CV

2.3. LITERATURE CITED:

1. APHA. 1992. *Standard methods for the examination of water and wastewater*, 18th Ed. American Public Health Association, Washington, D.C
2. USEPA. 2002. *Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms*, 5th Ed. EPA-821-R-02-012
3. USEPA 2000. *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2)*. June 2000. EPA 833-R-00-003.

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

Page 1 of 3

CLIENT NAME: Jackson Municipal Wastewater Treatment Plant, Outfall 001, 24 hr composite

NPDES NUMBER: MO-0022853

TYPE OF METHOD: multiple Dilution, 48 hr WET, PP & CD, AEC=100%

DATE & TIME OF COLLECTION: 06/02/15 0835 hrs - 06/03/15 0832 hrs by Sharon Raines

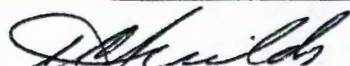
DATE & TIME OF SUBMISSION: 06/03/15 0915 hrs by Sharon Raines

Upstream: Goose Creek

Collected: 06/03/15 0853 hrs by Sharon Raines

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC					
LOG NUMBER / ID NUMBER						1814432	1814432A	RC4129					
pH - SU	06/03/15	1000 hrs	SCS	SB114 (8.8-9.2)	8.89	7.86	7.69	7.17					
TEMPERATURE °C RECEIVED	06/03/15	1000 hrs	SCS	EAS 106		20	18	22					
SPECIFIC CONDUCTANCE umhos	06/03/15	1000 hrs	SCS	ERA229-506 (490-549)	544	875	517	248					
HARDNESS - ppm	06/03/15	1000 hrs	SCS	DMRQA34 (184-250)	240	300	240	80					
CHLORINE - ppm	06/03/15	1000 hrs	SCS	tap water	+	<0.04	<0.04	<0.04					
DISSOLVED OXYGEN - ppm	06/03/15	1000 hrs	SCS	cal@840		8.2	8.6	8.5					
TOTAL ALKALINITY - ppm	06/03/15	1300 hrs	SCS	DMRQA34 (61.9-83.7)	74.5	213	234	56.2					
INITIAL AMMONIA - ppm	06/08/15	1200 hrs	JPC	DMRQA34 (5.78-8.90)	7.56	<0.05	<0.05	<0.05					
TOTAL DISSOLVED SOLIDS -ppm													
0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	06/03/15	1100 hrs	SCS	SB114 (8.8-9.2)	8.89	7.60	7.43	7.69	7.68	7.67	7.66	7.57	
TEMPERATURE °C	06/03/15	1100 hrs	SCS	EAS 106		23.8	23.9	23.8	23.8	24.2	24.1	24.1	
SPECIFIC CONDUCTANCE umhos	06/03/15	1100 hrs	SCS	ERA229-506 (490-549)	544	246	519	883	709	613	563	537	
DISSOLVED OXYGEN - ppm	06/03/15	1100 hrs	SCS	cal@840		8.5	8.6	8.3	8.5	8.7	8.7	8.7	
24 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	06/04/15	1100 hrs	SCS	SB114 (8.8-9.2)	9.11	7.42	7.78	8.02	8.01	7.98	7.97	7.94	
TEMPERATURE °C	06/04/15	1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	06/04/15	1100 hrs	SCS	ERA229-506 (490-549)	541	266	520	887	742	623	566	543	
DISSOLVED OXYGEN - ppm	06/04/15	1100 hrs	SCS	cal@840		8	7.8	7.8	7.6	7.8	7.9	7.8	
48 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	06/05/15	1100 hrs	SCS	SB114 (8.8-9.2)	9.05	7.56	7.65	7.88	7.86	7.84	7.75	7.69	
TEMPERATURE °C	06/05/15	1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	06/05/15	1100 hrs	SCS	ERA229-506 (490-549)	543	281	526	894	765	634	570	547	
DISSOLVED OXYGEN - ppm	06/05/15	1100 hrs	SCS	cal@840		7.9	7.7	7.7	7.7	7.6	7.8	7.7	
FINAL AMMONIA - ppm				DMRQA33 (10.0-16.8)									
24 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	06/04/15	1100 hrs	SCS	SB114 (8.8-9.2)	9.11	8.28	8.17	8.21	8.19	8.20	8.21	8.17	
TEMPERATURE °C	06/04/15	1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	06/04/15	1100 hrs	SCS	ERA229-506 (490-549)	541	255	519	882	709	623	538	513	
DISSOLVED OXYGEN - ppm	06/04/15	1100 hrs	SCS	cal@840		8.1	8.7	8.6	8.4	8.5	8.6	8.5	
48 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	06/05/15	1100 hrs	SCS	SB114 (8.8-9.2)	9.05	8.02	7.89	7.99	7.95	7.96	7.95	7.90	
TEMPERATURE °C	06/05/15	1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	06/05/15	1100 hrs	SCS	ERA229-506 (490-549)	543	292	513	875	711	616	564	547	
DISSOLVED OXYGEN - ppm	06/05/15	1100 hrs	SCS	cal@840		7.7	8.6	8.7	8.7	8.8	8.7	8.8	
FINAL AMMONIA - ppm				DMRQA33 (10.0-16.8)									

Approved by:



Date:

6/10/15

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

Page 2 of 3

Jackson Municipal Wastewater Treatment Plant, Outfall 001, 24 hr composite EAS LOG# 1814432

Date Test Began: June 3, 2015

Time Test Began: 1100 hrs

Analyst 1: DFW

Date Test Finished: June 5, 2015

Time Test Finished: 1100 hrs

Analyst 2: KJR

Analyst 3: SCS

P. promelas (PP)

AGE: 5 days

HATCH NUMBER: 9471 c-k

	RC	UC	100%	50%	25%	12.5%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
24 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
48 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	

Ceriodaphnia dubia (CD)

AGE: <24 hours

HATCH NUMBER: 3045 c-k

	RC	UC	100%	50%	25%	12.5%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
24 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
48 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	

Approved by:

Date:

6/10/15

Notes & Comments

[illegible]

Prepared by: Shuly

Date: 6/10/15

ENVIRONMENTAL ANALYSIS SOUTH, INC.

4000 East Jackson Blvd

Jackson, MO 63755

Phone: (573) 204-8817 Fax: (573) 204-8818



13139.

WHOLE EFFLUENT TOXICITY TESTING
CHAIN OF CUSTODY

CLIENT:

Jackson

NPDES PERMIT NUMBER:

MO 0022853

EFFLUENT NAME:

Effluent Outfall #001

GRAB ☐

24 HR COMPOSITE ☒

(LEGAL NAME)

COLLECTION DATA:

START DATE:

6-2-15

START TIME:

0835

FINISH DATE:

6-3-15

FINISH TIME:

0832

UPSTREAM NAME:

GOOSE CREEK

(GRAB SAMPLE)

(LEGAL NAME)

COLLECTION DATA:

DATE:

6-3-15

TIME:

0853

SAMPLER NAME:

SHARON RAINES

(PRINT NAME)

CARRIER:

Sharon Raines

Disclaimer: Environmental Analysis South, Inc. shall not be held financially liable for invalid whole effluent toxicity test (WET) or shipping charges resulting from the following reasons:

- Sampling & holding time errors (Will results in a setup charge of \$100 to the client)
- Commercial carrier delivery problems or errors (Will results in a setup charge of \$100 to the client)
- Problems with health or delivery of test organisms by vendor (No setup charge to client)

SAMPLER CHECK LIST

NO HEADSPACE IN BOTTLES ☐

SHIP SAMPLES BY NEXT DAY CARRIER OR DELIVER TO LAB ON

6/3/15 ☐

SAMPLES TO BE HAND DELIVERED TO LABORATORY SAME DAY AS TEST SETUP ☐

SUFFICIENT ICE TO COOL SAMPLES TO A RANGE OF 0 - 6°C WHEN SHIPPING OVERNIGHT ☐

RELINQUISHED BY:

Sharon Raines

DATE:

6-3-15

TIME:

9:15

LABORATORY USE ONLY

EFFLUENT

LOG NUMBER:

1814432

RECEIVED TEMPERATURE:

20 °C

THERMOMETER ASSIGNED NUMBER:

HEADSPACE: YES or NO

SAMPLES ICED or DELIVERED SAME DAY AS TEST

UPSTREAM

LOG NUMBER:

1814432

RECEIVED TEMPERATURE:

18 °C

THERMOMETER ASSIGNED NUMBER:

HEADSPACE: YES or NO

SAMPLES ICED or DELIVERED SAME DAY AS TEST

RECEIVED BY:

[Signature]

DATE:

6/3/15

TIME:

9:15



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM - P.O. BOX 176, JEFFERSON CITY MO, 65102
WHOLE EFFLUENT TOXICITY (WET) TEST REPORT
(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

PART A - TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME Jackson Municipal Wastewater Treatment Plant	DATE & TIME COLLECTED EFFLUENT 06/02/15 0835-06/03/15 0832 UPSTREAM 06/03/15 0853
PERMIT NUMBER MO-0022853	PERMIT OUTFALL NUMBER Outfall # 001
COLLECTOR'S NAME Sharon Raines	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION Goose Creek	
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC) 100%	EFFLUENT SAMPLE TYPE (CHECK ONE) <input checked="" type="checkbox"/> 24HR COMPOSITE <input type="checkbox"/> GRAB <input type="checkbox"/> OTHER
SAMPLE NUMBER EFFLUENT 1814432 UPSTREAM 1814432A	UPSTREAM SAMPLE TYPE (CHECK ONE) <input type="checkbox"/> 24HR COMPOSITE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> OTHER
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR CHLORINE mg/L	PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR AMMONIA mg/L

PART B - TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY Environmental Analysis South, Inc.	TEST TYPE Acute Static Non renewal Test Multiple Dilution	
FINAL REPORT NUMBER MO_1814432	TEST DURATION 48 hour	
DATE OF LAST REFERENCE TOXICANT TESTING June 3, 2015	TEST METHOD Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY 06/03/15 0915 hrs by Sharon Raines	TEST START DATE AND TIME 06/03/15 1100 hrs	TEST END DATE AND TIME 06/05/15 1100 hrs
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO EFFLUENT UPSTREAM	TEST ORGANISM #1 AND AGE Pimephales promelas 5 days	TEST ORGANISM #2 AND AGE Ceriodaphnia dubia < 24 hours
SAMPLE FILTERED ¹ PRIOR TO ANALYSIS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO EFFLUENT UPSTREAM	90% OR GREATER SURVIVAL IN SYNTHETIC CONTROL? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	DILUTION WATER USED TO ACHIEVE AEC upstream 1814432A
FILTER MESH SIEVE SIZE ² None	EFFLUENT ORGANISM #1 % MORTALITY AT AEC LC50>100% Effluent	EFFLUENT ORGANISM #2 % MORTALITY AT AEC LC50>100% Effluent
SAMPLE AERATED DURING TESTING? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	UPSTREAM ORGANISM #1 % MORTALITY 0%	UPSTREAM ORGANISM #2 % MORTALITY 0%
pH ADJUSTED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO EFFLUENT UPSTREAM	TEST RESULT AT AEC FOR ORGANISM #1 <input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL	TEST RESULT AT AEC FOR ORGANISM #2 <input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% EFFLUENT SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	20	SM18 2550B stored at 4 degree C until test setup	06/03/15 1000 hrs
pH Standard Units	7.86	SM18 4500-H B	06/03/15 1000 hrs
Conductance µMohs	875	SM18 2510B	06/03/15 1000 hrs
Dissolved Oxygen mg/L	8.2	03/12/14 0945 hrsSM18 4500-O G	06/03/15 1000 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	06/03/15 1000 hrs
Unionized Ammonia mg/L	<0.05x0.02<0.010	SM18 4500-NH3 F @ 25 degree C	06/08/15 1200 hrs
*Total Alkalinity mg/L	213	SM18 2320B	06/03/15 1300 hrs
*Total Hardness mg/L	300	SM18 2340 C	06/03/15 1000 hrs

*Recommended by USEPA guidance, not a required analysis.

¹ Samples shall only be filtered if indigenous organisms are present that may be confused with, or attack, the test organisms.

² Filters shall have a sieve size of 60 microns or greater.

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

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

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% UPSTREAM SAMPLE³

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	18	SM18 2550B stored at 4 degree C until test setup	06/03/15 1000 hrs
pH Standard Units	7.69	SM18 4500-H B	06/03/15 1000 hrs
Conductance µMohs	517	SM18 2510B	06/03/15 1000 hrs
Dissolved Oxygen mg/L	8.6	SM18 4500-O G	06/03/15 1000 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	06/03/15 1000 hrs
Unionized Ammonia mg/L	<0.05x0.03<0.010	SM18 4500-NH3 F @ 25 degree C	06/08/15 1200 hrs
*Total Alkalinity mg/L	234	SM18 2320B	06/03/15 1300 hrs
*Total Hardness mg/L	240	SM18 2340 C	06/03/15 1000 hrs

*Recommended by USEPA guidance, not a required analysis.

PRELIMINARY TEST ACCEPTABILITY MATRIX (FOR USE BY PERMITTEE IN DETERMINING TEST VALIDITY)

PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC): As indicated on permit. Test is invalid otherwise.

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

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

TEST DURATION: Forty-eight (48) hours or as indicated on permit. Test is invalid otherwise.

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

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

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

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

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

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

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

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

Environmental Analysis South, Inc.

4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818



REPORT OF ACUTE TOXICITY TESTING
Jackson Municipal Wastewater Treatment Plant
Outfall 001 (24 hr composite) AEC = 100%
MO-0022853
EAS LOG#1709610
June 18, 2014 through June 20, 2014

Tests performed by:

John P. Clippard / Chemical Analyst at Environmental Analysis South (EAS)
Kelly J. Ray / Biologist at Environmental Analysis South (EAS)
Sara C. Shields / Lab Supervisor - Chemist at Environmental Analysis South (EAS)
David F. Warren / Lab Director - Chemist at Environmental Analysis South (EAS)

1. Report Summation
 - 1.1. Data Summation
 - 1.2. Conclusion
2. Method Summation
 - 2.1. Test Conditions and Methods
 - 2.2. Potassium chloride Reference Salt Test
 - 2.2.1. *Pimephales promelas* data
 - 2.2.2. *Ceriodaphnia dubia* data
 - 2.3. Literature Cited
3. Raw Data Bench Sheets
 - 3.1. Initial observations (page 1)
 - 3.2. Zero hour Observations (page 1)
 - 3.3. Twenty-four (24) hour Observations (page 1)
 - 3.4. Forty-eight (48) hour Observations (page 1)
 - 3.5. Survival Data Table (page 2)
 - 3.6. Test Comments (page 3)
4. Chain of Custody
5. MO DNR "Whole Effluent Toxicity (WET) Test Report (Form 780-1899)

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REPORT OF ACUTE TOXICITY TESTING
Jackson Municipal Wastewater Treatment Plant
Outfall 001 (24 hr composite) AEC = 100%
MO-0022853
EAS LOG#1709610
June 18, 2014 through June 20, 2014

1. REPORT SUMMATION:

1.1. Multiple Dilution Data Summation

Test Solution	<i>Pimephales promelas</i> Acute Toxicity Test 48 Hour Survival	<i>Ceriodaphnia dubia</i> Acute Toxicity Test 48 Hour Survival
Reconstituted Control (RC)	100%	100%
Upstream Control (UC)	100%	100%
6.25% Effluent	100%	100%
12.5% Effluent	100%	100%
25% Effluent	100%	100%
50% Effluent	100%	100%
100% Effluent	100%	95%
Estimated 48 Hour LC ₅₀ Value	>100% Effluent	>100% Effluent
To Pass: 1. Effluent - LC50 must be >100% and 2. All concentrations = or < AEC must not have significant difference to control in survival.	1. Yes 2. Yes	1. Yes 2. Yes
Result of Toxicity Test	PASS	PASS

* Indicates a significant difference at alpha = 0.5 between effluent and control survival data.

Conclusion:

Pimephales promelas 48 hour WET results:

LC 50 > 100% using the Graphical Method
NOAEC = 100% by Steel's Many-One Rank Test

Ceriodaphnia dubia 48 hour WET results:

LC 50 >100% using Trimmed Spearman-Kärber
NOAEC = 100% by Steel's Many-One Rank Test

Based on these results, the effluent passed the whole effluent toxicity test for both species.

Approved by _____


Sara C. Shields, Chemist

Environmental Analysis South, Inc.

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REPORT OF ACUTE TOXICITY TESTING
Jackson Municipal Wastewater Treatment Plant
Outfall 001 (24 hr composite) AEC = 100%
MO-0022853
EAS LOG#1709610
June 18, 2014 through June 20, 2014

2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	<i>Ceriodaphnia dubia</i> :	<i>Pimephales promelas</i> :
Test duration:	48 hours	48 hours
Temperature:	24 - 26 degree Celsius	24 - 26 degree Celsius
Light quality:	Ambient laboratory illumination	Ambient laboratory illumination
Photoperiod:	16 hour light, 8 hours dark	16 hour light, 8 hours dark
Control Water:	Moderately Hard Reconstituted Water	Moderately Hard Reconstituted Water
Dilution Water:	Upstream Water - If unavailable or toxic, then control water will be used.	Upstream Water - If unavailable or toxic, then control water will be used.
Size of test vessel:	30 milliliters	250 milliliters
Volume of test solution:	15 milliliters	200 milliliters
Age of test organisms:	<24 hours	1 -14 days (all same age)
Number of organisms/test vessel:	5	10
Number of replicates/concentration:	4	2
Number of organisms/concentration:	20	40 for a single dilution test and 20 for a multiple dilution test
Feeding regime:	None (fed prior to test)	None (fed prior to test)
Aeration:	None	None
Test acceptability criterion:	90% or greater survival in controls	90% or greater survival in controls

The methodology used for the chemistry data was taken from the *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992). The exception was hardness, which was determined using a Hach EDTA titration test kit. The toxicity tests follow guidelines laid out in the permittee's NPDES permit and were conducted according to EPA approved methods (USEPA 2002).

All test organisms were cultured according to EPA approved methods (USEPA 2002). The *Ceriodaphnia dubia* and the *Pimephales promelas* were obtained from C-K Associates Inc. located in Baton Rouge, Louisiana and shipped overnight for use in the whole effluent toxicity test.

Environmental Analysis South, Inc.

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REPORT OF ACUTE TOXICITY TESTING
Jackson Municipal Wastewater Treatment Plant
Outfall 001 (24 hr composite) AEC = 100%
MO-0022853
EAS LOG#1709610
June 18, 2014 through June 20, 2014

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on June 4, 2014 using KCL Lot #41713. Following are the results:

2.2.1. *P. promelas* - 48 hr. Acute Test – $LC_{50} = 0.920$ g/l 95%CI (0.669 g/l - 1.170 g/l)

EAS %CV = 13.6%

National Warning Limits (75th percentile) = 19%CV

National Control Limits (90th percentile) = 33%CV

2.2.2. *C. dubia* - 48 hr. Acute Test – $LC_{50} = 0.459$ g/l 95%CI (0.336 g/l - 0.581g/l)

EAS %CV = 13.4%

National Warning Limits (75th percentile) = 29%CV

National Control Limits (90th percentile) = 34%CV

2.3. LITERATURE CITED:

1. APHA. 1992. *Standard methods for the examination of water and wastewater*, 18th Ed. American Public Health Association, Washington, D.C
2. USEPA. 2002. *Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms*, 5th Ed. EPA-821-R-02-012
3. USEPA 2000. *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2)*. June 2000. EPA 833-R-00-003.

CLIENT NAME: Jackson Municipal Wastewater Treatment Plant, Outfall 001, 24 hr composite

NPDES NUMBER: MO-0022853

TYPE OF METHOD: multiple Dilution, 48 hr WET, PP & CD, AEC=100%

DATE & TIME OF COLLECTION: 06/17/14 0820 hrs - 06/18/14 0820 hrs by Sharon Raines

Upstream: Goose Creek

DATE & TIME OF SUBMISSION: 06/18/14 0900 hrs by Sharon Raines

Collected: 06/18/14 0844 hrs by Sharon Raines

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC					
LOG NUMBER / ID NUMBER						1709610	1709610A	RC4104					
pH - SU	06/18/14	0915 hrs	SCS	SB114 (8.8-9.2)	8.84	7.56	7.70	7.42					
TEMPERATURE °C RECEIVED	06/18/14	0915 hrs	SCS	EAS 106		17	22	23					
SPECIFIC CONDUCTANCE umhos	06/18/14	0915 hrs	SCS	ERA P218-506(286-330)	322	998	612	275					
HARDNESS - ppm	06/18/14	0915 hrs	SCS	ERA P170-507(107-134)	120	320	300	80					
CHLORINE - ppm	06/18/14	0915 hrs	SCS	tap water	+	<0.04	<0.04	<0.04					
DISSOLVED OXYGEN - ppm	06/18/14	0915 hrs	SCS	cal@840		8.2	7.2	8.6					
TOTAL ALKALINITY - ppm	06/18/14	1300 hrs	SCS	ERA P218-506(50.2-60.7)	59.2	208	264	70.9					
INITIAL AMMONIA - ppm	06/24/14	1100hrs	JPC	DMRQA33 (10.0-16.8)	16.3	<0.05	<0.05	<0.05					
TOTAL DISSOLVED SOLIDS -ppm													
0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	06/18/14	1100 hrs	SCS	SB114 (8.8-9.2)	8.85	7.88	8.06	7.94	7.95	7.95	7.95	7.95	
TEMPERATURE °C	06/18/14	1100 hrs	SCS	EAS 106		23.5	23.6	23.5	23.5	23.6	23.6	23.5	
SPECIFIC CONDUCTANCE umhos	06/18/14	1100 hrs	SCS	ERA P218-506(286-330)	322	455	980	1580	1261	1115	1038	1015	
DISSOLVED OXYGEN - ppm	06/18/14	1100 hrs	SCS	cal@840		8.5	7.9	8.1	8.0	7.9	7.9	7.8	

24 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	06/19/14	1100 hrs	SCS	SB114 (8.8-9.2)	8.88	7.65	8.17	8.25	8.26	8.25	8.24	8.23	
TEMPERATURE °C	06/19/14	1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	06/19/14	1100 hrs	SCS	ERA P218-506(286-330)	328	288	592	1014	791	689	635	615	
DISSOLVED OXYGEN - ppm	06/19/14	1100 hrs	SCS	cal@840		8	8.1	8	7.9	7.9	8	8.1	
48 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	06/20/14	1100 hrs	SCS	SB114 (8.8-9.2)	8.84	8.20	8.39	8.34	8.39	8.40	8.40	8.39	
TEMPERATURE °C	06/20/14	1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	06/20/14	1100 hrs	SCS	ERA P218-506(286-330)	325	333	611	1037	813	701	641	624	
DISSOLVED OXYGEN - ppm	06/20/14	1100 hrs	SCS	cal@840		8.1	8.0	7.8	7.9	8.0	8.0	8.0	
FINAL AMMONIA - ppm				DMRQA33 (10.0-16.8)									

24 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	06/19/14	1100 hrs	SCS	SB114 (8.8-9.2)	8.88	8.08	8.23	8.20	8.25	8.26	8.26	8.21	
TEMPERATURE °C	06/19/14	1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	06/19/14	1100 hrs	SCS	ERA P218-506(286-330)	328	290	587	968	788	698	650	142	
DISSOLVED OXYGEN - ppm	06/19/14	1100 hrs	SCS	cal@840		8.5	8.6	8.6	8.6	8.4	8.7	8.6	
48 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	06/20/14	1100 hrs	SCS	SB114 (8.8-9.2)	8.84	8.12	8.15	8.23	8.28	8.30	8.28	8.24	
TEMPERATURE °C	06/20/14	1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	06/20/14	1100 hrs	SCS	ERA P218-506(286-330)	325	318	594	954	778	690	642	618	
DISSOLVED OXYGEN - ppm	06/20/14	1100 hrs	SCS	cal@840		8.1	8.2	8.0	8.1	8.1	8.1	8.1	
FINAL AMMONIA - ppm				DMRQA33 (10.0-16.8)									

Approved by:

[Signature]

Date: 6/30/14

WHOLE EFFLUENT TEST conducted in accordance with US EPA 600/4-90/027
Fifth Edition October 2002

Page 2 of 3

Jackson Municipal Wastewater Treatment Plant, Outfall 001, 24 hr composite EAS LOG# 1709610

Date Test Began: June 18, 2014

Time Test Began: 1100 hrs

Analyst 1: DFW

Analyst 2: KJR

Analyst 3: SCS

Date Test Finished: June 20, 2014

Time Test Finished: 1100 hrs

P. promelas (PP)

AGE: 6 days

HATCH NUMBER: 9119 c-k

	RC	UC	100%	50%	25%	12.5%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
24 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
48 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	

Ceriodaphnia dubia (CD)

AGE: <24 hours

HATCH NUMBER: 2877 c-k

	RC	UC	100%	50%	25%	12.5%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
24 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
48 HR-CD	5,5,5,5	5,5,5,5	5,5,4,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	

Approved by:



Date:

6/30/14

[illegible]

Prepared by:

Date:

6/30/14

multiple 100%

ENVIRONMENTAL ANALYSIS SOUTH, INC.

4000 East Jackson Blvd

Jackson, MO 63755

Phone: (573) 204-8817 Fax: (573) 204-8818



126656

**WHOLE EFFLUENT TOXICITY TESTING
CHAIN OF CUSTODY**

CLIENT: Jackson

NPDES PERMIT NUMBER: MO - 0022853

EFFLUENT NAME: Effluent Outfall #001 GRAB ☐ 24 HR COMPOSITE ☒
(LEGAL NAME)

COLLECTION DATA: START DATE: 6-17-14 START TIME: 0820

FINISH DATE: 6-18-14 FINISH TIME: 0820

UPSTREAM NAME: Goose Creek (GRAB SAMPLE)
(LEGAL NAME)

COLLECTION DATA: DATE: 6-18-14 TIME: 0844

SAMPLER NAME: SHARON RAINES CARRIER: Sharon Raines
(PRINT NAME)

Disclaimer: Environmental Analysis South, Inc. shall not be held financially liable for invalid whole effluent toxicity test (WET) or shipping charges resulting from the following reasons:

- Sampling & holding time errors (Will results in a setup charge of \$100 to the client)
- Commercial carrier delivery problems or errors (Will results in a setup charge of \$100 to the client)
- Problems with health or delivery of test organisms by vendor (No setup charge to client)

SAMPLER CHECK LIST

NO HEADSPACE IN BOTTLES ☐

SHIP SAMPLES BY NEXT DAY CARRIER OR DELIVER TO LAB ON 5/18/14 ☐

SAMPLES TO BE HAND DELIVERED TO LABORATORY SAME DAY AS TEST SETUP ☐

SUFFICIENT ICE TO COOL SAMPLES TO A RANGE OF 0 - 6°C WHEN SHIPPING OVERNIGHT ☐

RELINQUISHED BY: Sharon Raines DATE: 6-18-14 TIME: 0900

LABORATORY USE ONLY

EFFLUENT

LOG NUMBER: 1709610

RECEIVED TEMPERATURE: 17 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO

SAMPLES ICED or DELIVERED SAME DAY AS TEST

UPSTREAM

LOG NUMBER: 1709610A

RECEIVED TEMPERATURE: 22 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO

SAMPLES ICED or DELIVERED SAME DAY AS TEST

RECEIVED BY: [Signature]

DATE: 6/18/14 TIME: 900



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM - P.O. BOX 176, JEFFERSON CITY MO, 65102
WHOLE EFFLUENT TOXICITY (WET) TEST REPORT
(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

PART A - TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME Jackson Municipal Wastewater Treatment Plant		DATE & TIME COLLECTED EFFLUENT 06/17/14 0820-06/18/14 0820 UPSTREAM 06/18/14 0844	
PERMIT NUMBER MO-0022853		PERMIT OUTFALL NUMBER Outfall # 001	
COLLECTOR'S NAME Sharon Raines			
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION Goose Creek			
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC) 100%		EFFLUENT SAMPLE TYPE (CHECK ONE) <input checked="" type="checkbox"/> 24HR COMPOSITE <input type="checkbox"/> GRAB <input type="checkbox"/> OTHER	
SAMPLE NUMBER EFFLUENT 1709610 UPSTREAM 1709610A		UPSTREAM SAMPLE TYPE (CHECK ONE) <input type="checkbox"/> 24HR COMPOSITE <input checked="" type="checkbox"/> GRAB <input type="checkbox"/> OTHER	
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR CHLORINE mg/L		PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR AMMONIA mg/L	

PART B - TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY Environmental Analysis South, Inc.		TEST TYPE Acute Static Non renewal Test Multiple Dilution	
FINAL REPORT NUMBER MO_1709610		TEST DURATION 48 hour	
DATE OF LAST REFERENCE TOXICANT TESTING June 4, 2014		TEST METHOD Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY 06/18/14 0900 hrs by Sharon Raines		TEST START DATE AND TIME 06/18/14 1100 hrs	TEST END DATE AND TIME 06/20/14 1100 hrs
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO EFFLUENT UPSTREAM		TEST ORGANISM #1 AND AGE Pimephales promelas 6 days	TEST ORGANISM #2 AND AGE Ceriodaphnia dubia < 24 hours
SAMPLE FILTERED ¹ PRIOR TO ANALYSIS? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO EFFLUENT UPSTREAM		90% OR GREATER SURVIVAL IN SYNTHETIC CONTROL? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	DILUTION WATER USED TO ACHIEVE AEC upstream 1709610A
FILTER MESH SIEVE SIZE ² None		EFFLUENT ORGANISM #1 % MORTALITY AT AEC LC50>100% Effluent	EFFLUENT ORGANISM #2 % MORTALITY AT AEC LC50>100% Effluent
SAMPLE AERATED DURING TESTING? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		UPSTREAM ORGANISM #1 % MORTALITY 0%	UPSTREAM ORGANISM #2 % MORTALITY 0%
pH ADJUSTED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO EFFLUENT UPSTREAM		TEST RESULT AT AEC FOR ORGANISM #1 <input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL	TEST RESULT AT AEC FOR ORGANISM #2 <input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% EFFLUENT SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	17	SM18 2550B stored at 4 degree C until test setup	06/18/14 0915 hrs
pH Standard Units	7.56	SM18 4500-H B	06/18/14 0915 hrs
Conductance µMohs	998	SM18 2510B	06/18/14 0915 hrs
Dissolved Oxygen mg/L	8.2	03/12/14 0945 hrs SM18 4500-O G	06/18/14 0915 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-CI G	06/18/14 0915 hrs
Unionized Ammonia mg/L	<0.05x0.02<0.010	SM18 4500-NH3 F @ 25 degree C	06/24/14 1100 hrs
*Total Alkalinity mg/L	208	SM18 2320B	06/18/14 1300 hrs
*Total Hardness mg/L	320	SM18 2340 C	06/18/14 0915 hrs

*Recommended by USEPA guidance, not a required analysis.

¹ Samples shall only be filtered if indigenous organisms are present that may be confused with, or attack, the test organisms.

² Filters shall have a sieve size of 60 microns or greater.

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

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

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% UPSTREAM SAMPLE³

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	22	SM18 2550B stored at 4 degree C until test setup	06/18/14 0915 hrs
pH Standard Units	7.70	SM18 4500-H B	06/18/14 0915 hrs
Conductance µMols	612	SM18 2510B	06/18/14 0915 hrs
Dissolved Oxygen mg/L	7.2	SM18 4500-O G	06/18/14 0915 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	06/18/14 0915 hrs
Unionized Ammonia mg/L	<0.05x0.03<0.010	SM18 4500-NH3 F @ 25 degree C	06/24/14 1100 hrs
*Total Alkalinity mg/L	264	SM18 2320B	06/18/14 1300 hrs
*Total Hardness mg/L	300	SM18 2340 C	06/18/14 0915 hrs

*Recommended by USEPA guidance, not a required analysis.

PRELIMINARY TEST ACCEPTABILITY MATRIX (FOR USE BY PERMITTEE IN DETERMINING TEST VALIDITY)

PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC): As indicated on permit. Test is invalid otherwise.

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

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

TEST DURATION: Forty-eight (48) hours or as indicated on permit. Test is invalid otherwise.

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

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

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

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

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

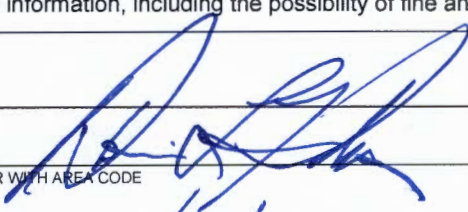
90% OR GREATER SURVIVAL IN LABORATORY CONTROL(S) (Y/N): If NO, test is invalid.

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

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

JUL 21 2017

Water Protection Program

FACILITY NAME Jackson Municipal Wastewater Treatment	PERMIT NO. MO- 0022853	OUTFALL NO. 1
PART C – CERTIFICATION		
15. ELECTRONIC DISCHARGE MONITORING REPORT (eDMR) SUBMISSION SYSTEM		
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. One of the following must be checked in order for this application to be considered complete. Please visit http://dnr.mo.gov/env/wpp/edmr.htm to access the Facility Participation Package.		
<input type="checkbox"/> - You have completed and submitted with this permit application the required documentation to participate in the eDMR system. <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. <input type="checkbox"/> - You have submitted a written request for a waiver from electronic reporting. See instructions for further information regarding waivers.		
16. CERTIFICATION		
All applicants must complete the Certification Section. This certification must be signed by an officer of the company or city official. All applicants must complete all applicable sections as explained in the Application Overview. By signing this certification statement, applicants confirm that they have reviewed the entire form and have completed all sections that apply to the facility for which this application is submitted.		
ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.		
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.		
PRINTED NAME Dwain Hahs	OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL) Mayor	
SIGNATURE 		
TELEPHONE NUMBER WITH AREA CODE 573-243-3568		
DATE SIGNED 7/12/2017		
Upon request of the permitting authority, you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.		
Send Completed Form to:		
Department of Natural Resources Water Protection Program ATTN: NPDES Permits and Engineering Section P.O. Box 176 Jefferson City, MO 65102-0176		
END OF PART C		
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH PARTS OF FORM B2 YOU MUST COMPLETE.		
Do not complete the remainder of this application, unless at least one of the following statements applies to your facility:		
1. Your facility design flow is equal to or greater than 1,000,000 gallons per day. 2. Your facility is a pretreatment treatment works. 3. Your facility is a combined sewer system.		
Submittal of an incomplete application may result in the application being returned. Permit fees for returned applications shall be forfeited. Permit fees for applications being processed by the department that are withdrawn by the applicant shall be forfeited.		

Part D - Expanded Effluent Testing Data**17. Expanded Effluent Testing Data**

Pollutant	Maximum Daily Discharge **				Average Daily Discharge*						
	conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of	Analytical	
									Samples	Method	
Metals(Total Recoverable), Cyanide, Phenols and Hardness											
Aluminum	0.19	mg/l	10.5	lb/d	0.126	mg/l	1.89	lb/d	3	EPA-200.7 Rev. 4.4	
Antimony	<0.01	mg/l	< 0.834	lb/d	<0.01	mg/l	<0.15	lb/d	3	EPA-200.7 Rev. 4.5	
Arsenic	0.00087	mg/l	0.072	lb/d	0.000867	mg/l	0.0130154	lb/d	3	EPA-200.8	
Beryllium	<0.0010	mg/l	<0.083	lb/d	<0.0010	mg/l	<0.015	lb/d	3	EPA-200.7 Rev. 4.5	
Cadmium	<0.0003	mg/l	<0.025	lb/d	<0.0003	mg/l	<0.0045	lb/d	3	GLI ME-71	
Chromium III	<0.005	mg/l	<0.417	lb/d	<0.005	mg/l	<0.075	lb/d	3	SM-3111B/3500-Cr B-01	
Chromium IV	<0.005	mg/l	<0.417	lb/d	<0.005	mg/l	<0.075	lb/d	3	SM-3500-Cr B-01	
Copper	0.015	mg/l	1.251	lb/d	0.015	mg/l	0.225	lb/d	3	SM-3111 B-99	
Iron	0.2	mg/l	16.86	lb/d	0.2	mg/l	3	lb/d	3	EPA-200.7 Rev. 4.5	
Lead	0.000141	mg/l	0.286	lb/d	0.000141	mg/l	0.002	lb/d	3	EPA-200.8	
Mercury	<0.0002	mg/l	<0.017	lb/d	<0.0002	mg/l	<0.003	lb/d	3	SM-3111 B-99	
Nickel	<0.015	mg/l	<0.251	lb/d	<0.015	mg/l	<0.225	lb/d	3	SM-3111 B-99	
Selenium	<0.0020	mg/l	<0.167	lb/d	<0.0020	mg/l	<0.030	lb/d	3	EPA-200.8	
Silver	<0.0020	mg/l	<0.167	lb/d	<0.0020	mg/l	<0.030	lb/d	3	EPA-200.8	
Thallium	<0.020	mg/l	<0.30	lb/d	<0.20	mg/l	<1.67	lb/d	3	EPA-200.7 Rev. 4.5	
Zinc	0.039667	mg/l	3.308	lb/d	0.0396667	mg/l	0.595476	lb/d	3	EPA-200.8	
Cyanide	<0.005	mg/l	<0.417	lb/d	<0.005	mg/l	<0.075	lb/d	3	Lachat-CN2/SM-4500 CN G	
Total Phenolics	<0.05	mg/l	<0.75	lb/d	<0.05	mg/l	<4.17	lb/d	3	EPA 420.1 or 420.4 M	
Hardness	319	mg/l	26,605	lb/d	319	mg/l	4,789	lb/d	3	SM-2340B-97	

Note: *Average Daily Discharge computed at Average Daily Flow of 1.8 MGD.

** Maximum Daily Discharge computed using Average Daily Concentration at max daily flow of 10 MGD.

RECEIVED

JUL 21 2017

Water Protection Program