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 RSMo, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92^{nd} Congress) as amended,

MO-0104736

City of Sullivan

Permit No.

Owner:

Address:	210 West Washington Street, Sullivan, MO 63080
Continuing Authority: Address:	Same as above Same as above
Facility Name: Facility Address:	Sullivan Wastewater Treatment Plant 320 Emma Lane, Sullivan, MO 63080
Legal Description: UTM Coordinates:	See Page 2 See Page 2
Receiving Stream: First Classified Stream and ID: USGS Basin & Sub-watershed No.:	See Page 2 See Page 2 See Page 2
is authorized to discharge from the facility of as set forth herein:	described herein, in accordance with the effluent limitations and monitoring requirement
FACILITY DESCRIPTION	
See Page 2	
This permit authorizes only wastewater and Discharge Elimination System; it does not a	stormwater discharges under the Missouri Clean Water Law and the National Pollutant apply to other regulated areas.
August 1, 2020 July 1, 2 Effective Date Modificat	
December 31, 2024 Expiration Date	John Høke, Director, Water Protection Program

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FACILITY DESCRIPTION (continued):

Outfall #002 (Main Facility Outfall) – POTW

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

Flow equalization basins (2) / influent lift station / mechanical bar screen / aerated grit chamber / sequencing batch reactors (3) / ferric chloride feed / aerobic sludge digester / UV disinfection / biosolids are land applied or removed by contract hauler

Design population equivalent is 15,000.

Design flow is 1.5 MGD. Actual flow is 1.12 MGD.

Design sludge production is 270 dry tons/year.

Legal Description: Sec. 03, T40N, R02W, Franklin County

UTM Coordinates: X = 663685, Y = 4233984Receiving Stream: Tributary to Winsel Creek

First Classified Stream and ID: 100K Extent Remaining Streams (C) (3960) (losing)

USGS Basin & Sub-watershed No.: (07140103-0402)

<u>Permitted Feature INF</u> – Influent Monitoring Location

Permitted Feature SM1 – Instream Monitoring – Downstream – bridge over Winsel Creek at I-44 – See Special Condition #17.

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 <u>August 1, 2020</u> and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

		FINAL EF	FLUENT LIN	IITATIONS	MONITORING REQUIREMENTS	
EFFLUENT PARAMETER(S)	UNITS	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		15	10	once/month	composite**
Total Suspended Solids	mg/L		20	15	once/month	composite**
E. coli (Note 1, Page 5)	#/100mL	126		*	once/week	grab
Total Phosphorus	mg/L	*		*	once/month	composite**
Total Kjeldahl Nitrogen	mg/L	*		*	once/month	composite**
Nitrite + Nitrate	mg/L	*		*	once/month	composite**
Ammonia as N	mg/L				once/month	composite**
(January) (February) (March) (April) (May) (June) (July) (August) (September) (October) (November) (December)	mg/L	* 10.1 12.1 12.1 12.1 12.1 12.1 12.1 * 12.1 * 12.1 *		* 2.7 3.1 2.7 2.2 1.7 1.5 1.5 * 2.6 * 3.1	once/month	composite**
EFFLUENT PARAMETER(S)	UNITS	MINIMUM		MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
pH – Units***	SU	6.5		9.0	once/month	grab
EFFLUENT PARAMI	EFFLUENT PARAMETER(S)			MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Biochemical Oxygen Demand ₅ – Percent	Removal (Note	3, Page 5)	%	85	once/month	calculated
Total Suspended Solids – Percent Remov	al (Note 3, Page	e 5)	%	85	once/month	calculated

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE <u>SEPTEMBER 28, 2020</u>. 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 at least 24 aliquots (subsamples) collected by an automatic sampler calibrated to a flow metering device that takes a minimum of one aliquot per batch discharge from each reactor basin. In the event this sampling method is unavailable, a 24-hour composite sample is to be composed of 48 aliquots collected at 30 minutes intervals by an automatic sampling device.

^{***} pH is measured in pH units and is not to be averaged.

TABLE A-1, Continued. 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 <u>August 1, 2020</u> and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

Limit Set: M									
EFFLUENT PARAMETER(S)	UNITS	FINAL EFF	LUENT LIM	ITATIONS	MONITORING RE	QUIREMENTS			
EFFLUENT FARAIVETER(S)	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE			
Cadmium, Total Recoverable	μg/L	2.3		0.9	once/month	composite**			
Cyanide, Amenable to Chlorination (Note 2, Page 5)	μg/L	9.5		3.7	once/month	grab			
Lead, Total Recoverable	μg/L	12.3		4.2	once/month	composite**			

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE <u>SEPTEMBER 28, 2020</u>. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Li	mit	Set:	0

	A DAMES	FINAL EFF	LUENT LIM	ITATIONS	MONITORING RE	QUIREMENTS
EFFLUENT PARAMETER(S)	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Oil & Grease	mg/L	15		10	once/quarter***	grab
Copper, Total Recoverable	μg/L	*		*	once/quarter***	composite**
Iron, Total Recoverable (Note 4, Page 5)	μg/L	*		*	once/quarter***	composite**
Nickel, Total Recoverable	μg/L	*		*	once/quarter***	composite**
Zinc, Total Recoverable	μg/L	*		*	once/quarter***	composite**
Vinyl Chloride	μg/L	*		*	once/quarter***	composite**
1, 2-cis-dichloroethylene	μg/L	*		*	once/quarter***	composite**
Trichloroethylene	μg/L	*		*	once/quarter***	composite**

MONITORING REPORTS SHALL BE SUBMITTED **QUARTERLY**; THE FIRST REPORT IS DUE <u>OCTOBER 28, 2020</u>. 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 at least 24 aliquots (subsamples) collected by an automatic sampler calibrated to a flow metering device that takes a minimum of one aliquot per batch discharge from each reactor basin. In the event this sampling method is unavailable, a 24-hour composite sample is to be composed of 48 aliquots collected at 30 minutes intervals by an automatic sampling device.
- **** See table below for quarterly sampling requirements.

	Quarterly Minimum Sampling Requirements								
Quarter	Months	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 28th						
Third	July, August, September	Sample at least once during any month of the quarter	October 28th						
Fourth	October, November, December	Sample at least once during any month of the quarter	January 28 th						

TABLE A-2. 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. In accordance with 10 CSR 20-7.031, the final effluent limitations outlined in **Table A-2** must be achieved as soon as possible but no later than **August 1, 2021**. These interim effluent limitations in **Table A-2** are effective beginning **August 1, 2020** and remain in effect through **July 31, 2021** or as soon as possible. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

Limit Set: M						
EEEL HENT DADAMETED(C)	LINITE		ERIM EFFLU LIMITATION		MONITORING RE	QUIREMENTS
EFFLUENT PARAMETER(S)	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Silver, Total Recoverable	μg/L	*		*	once/month	composite**

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE <u>SEPTEMBER 28, 2020</u>. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Limit Set	t: M						
EE	EL LIENTE DA DAMETER (C)	UNITS	FINAL EF	FLUENT LIM	IITATIONS	MONITORING RE	QUIREMENTS
Er	FLUENT PARAMETER(S)		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Silver, To	otal Recoverable	μg/L	10.4		4.2	once/month	composite**

MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u>; THE FIRST REPORT IS DUE <u>SEPTEMBER 28, 2021</u>. 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 at least 24 aliquots (subsamples) collected by an automatic sampler calibrated to a flow metering device that takes a minimum of one aliquot per batch discharge from each reactor basin. In the event this sampling method is unavailable, a 24-hour composite sample is to be composed of 48 aliquots collected at 30 minutes intervals by an automatic sampling device.
- Note 1 Effluent limits of 126 #/100 mL daily maximum and monitoring only for monthly average for *E. coli* are applicable year round due to losing stream designation. No more than 10% of samples over the course of a calendar year shall exceed the 126 #/100 mL daily maximum.
- Note 2 This effluent limit is below the accepted minimum quantification level (ML). 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. Measured values greater than or equal to the minimum quantification level of 10 µg/L will be considered violations of the permit and values less than the minimum quantification level of 10 µg/L will be considered to be in compliance with the permit limitation. The minimum quantification level does not authorize the discharge of Cyanide in excess of the effluent limits stated in the permit.
- Note 3 Influent sampling for BOD₅ and TSS is not required when the facility does not discharge effluent during the reporting period. Samples are to be collected prior to any treatment process. Calculate Percent Removal by using 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 If no Iron was used in a given sampling period, an actual analysis is not necessary. Simply report as "AG Conditional Monitoring Not Required this Period".

TABLE A-3. WHOLE EFFLUENT TOXICITY FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations in **Table A-4** shall become effective on **August 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:

controlled, infinited and mointored by the permittee as specified below.								
EFFLUENT PARAMETER(S)	I DIVING	FINAL EFI	FLUENT LIM	IITATIONS	MONITORING REQUIREMENTS			
	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE		
Limit Set: WA								
Acute Whole Effluent Toxicity (Note 5)	TUa	*			once/year	composite**		
ACUTE WET TEST MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY ; THE FIRST REPORT IS DUE JANUARY 28, 2021.								
Limit Set: WC								
Chronic Whole Effluent Toxicity (Note 6)	TUc	*			once/permit cycle	composite**		
CHRONIC WET TEST REPORTS SHALL BE SUBMITTED ONCE PER PERMIT CYCLE ; THE FIRST REPORT IS DUE JANUARY 28, 2025.								

- * Monitoring requirement only.
- ** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.
- Note 5 The Acute WET test shall be conducted once per year in the 1st, 2nd, 3rd, and 5th years of the permit cycle. See Special Condition #14 for additional requirements.
- Note 6 The Chronic WET test shall be conducted once per permit cycle during the 4th year. An Acute WET test is not required during the year of the Chronic test. See Special Condition #15 for additional requirements.

PERMITTED FEATURE <u>INF</u>

TABLE B-1. INFLUENT MONITORING REQUIREMENTS

The monitoring requirements in **Table B-1** shall become effective on <u>August 1, 2020</u> and remain in effect until expiration of the permit. The influent wastewater shall be monitored by the permittee as specified below:

	TINITE		MON	ITORING REC	QUIREMENTS	
PARAMETER(S)	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: IM						
Biochemical Oxygen Demand ₅ (Note 3)	mg/L			*	once/month	composite**
Total Suspended Solids (Note 3)	mg/L			*	once/month	composite**
Ammonia as N	mg/L	*		*	once/month	composite**
Total Phosphorus	mg/L	*		*	once/month	composite**
Total Kjeldahl Nitrogen	mg/L	*		*	once/month	composite**
Nitrite + Nitrate	mg/L	*		*	once/month	composite**

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

Note 3 – Influent sampling for BOD₅ and TSS is not required when the facility does not discharge effluent during the reporting period. Samples are to be collected prior to any treatment process. Calculate Percent Removal by using 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.

PERMITTED FEATURE <u>SM2</u>	TABLE C-2. INSTREAM MONITORING REQUIREMENTS						
The monitoring requirements in Table C-2 shall become effective on <u>August 1, 2020</u> and remain in effect until expiration of the permit. The stream shall be monitored by the permittee as specified below:							
DADA.	AFFER (C)	MONITORING REQUIREMENTS					
PARA	METER(S)	UNITS	DAILY MAXIMUM		MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: DM							
Hardness, Total		mg/L	* sonce/month grab				grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY ; THE FIRST REPORT IS DUE <u>SEPTEMBER 28, 2020</u> .							

^{*} Monitoring requirement only.

^{*} Monitoring requirement only.

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

D. SCHEDULE OF COMPLIANCE

The facility shall attain compliance with final effluent limitations as soon as reasonably achievable or no later than **one** (1) **year** of the effective date of this permit. Discharge monitoring reports indicate the facility has not always been in compliance with the proposed limitations for Total Recoverable Silver; therefore this permit includes a one (1) year schedule of compliance to make sufficient operational changes so that consistent compliance with final effluent limitations for Total Recoverable Silver is attained.

E. STANDARD CONDITIONS

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

F. SPECIAL CONDITIONS

- 1. Electronic Discharge Monitoring Report (eDMR) Submission System.
 - (a) Discharge Monitoring Reporting Requirements. The permittee must electronically submit compliance monitoring data via the eDMR system. In regards to Standard Conditions Part I, Section B, #7, the eDMR system is currently the only Department approved reporting method for this permit.
 - (b) Programmatic Reporting Requirements. The following reports (if required by this permit) must be electronically submitted as an attachment to the eDMR system until such a time when the current or a new system is available to allow direct input of the data:
 - (1) Collection System Maintenance Annual Reports;
 - (2) 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/).; and
 - (3) Any additional report required by the permit excluding bypass reporting.
 - After such a system has been made available by the Department, required data shall be directly input into the system by the next report due date.
 - (c) Other actions. The following shall be submitted electronically after such a system has been made available by the Department:
 - (1) Notices of Termination (NOTs);
 - (2) No Exposure Certifications (NOEs); and
 - (3) Bypass reporting, See Special Condition #9 for 24-hr. bypass reporting requirements.
 - (d) Electronic Submissions. To access the eDMR system, use the following link in your web browser: https://edmr.dnr.mo.gov/edmr/E2/Shared/Pages/Main/Login.aspx.
 - (e) Waivers from Electronic Reporting. The permittee must submit compliance monitoring data and reports electronically. The Department may grant a waiver to a permittee in compliance with 40 CFR Part 127. The permittee may obtain an electronic reporting waiver by first submitting an eDMR Waiver Request Form: http://dnr.mo.gov/forms/780-2692-f.pdf. The Department will either approve or deny this electronic reporting waiver request within 120 calendar days. Only permittees with an approved waiver request may submit monitoring data and reports on paper to the Department for the period that the approved electronic reporting waiver is effective.
- 2. The full implementation of this operating permit, which includes implementation of any applicable schedules of compliance, shall constitute compliance with all applicable federal and state statutes and regulations in accordance with §644.051.16, RSMo, and the Clean Water Act (CWA) section 402(k); however, this permit may be reopened and modified, or alternatively revoked and reissued:
 - (a) To comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:
 - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.
 - (b) To incorporate an approved pretreatment program or modification thereto pursuant to 40 CFR 403.8(c) or 40 CFR 403.18(e), respectively.
- 3. All outfalls must be clearly marked in the field. This does not include instream monitoring locations.

- 4. Report as no-discharge when a discharge does not occur during the report period. For instream samples, report as "C No Discharge" if no stream flow occurs during the report period.
- 5. Reporting of Non-Detects:
 - (a) An analysis conducted by the permittee or their contracted laboratory shall be conducted in such a way that the precision and accuracy of the analyzed result can be enumerated.
 - (b) The permittee shall not report a sample result as "Non-Detect" without also reporting the detection limit of the test. Reporting as "Non Detect" without also including the detection limit will be considered failure to report, which is a violation of this permit.
 - (c) The permittee shall provide the "Non-Detect" sample result using the less than sign and the minimum detection limit (e.g. <10).
 - (d) 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, use one-half of the method detection limit (MDL) instead of a zero. Where all data are below the MDL, the "<MDL" shall be reported as indicated in item (c).
- 6. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
- 7. The permittee shall comply with any applicable requirements listed in 10 CSR 20-9, 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. Upon approval of the request, the Department will modify the permit.
- 8. The permittee shall develop and implement a program for maintenance and repair of its collection system. The permittee may compare collection system performance results and other data with the benchmarks used in the Departments' Capacity, Management, Operation, And Maintenance (CMOM) Model located at http://dnr.mo.gov/env/wpp/permits/docs/cmom-template.doc. Additional information regarding the Departments' CMOM Model is available at http://dnr.mo.gov/pubs/pub2574.htm.

The permittee shall also submit a report 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 specific sources of excessive infiltration and inflow into the collection system serving the facility for the previous year.
- (b) A summary of the general maintenance and repairs to the collection system serving the facility for the previous year.
- (c) A summary of any planned maintenance and repairs to the collection system serving the facility for the upcoming calendar year. This list shall include locations (GPS, 911 address, manhole number, etc.) and actions to be taken.
- 9. Bypasses are not authorized at this facility unless they meet the criteria in 40 CFR 122.41(m). If a bypass occurs, the permittee shall report in accordance to 40 CFR 122.41(m)(3), and with Standard Condition Part I, Section B, subsection 2. Bypasses are to be reported to the St. Louis Regional Office during normal business hours or by using the online Sanitary Sewer Overflow/Facility Bypass Application located at: https://dnr.mo.gov/mogem/ or the Environmental Emergency Response spill-line at 573-634-2436 outside of normal business hours. Once an electronic reporting system compliant with 40 CFR Part 127, the National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, is available all bypasses must be reported electronically via the new system. Blending, which is the practice of combining a partially-treated wastewater process stream with a fully-treated wastewater process stream prior to discharge, is not considered a form of bypass. If the permittee wishes to utilize blending, the permittee shall file an application to modify this permit to facilitate the inclusion of appropriate monitoring conditions.
- 10. The facility must be sufficiently secured to restrict entry by children, livestock and unauthorized persons as well as to protect the facility from vandalism.
- 11. An Operation and Maintenance (O & M) manual shall be maintained by the permittee and made available to the operator. The O & M manual shall include key operating procedures and a brief summary of the operation of the facility.
- 12. An all-weather access road to the treatment facility shall be maintained.

- 13. The outfall sewer shall be protected and maintained against the effects of floodwater, ice, or other hazards as to reasonably insure its structural stability, freedom from stoppage, and that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters.
- 14. Acute Whole Effluent Toxicity (WET) tests shall be conducted as follows:
 - (a) Freshwater Species and Test Methods: Species and short-term test methods for estimating the acute toxicity of NPDES effluents are found in the most recent edition of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/821/R-02/012; Table IA, 40 CFR Part 136). The permittee shall concurrently conduct 48-hour, static, non-renewal toxicity tests with the following species:
 - i. The fathead minnow, *Pimephales promelas* (Acute Toxicity EPA Test Method 2000.0).
 - ii. The daphnid, Ceriodaphnia dubia (Acute Toxicity EPA Test Method 2002.0).
 - (b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
 - (c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
 - (d) The laboratory shall not chemically dechlorinate the sample.
 - (e) The Allowable Effluent Concentration (AEC) is 100%; the dilution series is: 6.25%, 12.5%, 25%, 50%, and 100%.
 - (f) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
 - (g) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of acute toxic units ($TU_a = 100/LC_{50}$) reported according to the test methods manual chapter on report preparation and test review. The Lethal Concentration 50 Percent (LC_{50}) is the effluent concentration that would cause death in 50 percent of the test organisms at a specific time.
- 15. <u>Chronic Whole Effluent Toxicity (WET)</u> tests shall be conducted as follows:
 - (a) Freshwater Species and Test Methods: Species and short-term test methods for estimating the chronic toxicity of NPDES effluents are found in the most recent edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (EPA/821/R-02/013; Table IA, 40 CFR Part 136)*. The permittee shall concurrently conduct 7-day, static renewal toxicity tests with the following species:
 - i. The fathead minnow, Pimephales promelas (Survival and Growth Test Method 1000.0).
 - ii. The daphnid, Ceriodaphnia dubia (Survival and Reproduction Test Method 1002.0).
 - (b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
 - (c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
 - (d) The laboratory shall not chemically dechlorinate the sample.
 - (e) The Allowable Effluent Concentration (AEC) is 100%, the dilution series is: 100%, 50%, 25%, 12.5%, and 6.25%.
 - (f) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
 - (g) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of chronic toxic units (TU_c = 100/IC₂₅) 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 (IC₂₅) is the toxic or effluent concentration that would cause 25 percent reduction in mean young per female or in growth for the test populations.

16. Expanded Effluent Testing

Permittee must sample and analyze for the pollutants listed in Form B2 – Application for Operating Permit for Facilities That Receive Primarily Domestic Waste And Have A Design Flow More Than 100,000 Gallons Per Day (MO-780-1805 dated 02-19), Part D – Expanded Effluent Testing Data, #18. The permittee shall provide this data with the permit renewal application. A minimum of three samples taken within four and one-half years prior to the date of the permit application must be provided. Samples must be representative of the seasonal variation in the discharge from each outfall. Approved and sufficiently sensitive testing methods listed in 40 CFR 136.3 must be utilized. A method is "sufficiently sensitive" when; 1) The method minimum level is at or below the level of the applicable water quality criterion for the measured pollutant or pollutant parameter; or 2) the method minimum level is above the applicable water quality criterion, but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge; or 3) the method has the lowest minimum level of the analytical methods approved under 40 CFR part 136. These methods are also required for parameters listed as monitoring only, as the data collected may be used to determine if numeric limitations need to be established.

17. Receiving Water Monitoring Conditions

- (a) The downstream receiving water sample should be collected at a point downstream from any influence of the effluent, where the water is visibly flowing down stream. 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.), and 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:
 - (1) If turbidity in the stream increases notably; or
 - (2) If rainfall over the past two weeks exceeds 2.5 inches or exceeds 1 inch in the last 24 hour.
- (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.
- 18. <u>Stormwater Pollution Prevention Plan (SWPPP)</u>: 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: <u>Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators</u>, (Document number EPA 833-B-09-002) published by the United States Environmental Protection Agency (USEPA) in June 2015.
 - (a) The SWPPP must identify any stormwater outfall from the facility and Best Management Practices (BMPs) used to prevent or reduce the discharge of contaminants in stormwater. The stormwater outfalls shall either be marked in the field or clearly marked on a map and maintained with the SWPPP.
 - (b) The SWPPP must include a schedule and procedures for a <u>once per month</u> routine site inspection.
 - 1. The monthly routine inspection shall be documented in a brief written report, which shall include:
 - i. The person(s) conducting the inspection.
 - ii. The inspection date and time.
 - iii. Weather information for the day of the inspection.
 - iv. Precipitation information for the entire period since the last inspection.
 - v. Description of the discharges observed, including visual quality of the discharges (sheen, turbid, etc.).
 - vi. Condition of BMPs
 - vii. If BMPs were replaced or repaired.
 - viii. Observations and evaluations of BMP effectiveness.
 - 2. Any deficiency observed during the routine inspection must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report.
 - 3. The routine inspection reports must be kept onsite with the SWPPP and maintained for a period of five (5) years.
 - 4. The routine inspection reports shall be made available to Department personnel upon request.

- (c) The SWPPP must include a schedule and procedures for a once per year comprehensive site inspection.
 - (1) The annual comprehensive inspection shall be documented in a written report, which shall include:
 - i. The person(s) conducting the inspection.
 - ii. The inspection date and time.
 - iii. Findings from the areas of your facility that were examined;
 - iv. All observations relating to the implementation of your control measures including:
 - 1. Previously unidentified discharges from the site,
 - 2. Previously unidentified pollutants in existing discharges,
 - 3. Evidence of, or the potential for, pollutants entering the drainage system;
 - 4. Evidence of pollutants discharging to receiving waters at all facility outfall(s), and the condition of and around the outfall, and
 - 5. Additional control measures needed to address any conditions requiring corrective action identified during the inspection.
 - v. Any required revisions to the SWPPP resulting from the inspection;
 - vi. Any incidence of noncompliance observed or a certification stating that the facility is in compliance with Special Condition F.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.
- 19. 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.

- 20. <u>Pretreatment:</u> The permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 10 CSR 20-6.100. The approved pretreatment program is hereby incorporated by reference.
 - (a) The permittee shall submit to the Department via the Electronic Discharge Monitoring Report (eDMR) Submission System on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year. At a minimum, the report shall include the following:
 - (1) An updated list of the Permittee's Industrial Users, including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Permittee shall provide a brief explanation of each deletion. This list shall identify which Industrial Users are subject to categorical pretreatment Standards and specify which Standards are applicable to each Industrial User. The list shall indicate which Industrial Users are subject to local standards that are more stringent than the categorical Pretreatment Standards. The Permittee shall also list the Industrial Users that are subject only to local Requirements;
 - (2) A summary of the status of Industrial User compliance over the reporting period;
 - (3) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and
 - (4) Any other relevant information requested by the Department.
 - (b) Pursuant to 40 CFR 122.44(j)(2)(ii), the permittee shall submit to the Department a written technical evaluation of the need to revise local limits under 40 CFR 403.5(c)(1) by **February 1, 2021**. Please contact the Department's pretreatment coordinator for further guidance. Should revision of local limits be deemed necessary, it is recommended that revisions follow the US Environmental Protection Agency's guidance document *Local Limits Development Guidance*. EPA833-R04-002A. July 2004.
- 21. This facility is not allowed to accept hazardous wastes.
- 22. <u>Notification Requirements New Nondomestic User Discharges and Hauled Non-Hazardous Wastewaters</u>
 The permittee shall implement and maintain the following procedures. This Special Condition shall supersede all requirements under Standard Conditions Part I, Section B.1.A. iv, and Part II, Section A.4.
 - (a) The permittee shall submit to the Hazardous Waste Program and to the St. Louis Regional Office on or before March 31st of each year a report briefly summarizing available information on new nondomestic sources of indirect discharge and hauled non-hazardous wastewaters authorized and accepted by the permittee for treatment during the previous calendar year. At a minimum, the report shall include the following:
 - (1) A list of new nondomestic sources of indirect discharge regulated under Section 307(b), (c) or (d) of the Clean Water Act, including names, addresses and SIC Codes. Sources which discharge only domestic wastewater are not required to be included in this report.
 - (2) A list of new underground storage tank facility wastewater discharges authorized and accepted by the permittee for treatment during the previous calendar year, including names and addresses.
 - (3) A summary of hauled non-hazardous wastewaters accepted by the permittee for treatment during the previous calendar year, including type and quantity of hauled wastewaters.
 - (b) If the permittee determines that new, different or increased pollutant discharge from a nondomestic source of indirect discharge will result in classification of that source as a Significant Industrial User (SIU), the permittee shall provide notice to the St. Louis Regional Office at least thirty (30) days prior to modifying the list of SIUs maintained under the approved pretreatment program in accordance with the requirements of 40 CFR Part 403.
 - (a) Authorized representatives of the Department shall be allowed by the permittee to have access to, or copy, any monitoring records maintained by the permittee of new nondomestic sources of indirect discharge, new underground storage tank facility wastewater discharges, and hauled non-hazardous wastewaters authorized and accepted by the permittee for treatment.
- 23. The peak flow detention basins described in this permit shall be operated in a manner that they are full of liquid for only short periods of time, up to 3 days, except for certain conditions as detailed below. This is due to the severe geologic limitations of the site and the severe collapse potential of the earthen basins. When continuous rainfall events occur, the basins are allowed to contain water for more than 3 days. The stored wastewater shall be returned to the plant as soon as wastewater influent flows normalize. During continuous rainfall events where the basins will contain water for more than 3 days, the facility shall conduct daily visual inspections of the basins. These inspections will commence on the 4th day of storage in the basins and continue until the basins are drained.

The daily visual inspection shall be documented in a brief written report, which shall include:

- The name of the person conducting the inspection and the inspection date and time.
- Water levels in the basins, and any observed issues with the basin berms.
- The inspection reports must be kept onsite and maintained for a period of five (5) years.
- The inspection reports shall be made available to Department personnel upon request.

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G. NOTICE OF RIGHT TO APPEAL

If you were adversely affected by this decision, you may be entitled to pursue an appeal before the administrative hearing commission (AHC) pursuant to Sections 621.250 and 644.051.6 RSMo. To appeal, you must file a petition with the AHC within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC. Any appeal should be directed to:

Administrative Hearing Commission U.S. Post Office Building, Third Floor 131 West High Street, P.O. Box 1557 Jefferson City, MO 65102-1557 Phone: 573-751-2422

Fax: 573-751-5018 Website: https://ahc.mo.gov

Missouri Department of Natural Resources Factsheet Addendum For Pretreatment Program Modification #MO-0104736

Sullivan Wastewater Treatment Plant

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

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

Part I – Proposed Pretreatment Program Modification

□ The Department is required to <u>Public Notice</u>

The public notice of the Department of Natural Resources' intent to approve the city of Sullivan's pretreatment program modification, as detailed in this factsheet, has ended as of March 15, 2023. The pretreatment program is hereby approved pursuant to 40 CFR 403.18 (adopted in 10 CSR 20-6.100), and the city of Sullivan should proceed to implement the pretreatment program modifications, as approved.

The city's modification to the Pretreatment Program includes a proposal to only implement maximum daily limits for MAILs, local limits, and remove Molybdenum, Biological Oxygen Demand, Total Suspended Solids, Chemical Oxygen Demand, and Total Kjeldahl Nitrogen because these pollutants are not significantly loaded and were not identified as being contributed by any non-domestic contributors. Additionally, the modification proposes an increase in maximum daily limits for Pollutants of Concern including: Silver, Cadmium, Copper, Mercury, Zinc, and Aluminum. Furthermore, the modification has a decrease of maximum daily limits for other Pollutants of Concern including: Arsenic, Cyanide, Chromium, Nickel, and Lead.

The city's modification also included Sewer Use Ordinance (SUO) modifications to reflect changes related to the local limit updates. The city's Pretreatment Program changes were designated to be substantial modifications because the city modified its SUO to update local limits after conducting a detailed local limit analysis that is part of this program modification. These changes could have a significant impact on the operation of the program, pursuant to 40 CFR 403.18(b)(7).

Part II - Reason for the NPDES Permit Modification

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

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

Date of addendum: 03/15/2023

Completed by:

Brad Allen, State Industrial Pretreatment Coordinator

Water Protection Program

573-522-3454 Brad.allen@dnr.mo.gov

MISSOURI DEPARTMENT OF NATURAL RESOURCES FACT SHEET FOR THE PURPOSE OF RENEWAL OF MO-0104736 SULLIVAN WASTEWATER TREATMENT PLANT

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollutant Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of stormwater from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (Department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified.

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

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

This Factsheet is for a Major facility.

<u>Part I – Facility Information</u>

Facility Type: POTW

<u>Facility Description</u>: Flow equalization basins (2) / influent lift station / mechanical bar screen / aerated grit chamber / sequencing batch reactors (3) / ferric chloride chemical feed / aerobic sludge digester / UV disinfection / biosolids are land applied or removed by contract hauler

Design population equivalent is 15,000.

Design flow is 1.5 MGD. Actual flow is 1.12 MGD.

Design sludge production is 270 dry tons/year.

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

Application Date: 08/19/19 Expiration Date: 12/31/19

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
#002	2.33	Secondary	Municipal

Facility Performance History:

This facility was last inspected on March 19, 2018. The inspection showed the following unsatisfactory features: unauthorized land application of biosolids by permittee and/or permittee's contract hauler. A review of Discharge Monitoring Reports shows the following exceedances (month/year): Cadmium: 10/16, 11/16, and Ammonia as N: 7/17.

Comments:

Changes in this permit include the following:

- The addition of monthly influent monitoring for Total Phosphorus, Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia as N (nutrients); and quarterly monitoring for Total Recoverable Zinc;
- The removal of upstream nutrients and Total Toxic Organics;

Sullivan WWTP Fact Sheet Page #3

- Increased monitoring for effluent nutrients and Total Recoverable Silver from quarterly to monthly;
- Decreased monitoring for effluent BOD₅, TSS, Ammonia, and pH from weekly to monthly; and for Oil & Grease from monthly to quarterly.

See Part VI of the Fact Sheet for further information regarding the addition, revision, and removal of effluent parameters.

Due to the severe geologic limitations of the site and collapse potential of the earthen basins (Reference DGLS Geologic Report #MO0707, 9 22-06), special condition #23 was retained from the previous permit. This condition indicates the peak flow detention basins are to be operated in a manner in which the basins are only full for a short period of time (up to 3 days). This information was also contained in Construction Permit CP-22-7690, issued to the City of Sullivan on September 10, 2009 for the construction of the peak flow detention basins.

Part II – Operator Certification Requirements

This facility is required to have a certified operator.

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

Owned or operated	by or for a	
🖂 - Munici	palities	State agency
- County	1	- Public Water Supply Districts
- Public	Sewer District	- Private Sewer Company regulated by the Public Service Commission
Each of the above entities	es are only applicable if	they have a Population Equivalent greater than two hundred (200).
•		with a <u>B</u> Certification Level. Please see Appendix - Classification Worksheet . facility may cause the classification to be modified.
Operator's Name:	Joseph Philpot	
Certification Number:	9414	
Certification Level:	WW-B	

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 #002

RECEIVING STREAMS(S) TABLES CETTALE # VV2									
WATER-BODY NAME	CLASS	CLASS WBID DESIGNATED USES*		12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)				
Tributary to Winsel Creek	NA	NA	General Criteria	107140102 0402	0.0				
100K Extent-Remaining Streams (losing)	С	3960	AQL, HHP, IRR, LWW, SCR, WBC-B	107140103-0402	0.13				

^{*}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 found in the receiving streams table, above:

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

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

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

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

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

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

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

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

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

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

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

DWS = Drinking Water Supply;

IND = Industrial water supply

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

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

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

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

RECEIVING STREAM(S) LOW-FLOW VALUES:

RECEIVING STREAM	Low-Flow Values (CFS)					
RECEIVING STREAM	1Q10	7Q10	30Q10			
Tributary to Winsel Creek	0	0	0			

MIXING CONSIDERATIONS

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

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

RECEIVING STREAM MONITORING REQUIREMENTS:

Permitted Feature SM1.

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

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 as N. Effluent limitations were re-calculated for Ammonia. The Department previously followed the 2007 Ammonia Guidance method for derivation of ammonia limits. However, the EPA's Technical Support Document for Water Quality-based Toxic Controls (TSD) establishes other alternatives to limit derivation. The Department has determined that the approach established in Section 5.4.2 of the TSD, which allows for direct application of both the acute and chronic wasteload allocations (WLA) as permit limits for toxic pollutants, is more appropriate limit derivation approach. Using this method for a discharge to a waterbody where mixing is not allowed, the criterion continuous concentration (CCC) and the criterion maximum concentration (CMC) will equal the chronic and acute WLA respectively. The WLAs are then applied as effluent limits, per Section 5.4.2 of the TSD, where the CMC is the Daily Maximum and the CCC is the Monthly Average. The newly established limitations are still protective of water quality.
 - <u>Cadmium and Lead, Total Recoverable</u>. Effluent limitations were re-calculated for Total Recoverable Cadmium and Lead based on new information derived from discharge monitoring reports and on the current Missouri Water Quality Standards. The newly established limitations are still protective of water quality.
 - <u>Copper and Nickel, Total Recoverable</u>. A reasonable potential analysis was conducted and found that the discharge does not have reasonable potential to cause or contribute to an excursion of the water quality standard for Total Recoverable Copper or Nickel. Quarterly monitoring requirements have been included in order to reassess this determination at the time of next renewal. The permit is still protective of water quality.

- <u>Instream Monitoring</u>. The previous permit included quarterly monitoring upstream for Total Phosphorus and Total Nitrogen. Due to the fact that the first classified stream is a Class C stream and may cease flow in dry periods, it may not be possible to get a representative sample of nutrients in the stream. As a result, instream monitoring was removed from this permit. The permit is still protective of water quality.
- Metals. A Reasonable Potential Analysis was conducted and it was determined that there is no reasonable potential to cause an excursion of water quality standards for Total Recoverable Arsenic and Mercury, or Total Dissolved Chromium (VI) in the receiving stream. As a result, monitoring requirements have been removed. This determination will be reassessed at renewal. Please see Appendix RPA Results for more information.
- Sampling and Reporting Frequencies. The previous permit contained weekly sampling and reporting frequencies for BOD₅, TSS, Ammonia, and pH, and monthly sampling and reporting frequencies for Oil & Grease. This permit contains monthly and quarterly sampling and reporting frequencies due to consistency amongst effluent data and compliance with effluent limits. The permit is still protective of water quality.
- <u>Total Toxic Organics (TTO)</u>. The previous permit contained a requirement to sample and report TTO once per year. A review of the TTO results over the last permit cycle shows compliance in accordance with 40 CFR 413.14(f). Due to consistency of compliance with the water quality standards for the parameters in the TTO list, the monitoring requirement for TTO sampling was removed. The permit is still protective of water quality and this determination will be reassessed at the time of renewal.
- ✓ 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, when a higher level authority is available, must submit information to the Department for review and approval, provided it does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the Department.

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BIOSOLIDS & SEWAGE SLUDGE:

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

Permittee is authorized to land apply biosolids in accordance with Standard Conditions III.

COMPLIANCE AND ENFORCEMENT:

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

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

ELECTRONIC DISCHARGE MONITORING REPORT (EDMR) SUBMISSION SYSTEM:

The U.S. Environmental Protection Agency (EPA) promulgated a final rule on October 22, 2015, to modernize Clean Water Act reporting for municipalities, industries, and other facilities by converting to an electronic data reporting system. This final rule requires regulated entities and state and federal regulators to use information technology to electronically report data required by the National Pollutant Discharge Elimination System (NPDES) permit program instead of filing paper reports. To comply with the federal rule, the Department is requiring all permittees to begin submitting discharge monitoring data and reports online. In an effort to aid facilities in the reporting of applicable information electronically, the Department has created several new forms including operational control monitoring forms and an I&I location and reduction form. These forms are optional and found on the Department's website at the following locations:

Operational Monitoring Lagoon: http://dnr.mo.gov/forms/780-2801-f.pdf
Operational Monitoring Mechanical: http://dnr.mo.gov/forms/780-2800-f.pdf

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

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

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

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

NUMERIC LAKE NUTRIENT CRITERIA

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

PRETREATMENT PROGRAM:

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

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

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

- Implementation and enforcement of the program,
- Annual pretreatment report submittal,
- Submittal of list of industrial users,

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

✓ The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(11)]. Discharge monitoring reports indicate the facility has not always been in compliance with the proposed limitations for Total Recoverable Silver; therefore, this permit includes a **one** (1) **year** schedule of compliance to make sufficient operational changes so that consistent compliance with final effluent limitations for Total Recoverable Silver is attained.

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 <u>Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators</u>, (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.

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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 reevaluate 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:

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

Where C = downstream concentration Ce = effluent concentration

Cs = upstream concentration Qe = effluent flow

Qs = upstream flow

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

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

Number of Samples "n":

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

\boxtimes	Facility is a designated Major.
	Facility continuously or routinely exceeds its design flow.
	Facility that exceeds its design population equivalent (PE) for BOD ₅ 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.
\boxtimes	Facility has Water Quality-based Effluent Limitations for toxic substances (other than NH ₃)
	Facility is a municipality with a Design Flow \geq 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.

<u>Part VI – Effluent Limits Determination</u>

OUTFALL #002 – 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		15	10	15/10	1/month	monthly	С
TSS	mg/L	1		20	15	20/15	1/month	monthly	С
Escherichia coli**	#/100mL	1, 3	126		*	126/*	1/month	monthly	G
Total Phosphorus	mg/L	1	*		*	*/*	1/month	monthly	С
Total Kjeldahl Nitrogen	mg/L	1	*		*	*/*	1/month	monthly	С
Nitrite + Nitrate	mg/L	1	*		*	*/*	1/month	monthly	С
Cadmium, Total Recoverable	μg/L	2	2.3		0.9	0.7/0.3	1/month	monthly	С
Cyanide, Amenable to Chlorination	μg/L	2	9.5		3.7	7.5/4.3	1/month	monthly	G
Lead, Total Recoverable	μg/L	2	12.3		4.2	10.3/4.5	1/month	monthly	C
Silver, Total Recoverable	μg/L	2	10.4		4.2	*/*	1/month	monthly	С

EFFLUENT LIMITATIONS TABLE (CONTINUED):

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sampl e Type ****
Ammonia as N (January) (February) (March) (April) (May) (June) (July) (August) (September) (October) (November) (December)	mg/L	2, 3	* 10.1 12.1 12.1 12.1 12.1 12.1 12.1 12.1		* 2.7 3.1 2.7 2.2 1.7 1.5 1.5 * 2.6 * 3.1	Apr - Sep: 3.6/1.4 Oct - Mar: 7.5/2.9	1/month	monthly	С
Oil & Grease	mg/L	1	15		10	15/10	1/quarter	quarterly	G
Copper, Total Recoverable	μg/L	2	*		*	20.8/12.3	1/quarter	quarterly	С
Iron, Total Recoverable	μg/L	2	*		*	*/*	1/quarter	quarterly	С
Nickel, Total Recoverable	μg/L	2	*		*	135/62	1/quarter	quarterly	С
Zinc, Total Recoverable	μg/L	2	*		*	***	1/quarter	quarterly	С
Vinyl Chloride	μg/L	2	*		*	*/*	1/quarter	quarterly	С
1, 2-cis-dichloroethylene	μg/L	2	*		*	*/*	1/quarter	quarterly	С
Trichloroethylene	μg/L	2	*		*	*/*	1/quarter	quarterly	С
Acute Whole Effluent Toxicity	TUa	1, 9	*			*	1/year	annually	С
Chronic Whole Effluent Toxicity	TUc	1, 9	*			*	1/permit cycle	1/permit cycle	С
PARAMETER	Unit	Basis for Limits	Minimum		Maximu m	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
pН	SU	1	6.5		9.0	6.5-9.0	1/month	monthly	G
PARAMETER	Unit	Basis for Limits	Daily Minimum		Monthly Avg. Min	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
BOD ₅ Percent Removal	%	1			85	85	1/month	monthly	M
TSS Percent Removal	%	1			85	85	1/month	monthly	M

^{* -} Monitoring requirement only.

**** - C = 24-hour composite

G = Grab

M = Measured/calculated

T = 24-hr. total

Basis for Limitations Codes:

- State or Federal Regulation/Law
- Water Quality Standard (includes RPA)
- 3. Water Quality Based Effluent Limits
- Antidegradation Review

- Antidegradation Policy
- Water Quality Model
- Best Professional Judgment
- TMDL or Permit in lieu of TMDL
- WET Test Policy
- 10. Multiple Discharger Variance
- 11. Nutrient Criteria Implementation Plan

OUTFALL #002 – 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 15 mg/L as a Weekly Average and 10 mg/L as a Monthly Average from the previous permit. Effluent limits were established in accordance with 10 CSR 20-7.015(4) for discharges to Losing Streams.
- Total Suspended Solids (TSS). Operating permit retains 20 mg/L as a Weekly Average and 15 mg/L as a Monthly Average from the previous permit. Effluent limits were established in accordance with 10 CSR 20-7.015(4) for discharges to Losing Streams.

^{** -} No more than 10% of samples over the course of the calendar year shall exceed 126 #/100 mL daily maximum

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

- <u>Escherichia coli (E. coli)</u>. Discharges to losing streams shall not exceed 126 per 100 mL as a Daily Maximum at any time, as per 10 CSR 20-7.031(5)(C). Monitoring only for a monthly average. No more than 10% of samples over the course of the calendar year shall exceed 126 #/100 mL daily maximum as per 10 CSR 20-7.015(9)(B)1.G.
- <u>Total Ammonia Nitrogen</u>. Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(5)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.01 mg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion.

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

$$Ce = \frac{(Qe + Qs)C - (Qs \times Cs)}{(Qe)}$$

Where C = downstream concentration

Ce = effluent concentration

Cs = upstream concentration

Qe = effluent flow

Qs = upstream flow

In the event that mixing considerations derive an AML less stringent than the MDL, the AML and MDL will be equal and based on the MDL.

Month	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
January	7.8	8.3	3.1	12.1
February	7.9	9.2	2.7	10.1
March	7.8	12.9	3.1	12.1
April	7.8	16.6	2.7	12.1
May	7.8	20.0	2.2	12.1
June	7.8	23.8	1.7	12.1
July	7.8	26.2	1.5	12.1
August	7.8	26.0	1.5	12.1
September	7.8	23.0	1.8	12.1
October	7.8	17.2	2.6	12.1
November	7.8	14.0	3.1	12.1
December	7.8	10.4	3.1	12.1

January

Monitoring only for January. The reasonable potential analysis determined that Ammonia in this facility's discharge is unlikely to exceed water quality standards for Ammonia in January.

February

Chronic WLA:

 $C_e = ((2.33 + 0.0)2.7 - (0.0 * 0.01))/2.33 = 2.7 \text{ mg/L}$

Acute WLA:

 $C_e = ((2.33 + 0.0)10.1 - (0.0 * 0.01))/2.33 = 10.1 \text{ mg/L}$

Chronic WLA = AML = 2.7 mg/LAcute WLA = MDL = 10.1 mg/L Sullivan WWTP Fact Sheet Page #15

March

Chronic WLA:

 $C_e = ((2.33 + 0.0)3.1 - (0.0 * 0.01))/2.33 = 3.1 \text{ mg/L}$

Acute WLA:

 $C_e = ((2.33 + 0.0)12.1 - (0.0 * 0.01))/2.33 = 12.1 \text{ mg/L}$

Chronic WLA = AML = 3.1 mg/LAcute WLA = MDL = 12.1 mg/L

May

Chronic WLA:

 $C_e = ((2.33 + 0.0)2.2 - (0.0 * 0.01))/2.33 = 2.2 \text{ mg/L}$

Acute WLA:

 $C_e = ((2.33 + 0.0)12.1 - (0.0 * 0.01))/2.33 = 12.1 \text{ mg/L}$

Chronic WLA = AML = **2.2** mg/L Acute WLA = MDL = **12.1** mg/L

July

Chronic WLA:

 $C_e = ((2.33 + 0.0)1.5 - (0.0 * 0.01))/2.33 = 1.5 \text{ mg/L}$

Acute WLA:

 $C_e = ((2.33 + 0.0)12.1 - (0.0 * 0.01))/2.33 = 12.1 \text{ mg/L}$

Chronic WLA = AML = 1.5 mg/LAcute WLA = MDL = 12.1 mg/L

September

Monitoring only for September. The reasonable potential analysis determined that Ammonia in this facility's discharge is unlikely to exceed water quality standards for Ammonia in September.

November

Monitoring only for November. The reasonable potential analysis determined that Ammonia in this facility's discharge is unlikely to exceed water quality standards for Ammonia in November.

April

Chronic WLA:

 $C_e = ((2.33 + 0.0)2.7 - (0.0 * 0.01))/2.33 = 2.7 \text{ mg/L}$

Acute WLA:

 $C_e = ((2.33 + 0.0)12.1 - (0.0 * 0.01))/2.33 = 12.1 \text{ mg/L}$

Chronic WLA = AML = 2.7 mg/LAcute WLA = MDL = 12.1 mg/L

June

Chronic WLA:

 $C_e = ((2.33 + 0.0)1.7 - (0.0 * 0.01))/2.33 = 1.7 \text{ mg/L}$

Acute WLA:

 $C_e = ((2.33 + 0.0)12.1 - (0.0 * 0.01))/2.33 = 12.1 \text{ mg/L}$

Chronic WLA = AML = 1.7 mg/LAcute WLA = MDL = 12.1 mg/L

August

Chronic WLA:

 $C_e = ((2.33 + 0.0)1.5 - (0.0 * 0.01))/2.33 = 1.5 \text{ mg/L}$

Acute WLA:

 $C_e = ((2.33 + 0.0)12.1 - (0.0 * 0.01))/2.33 = 12.1 \text{ mg/L}$

Chronic WLA = AML = 1.5 mg/LAcute WLA = MDL = 12.1 mg/L

October

Chronic WLA:

 $C_e = ((2.33 + 0.0)2.6 - (0.0 * 0.01))/2.33 = 2.6 \text{ mg/L}$

Acute WLA:

 $C_e = ((2.33 + 0.0)12.1 - (0.0 * 0.01))/2.33 = 12.1 \text{ mg/L}$

Chronic WLA = AML = 2.6 mg/LAcute WLA = MDL = 12.1 mg/L

December

Chronic WLA:

 $C_e = ((2.33 + 0.0)3.1 - (0.0 * 0.01))/2.33 = 3.1 \text{ mg/L}$

Acute WLA:

 $C_e = ((2.33 + 0.0)12.1 - (0.0 * 0.01))/2.33 = 12.1 \text{ mg/L}$

Chronic WLA = AML = 3.1 mg/LAcute WLA = MDL = 12.1 mg/L

- Oil & Grease. Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- <u>Total Phosphorus and Total Nitrogen (Speciated)</u>. Effluent monitoring for Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrite + Nitrate are required per 10 CSR 20-7.015(9)(D)8.
- <u>pH</u>. 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.

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Cyanide, Amenable to Chlorination. Protection of Aquatic Life CCC = 5.2 μg/L, CMC = 22 μg/L, Background CN = 0 μg/L.
The Department has determined the current acceptable ML of Cyanide Amenable to Chlorination to be 10 μg/L when using SM 4500-CN-G.

Chronic WLA: $C_e = ((2.33 + 0.0)5.2 - (0.0 * 0.0))/2.33 = 5.2 \ \mu g/L$

Acute WLA: $C_e = ((2.33 + 0.0)22 - (0.0*0.0))/2.33 = 22~\mu g/L$

$$\begin{split} LTA_c &= 5.2 \ (0.364) = 1.89 \ \mu g/L \\ LTA_a &= 22 \ (0.199) = 4.37 \ \mu g/L \end{split} \qquad \begin{aligned} &[CV = 1.03, \ 99^{th} \ Percentile] \\ &[CV = 1.03, \ 99^{th} \ Percentile] \end{aligned}$$

Use most protective number of LTA_c or LTA_a.

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\begin{split} MDL &= 1.89 \ (5.03) = \textbf{9.5} \ \mu g/L \\ AML &= 1.89 \ (1.97) = \textbf{3.7} \ \mu g/L \end{split} \qquad \begin{aligned} &[CV = 1.03, \ 99^{th} \ Percentile] \\ &[CV = 1.03, \ 95^{th} \ Percentile, \ n = 4] \end{aligned}
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- <u>Biochemical Oxygen Demand (BOD₅) Percent Removal</u>. 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 BOD₅ and TSS for Publicly Owned Treatment Works/municipals. This facility is required to meet 85% removal efficiency for BOD₅.
- <u>Total Suspended Solids (TSS) Percent Removal</u>. 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 BOD₅ and TSS for Publicly Owned Treatment Works/municipals. This facility is required to meet 85% removal efficiency for TSS.

Metals

Downstream water hardness of 180 mg/L is used in the calculation below. 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.

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.

• <u>Cadmium, Total Recoverable</u>. Protection of Aquatic Life Acute Criteria = 8.437 μg/L, Chronic Criteria = 1.117 μg/L. The hardness value of <u>180 mg/L</u> represents the 50th percentile (median) for Winsel Creek (C) (3960).

Acute AQL WQS: $e^{(1.0166*\ln 180 - 3.062490)*}(1.136672 - \ln 180*0.041838) = 8.437$ [at Hardness 180] Chronic AQL WQS: $e^{(0.7977*\ln 180 - 3.909)*}(1.101672 - \ln 180*0.041838) = 1.117$ [at Hardness 180]

Acute WQS: $8.437 \div 0.919 = 9.177 \,\mu\text{g/L}$ [Total Recoverable Conversion] Chronic WQS: $1.117 \div 0.884 = 1.263 \,\mu\text{g/L}$ [Total Recoverable Conversion]

Acute WLA: $C_e = ((2.33 + 0.0)9.177 - (0.0 * 0.0))/2.33 = 9.177 \ \mu g/L$ Chronic WLA: $C_e = ((2.33 + 0.0)1.1263 - (0.0 * 0.0))/2.33 = 1.263 \ \mu g/L$

 $\begin{array}{lll} LTA_a: & 9.177~(0.17) = 1.558~\mu g/L & [CV = 1.232,~99^{th}~Percentile] \\ LTA_c: & 1.263~(0.314) = 0.397~\mu g/L & [CV = 1.232,~99^{th}~Percentile] \\ \end{array}$

Use most protective number of LTA_a or LTA_c.

MDL: $0.397 (5.891) = 2.3 \mu g/L$ [CV = 1.232, 99th Percentile] AML: $0.397 (2.164) = 0.9 \mu g/L$ [CV = 1.232, 95th Percentile, n = 4]

• <u>Copper, Total Recoverable</u>. Monitoring only requirements have been included in this permit. An RPA was conducted based on the current WQS and determined that there is no reasonable potential to violate the water quality standard for Copper, please see **Appendix – RPA Results.** This determination will be reassessed at the time of renewal.

• <u>Lead, Total Recoverable</u>. Protection of Aquatic Life Acute Criteria = $121.65 \mu g/L$, Chronic Criteria = $4.744 \mu g/L$. The hardness value of <u>180 mg/L</u> represents the 50^{th} percentile (median) for Winsel Creek (C) (3960).

Acute AQL WQS: $e^{(1.273*\ln 180 - 1.460448)*}(1.46203 - \ln 180*0.145712) = 121.65$ [at Hardness 180] Chronic AQL WQS: $e^{(0.273*\ln 180 - 4.704797)}(1.46203 - \ln 180*0.145712) = 4.744$ [at Hardness 180]

Acute WQS: $121.65 \div 0.705 = 172.46 \ \mu g/L$ [Total Recoverable Conversion] Chronic WQS: $4.744 \div 0.705 = 6.725 \ \mu g/L$ [Total Recoverable Conversion]

Acute WLA: $C_e = ((2.33 + 0.0)172.46 - (0.0*0.0))/2.33 = 172.46 \ \mu g/L$ Chronic WLA: $C_e = ((2.33 + 0.0)6.725 - (0.0*0.0))/2.33 = 6.725 \ \mu g/L$

 $LTA_a: \qquad 172.46 \ (0.14) = 24.115 \ \mu g/L \qquad \qquad [CV = 1.561, 99^{th} \ Percentile] \\ LTA_c: \qquad 6.725 \ (0.255) = 1.715 \ \mu g/L \qquad [CV = 1.561, 99^{th} \ Percentile]$

Use most protective number of LTAa or LTAc.

MDL: $1.715 (7.152) = 12.3 \,\mu\text{g/L}$ [CV = 1.561, 99th Percentile] AML: $1.715 (2.452) = 4.2 \,\mu\text{g/L}$ [CV = 1.561, 95th Percentile, n = 4]

- <u>Nickel, Total Recoverable</u>. Monitoring only requirements have been included in this permit. An RPA was conducted based on the current WQS and determined that there is no reasonable potential to violate the water quality standard for Nickel, please see **Appendix RPA Results.** This determination will be reassessed at the time of renewal.
- <u>Silver, Total Recoverable</u>. Protection of Aquatic Life Acute Criteria = $8.857 \mu g/L$. The hardness value of <u>180 mg/L</u> represents the 50^{th} percentile (median) for Winsel Creek (C) (3960).

Acute AQL WQS: $e^{(1.72*\ln 180 - 6.588144)} * 0.850 = 8.857$ [at Hardness 180]

Acute WQS: $8.857 \div 0.85 = 10.42 \,\mu\text{g/L}$ [Total Recoverable Conversion]

Acute WLA: $C_e = ((2.33 + 0.0)10.42 - (0.0 * 0.0))/2.33 = 10.42 \mu g/L$

LTA_a: $10.42 (0.208) = 2.167 \mu g/L$ [CV = 0.979, 99th Percentile]

 $\begin{array}{ll} \text{MDL:} & 2.167~(4.81) = \textbf{10.4}~\mu\text{g/L} \\ \text{AML:} & 2.167~(1.167) = \textbf{4.2}~\mu\text{g/L} \\ \end{array} \qquad \begin{array}{ll} [\text{CV} = 0.979,~99^{\text{th}}~\text{Percentile}] \\ [\text{CV} = 0.979,~95^{\text{th}}~\text{Percentile},~n = 4] \end{array}$

- <u>Trichloroethylene</u>. A Reasonable Potential determination indicates that this discharge does not have the potential to violate Water Quality Standards at this time. Monitoring will continue to verify this determination. Monitoring for TCE and its breakdown products shall continue to be included as long as this facility receives the wastewater from the remediation project.
- <u>Vinyl Chloride</u>. A Reasonable Potential determination indicates that this discharge does not have the potential to violate Water Quality Standards at this time. Monitoring will continue to verify this determination. Monitoring for TCE and its breakdown products shall continue to be included as long as this facility receives the wastewater from the remediation project.
- 1, 2-cis-dichloroethylene. A Reasonable Potential determination indicates that this discharge does not have the potential to violate Water Quality Standards at this time. Monitoring will continue to verify this determination. Monitoring for TCE and its breakdown products shall continue to be included as long as this facility receives the wastewater from the remediation project.
- <u>Iron, Total Recoverable</u>. Monitoring requirement only. Total Recoverable Iron was added to Outfall #002 as the facility may utilize Ferric Chloride in the SBR basins to settle sludge. This data will be used in the next permit renewal to determine if a reasonable potential exists to violate Water Quality Standards. If no Iron was used in a given sampling period, an actual analysis is not necessary. Simply report as "AG Conditional Monitoring Not Required this Period".
- Zinc, Total Recoverable. Monitoring requirement only. The facility provided the sample results for the Expanded Effluent Tests as required by the application for renewal. This parameter was detected in the sample results. As a result, monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards for Zinc.

Whole Effluent Toxicity

- <u>Acute Whole Effluent Toxicity</u>. Monitoring requirement only. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards.
 - ✓ Acute Allowable Effluent Concentrations (AECs) for facilities that discharge to Waters of the State lacking designated uses are 100%, 50%, 25%, 12.5%, & 6.25%.
- <u>Chronic Whole Effluent Toxicity</u>. 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 are 100%, 50%, 25%, 12.5%, & 6.25%.

Parameters Removed.

- <u>Instream Monitoring</u>. The previous permit included quarterly monitoring upstream for Total Phosphorus and Total Nitrogen. Due to the fact that the first classified stream is a Class C stream and may cease flow in dry periods, it may not be possible to get a representative sample of nutrients in the stream. As a result, instream monitoring was removed from this permit. The permit is still protective of water quality.
- <u>Metals</u>. A Reasonable Potential Analysis was conducted and it was determined that there is no reasonable potential to cause an excursion of water quality standards for Total Recoverable Arsenic and Mercury, or Total Dissolved Chromium (VI) in the receiving stream. As a result, monitoring requirements have been removed. This determination will be reassessed at renewal. Please see **Appendix RPA Results** for more information.
- <u>Total Toxic Organics (TTO)</u>. The previous permit contained a requirement to sample and report TTO once per year. A review of the TTO results over the last permit cycle shows compliance in accordance with 40 CFR 413.14(f). Due to consistency of compliance with the water quality standards for the parameters in the TTO list, the monitoring requirement for TTO sampling was removed. The permit is still protective of water quality and this determination will be reassessed at the time of renewal.

<u>Sampling Frequency Justification</u>: The Department has determined that previously established sampling and reporting frequency is sufficient to characterize the facility's effluent and be protective of water quality; however, the sampling and reporting frequencies for effluent BOD₅, TSS, Ammonia, and pH were reduced from weekly to monthly and increased for Total Recoverable Silver from quarterly to monthly. Weekly sampling is required for *E. coli*, per 10 CSR 20-7.015(9)(D)7.A.

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

Acute Whole Effluent Toxicity

- ✓ No less than **ONCE/YEAR**:
 - Facility is designated as a Major facility or has a design flow ≥ 1.0 MGD.
 - Facility incorporates a pretreatment program.
 - Facility has Water Quality-based effluent limitations for toxic substances (other than NH₃).

Chronic Whole Effluent Toxicity

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

<u>Sampling Type Justification</u>: 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*, TRC, Oil & Grease, and Cyanide, 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:

INTECENT MONITORING INDEE.									
PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
BOD ₅	mg/L	1			*	***	1/month	monthly	С
TSS	mg/L	1			*	***	1/month	monthly	С
Ammonia as N	mg/L	1	*		*	***	1/month	monthly	С
Total Phosphorus	mg/L	1	*		*	***	1/month	monthly	С
Total Kjeldahl Nitrogen	mg/L	1	*		*	***	1/month	monthly	С
Nitrite + Nitrate	mg/L	1	*		*	***	1/month	monthly	С

^{* -} Monitoring requirement only.

**** - C = Composite

Basis for Limitations Codes:

- State or Federal Regulation/Law
- Water Quality Standard (includes RPA)
- Water Quality Based Effluent Limits 3.
- Antidegradation Review

- Antidegradation Policy
- Water Quality Model
- Best Professional Judgment
- WET Test Policy
- Multiple Discharger Variance 11. Nutrient Criteria Implementation Plan
- TMDL or Permit in lieu of TMDL

Influent Parameters

- Biochemical Oxygen Demand (BODs) and Total Suspended Solids (TSS). An influent sample is required to determine the removal efficiency. In accordance with 40 CFR Part 133, removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to BOD₅ and TSS for Publicly Owned Treatment Works (POTWs)/municipals.
- Total Phosphorus, Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia. Influent monitoring for Total Phosphorus, Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia required per 10 CSR 20-7.015(9)(D)8.

Sampling Frequency Justification: The sampling and reporting frequencies for Total Phosphorus and Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia parameters were established to match the required sampling frequency of these parameters in the effluent, per [10 CSR 20-7.015(9)(D)8.]. The sampling and reporting frequencies for influent BOD₅ and TSS have been established to match the required sampling frequency of these parameters in the effluent.

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

PERMITTED FEATURE 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	*		*	***	1/month	monthly	G

^{* -} Monitoring requirement only

Basis for Limitations Codes:

- State or Federal Regulation/Law
- Water Quality Standard (includes RPA)
- Water Quality Based Effluent Limits
- Antidegradation Review

- Antidegradation Policy
- Water Quality Model 6.
- Best Professional Judgment
- TMDL or Permit in lieu of TMDL

**** - G = Grab

WET Test Policy

- 10. Multiple Discharger Variance
- 11. Nutrient Criteria Implementation Plan

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

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

PERMITTED FEATURE SM2 – DERIVATION AND DISCUSSION OF MONITORING REQUIREMENTS:

• <u>Total Hardness</u>. Monitoring only requirement as the metals parameters contained in the permit are hardness based. This data will be used in the next permit renewal.

<u>Sampling Frequency Justification</u>: The sampling and reporting frequency for Total Hardness has been established to match the required sampling frequency of the metals parameters in the effluent.

<u>Sampling Type Justification</u>: For the purposes of instream data collection, and as the upstream water quality should be consistent over a 24 hour period, grab samples are sufficient. Samples should be analyzed as soon as possible after collection and/or properly preserved according to method requirements.

OUTFALL #002 - GENERAL CRITERIA CONSIDERATIONS:

In accordance with 40 CFR 122.44(d)(1), effluent limitations shall be placed into the permit for those pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. The rule further states that pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above a narrative criterion within an applicable State water quality standard, the permit shall contain a numeric effluent limitation to protect that narrative criterion. In order to comply with this regulation, the permit writer will complete reasonable potential determinations on whether the discharge will violate any of the general criteria listed in 10 CSR 20-7.031(4). These specific requirements are listed below followed by derivation and discussion (the lettering matches that of the rule itself, under 10 CSR 20-7.031(4)). It should also be noted that Section 644.076.1, RSMo as well as Section D – Administrative Requirements of Standard Conditions Part I of this permit states that it shall be unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri that is in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law or any standard, rule or regulation promulgated by the commission.

- (A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses. The discharge from this facility is made up of treated domestic wastewater. Based upon review of the Report of Compliance Inspection for the inspection conducted on March 19, 2018, no evidence of an excursion of this criterion has been observed by the Department in the past and the facility has not disclosed any other information related to the characteristics of the discharge on their permit application which has the potential to cause or contribute to an excursion of this narrative criterion. Additionally, this facility utilizes secondary treatment technology and is currently in compliance with the 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 Sullivan

Summary Table. Cost Analysis for Compliance Summary for the City of Sullivan										
New Permit Requirements										
Sampling requirements for: monthly effluent Total Phosphorus, Total Kjeldahl Nitrogen (TKN), and Nitrite + Nitrate (increased from quarterly); monthly influent Total Phosphorus, TKN, Nitrite + Nitrate, and Ammonia; monthly effluent Total Recoverable Silver (increased from quarterly); and quarterly effluent Total Recoverable Zinc.										
Estimated Annual Cost	Annual Median Household Income (MHI) Estimated Monthly User Rate User Rate as a Percen									
\$2,228	\$35,388	\$42.01	1.42%							

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 Total Recoverable Cadmium, Lead, and Silver, which water quality criteria has been modified by twenty-five percent or more since the issuance of the previous permit. The approval of these changes 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. The "Evaluation of Environmental and Economic Impacts of Revised Water Quality Standards and Criteria on a Subbasin Basin" report is located at: https://dnr.mo.gov/env/wpp/permits/index.html.

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 April 24, 2020 to May 25, 2020. No comments received.

Following the Public Notice period, the permit writer discovered an error which omitted Special Conditions #21, #22, and #23 from the draft permit. This error has been corrected and the three special conditions have been included in the final draft of this permit. The permit writer also discovered a technical error in the Reasonable Potential Analysis (RPA) for Ammonia which changed the assumptions from "Early Life Stages Present" to "Early Life Stages Absent", resulting in less stringent limits for January, February, March, November, and December. The final effluent limits for Ammonia were recalculated with the "Early Life Stages Present" assumption, which resulted in more stringent limits for February, March, and December, as well as no reasonable potential to cause or contribute to an excursion of the water quality standard for Ammonia for the months of January, September, and November. These months were reduced to monitoring only requirements for Ammonia. This permit is still protective of water quality.

DATE OF FACT SHEET: FEBRUARY 21, 2020

COMPLETED BY:

ASHLEY KEELY, ENVIRONMENTAL SPECIALIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT
(573) 751-7326
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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.)	1.5
Design Flow (avg. day) or peak month's flow (avg. day) whichever is larger	1 pt. / MGD or major fraction thereof. (Max 10 pts.)	1.5
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/Irrig	ation	
Drip Irrigation	3	
Land application/irrigation	5	
Overland flow	4	
Variation in Raw Wastes (higher	est 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 Treatme	nt	
STEP systems (operated by the permittee)	3	
Screening and/or comminution	3	3
Grit removal	3	3
Plant pumping of main flow	3	3
Flow equalization	5	5
Primary Treatment	t	
Primary clarifiers	5	
Chemical addition (except chlorine, enzymes)	4	
Secondary Treatment	nt	
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)		38

APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):

ITEM	POINTS POSSIBLE	POINTS ASSIGNED		
Solids Handling				
Sludge Holding	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			
More advanced determinations, such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	7			
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	10		
Total from page TWO (2)		26		
Total from page ONE (1)		38		
Grand Total		64		

□ - 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
Ammonia as N – January (mg/L)	12.1	2.67	3.1	2.6712	5	0.636/0.14	0.60	4.2	NO
Ammonia as N – February (mg/L)	10.1	5.04	2.7	5.04	5	1.2/0.439	0.60	4.2	YES
Ammonia as N – March (mg/L)	12.1	5.80	3.1	5.796	5	1.38/0.419	0.60	4.2	YES
Ammonia as N – April (mg/L)	12.1	7.64	2.7	7.644	5	1.82/0.308	0.60	4.2	YES
Ammonia as N – May (mg/L)	12.1	3.79	2.2	3.7884	5	0.902/0.216	0.60	4.2	YES
Ammonia as N – June (mg/L)	12.1	2.34	1.7	2.3394	5	0.557/0.166	0.60	4.2	YES
Ammonia as N – July (mg/L)	12.1	21.42	1.5	21.42	5	5.1/0.236	0.60	4.2	YES
Ammonia as N – August (mg/L)	12.1	1.62	1.5	1.6212	5	0.386/0.202	0.60	4.2	YES
Ammonia as N – September (mg/L)	12.1	1.18	1.8	1.1844	5	0.282/0.199	0.60	4.2	NO
Ammonia as N – October (mg/L)	12.1	2.72	2.6	2.7174	5	0.647/0.15	0.60	4.2	YES
Ammonia as N – November (mg/L)	12.1	3.00	3.1	2.9988	5	0.714/0.198	0.60	4.2	NO
Ammonia as N – December (mg/L)	12.1	6.02	3.1	6.016	4	1.28/0.167	0.60	4.7	YES
Cadmium, Total Recoverable (µg/L)	9.18	2.54	1.26	2.54	61	1.1/0.002	1.232	2.31	YES
Cyanide, Amenable to Chlorination (μg/L)	22	71.26	5	71.26	53	32.0/1.5	1.029	2.23	YES
Lead, Total Recoverable (µg/L)	172.46	26.30	6.73	26.30	61	10.0/0.01	1.561	2.63	YES
Silver, Total Recoverable (µg/L)	10.42	12.20	n/a	n/a	30	4.95/0.027	0.979	2.46	YES
Zinc, Total Recoverable (µg/L)	197.56	494.68	195.9 6	494.68	3	88.0/58.4	0.600	5.62	YES
Arsenic, Total Recoverable (µg/L)	340	82.6	150	82.58	30	15.0/0.015	2.307	5.51	NO
Chromium VI, Total Dissolved (µg/L)	16	6.99	11	6.99	23	5.3/0.5	0.198	1.32	NO
Copper, Total Recoverable (µg/L)	24.35	14.65	15.42	14.65	61	11.0/2.1	0.338	1.33	NO
Iron, Total Recoverable (μg/L)	N/A	252.96	1000	252.96	3	45.0/34.0	0.600	5.62	NO
Mercury, Total Recoverable (μg/L)	1.65	0.087	0.8	0.087	30	0.1/0.001	0.269	0.87	NO
Nickel, Total Recoverable (µg/L)	771.93	68.02	85.77	68.02	61	34.0/0.97	0.942	2.00	NO

N/A – Not Applicable

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.

^{* -} Units are $(\mu g/L)$ 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).

APPENDIX – ALTERNATIVE:



APPENDIX – COST ANALYSIS FOR COMPLIANCE:

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

Sullivan WWTF, Permit Renewal City of Sullivan Missouri State Operating Permit #MO-0104736

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

New Permit Requirements

The permit also requires compliance with new monitoring requirements for monthly effluent Total Phosphorus, Total Kjeldahl Nitrogen (TKN), and Nitrite + Nitrate (increased from quarterly); monthly influent Total Phosphorus, TKN, Nitrite + Nitrate, and Ammonia; monthly effluent Total Recoverable Silver (increased from quarterly); and quarterly effluent Total Recoverable Zinc.

Connections

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

Connection Type	Number of Connections
Residential	2,772
Commercial	564
Industrial	112
Total	3,448*

^{*} The City of Sullivan reported that the total number of connections to the facility is 3,881, of which 265 are from Oak Grove Village and 168 are from Village of West Sullivan / Woodland Hills. It was also reported that the City of Sullivan owns the infrastructure for Woodland Hills. Additionally, Oak Grove Village and Village of West Sullivan have individual agreements with the City of Sullivan, resulting in sewer rates that are determined in the budget each fiscal year. As a result, this analysis includes only the connections and user rates for the City of Sullivan.

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 Sullivan		
Current Monthly User Rates per 5,000 gallons* \$41.96		
Median Household Income (MHI) ¹ \$35,388		
Current Annual Operating Costs (excludes depreciation) \$484,500		

^{*}User Rates for the City of Sullivan 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	\$288		
Total Kjeldahl Nitrogen - Influent	Monthly	\$33	\$396		
Nitrate + Nitrite - Influent	Monthly	\$40	\$480		
Ammonia - Influent	mmonia - Influent Monthly		\$240		
Total Phosphorus – Effluent	Monthly (increased from Quarterly)	\$24	\$192		
Total Kjeldahl Nitrogen - Effluent	ogen - Effluent Monthly (increased from Quarterly)		\$264		
Nitrate + Nitrite - Effluent Monthly (increased from Quarterly)		\$40	\$320		
Total Recoverable Silver Monthly		\$20	\$160		
Total Recoverable Zinc Quarterly		\$20	\$80		
Total Estimated Annual Cost of New Permit Requirements \$2,228					

Crit	Criterion 2B Table. Estimated Costs for New Permit Requirements				
(1)	Estimated Annual Cost	\$2,228			
(2)	Estimated Monthly User Cost for New Requirements ²	\$0.05			
	Estimated Monthly User Cost for New Requirements as a Percent of MHI ³	0.002%			
(3)	Total Monthly User Cost*	\$42.01			
	Total Monthly User Cost as a Percent of MHI ⁴	1.43%			

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

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

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

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

Nutrient Monitoring

Nutrients are mineral compounds that are required for organisms to grow and thrive. Of the six (6) elemental macronutrients, nitrogen and phosphorus are generally not readily available and limit growth of organisms. Excess nitrogen and phosphorus will cause a shift in the ecosystem's food web. Once excess nitrogen and phosphorous are introduced into a waterbody, some species' populations will dramatically increase, while other populations will not be able to sustain life. Competition and productivity are two factors in which nutrients can alter aquatic ecosystems and the designated uses of a waterbody. For example, designated uses, such as drinking water sources and recreational uses, become impaired when algal blooms take over a waterbody. These blooms can cause foul tastes and odors in the drinking water, unsightly appearance, and fish mortality in the waterbody. Some algae also produce toxins that may cause serious adverse health conditions such as liver damage, tumor promotion, paralysis, and kidney damage. The monitoring requirements for nitrogen and phosphorus have been added to the permit to provide data regarding the health of the receiving stream's aquatic life. A healthy ecosystem is beneficial as it provides reduced impacts on human and aquatic health as well as recreational opportunities.

Metals Limits and Monitoring

Metals dissolve in water and are easily absorbed by fish and other aquatic organisms. Small concentrations can be toxic because metals undergo bioconcentration, which means that their concentration in an organism is higher than in water. Metal toxicity produces adverse biological effects on an organism's survival, activity, growth, metabolism, or reproduction. Metals can be lethal or harm the organism without killing it directly. Adverse effects on an organism's activity, growth, metabolism, and reproduction are examples of sub-lethal effects.

In order for a metal to be toxic, it needs to enter the body of the exposed organism and interact with the surface or interior of cells. The pathways by which this happens includes diffusion into the bloodstream via the gills and skin, as fish become exposed by drinking water or eating sediments contaminated with the metal, or eating other animals or plants that became exposed to the metal. Humans become exposed to metals via analogous pathways: diffusion into the bloodstream via the lungs and skin, drinking contaminated water, and eating contaminated food.

(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 \$3,942,000. The community reported that each user pays \$42.96 monthly, of which, \$9.31 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 Sullivan

No.	Administrative Unit	Sullivan City	Missouri State	United States
1	Population (2017)	6,587	6,075,300	321,004,416
2	Percent Change in Population (2000-2017)	3.7%	8.6%	14.1%
3	2017 Median Household Income (in 2018 Dollars)	\$35,388	\$52,801	\$59,060
4	Percent Change in Median Household Income (2000-2017)	-21.9%	-7.7%	-6.7%
5	Median Age (2017)	35.2	38.4	37.8
6	Change in Median Age in Years (2000-2017)	-0.5	2.3	2.5
7	Unemployment Rate (2017)	10.9%	5.8%	6.6%
8	Percent of Population Below Poverty Level (2017)	18.0%	14.6%	14.6%
9	Percent of Household Received Food Stamps (2017)	19.2%	12.2%	12.6%
10	(Primary) County Where the Community Is Located	Franklin County		

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

The community reported they are working on a water tower maintenance program from 2015-2025 for approximately \$2.5 million. The City also plans for additional water main and sewer replacements as the budget allows.

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(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 Sullivan to seek funding from an outside source.

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

The Department contracted with Wichita State University to complete an assessment tool that would allow for predictions on rural Missouri community populations and future sustainability. The purpose of the study is to use a statistical modeling analysis in order to determine factors associated with each rural Missouri community that would predict the future population changes that could occur in each community. A stepwise regression model was applied to 19 factors which were determined as predictors of rural population change in Missouri. The model established a hierarchy of the predicting factors which allowed the model to place a weighted value on each of the factors. A total of 745 rural towns and villages in Missouri received a weighted value for each of the predicting factors. The weighted values for each town / village were then added together to determine an overall decision score. The overall decision scores were then divided into five categories and each town was assigned to a different categorical group based on the overall decision score. The categorical groups were developed from the range of overall scores across all rural towns and villages within Missouri.

Based on the assessment tool, the City of Sullivan has been determined to be a category 5 community. This means that the City of Sullivan is predicted to be stable over time.

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

- (A) 2017 MHI in 2017 Dollar: United States Census Bureau. 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. (\$2,228/3,448)/12 = \$0.05 (Estimated Monthly User Cost for New Requirements)
- 3. (\$0.05/(\$35,388/12))100% = 0.002% (New Sampling Only)
- 4. (\$42.01/(\$35,388/12))100% = 1.425% (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).
- 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.

- 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.
- 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.
- 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.

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:
 - 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.
 - Any unanticipated bypass which exceeds any effluent limitation in the permit.
 - ii. Any upset which exceeds any effluent limitation in the permit.
 - 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.
- 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
- 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.
- Monitoring results shall be reported to the Department no later than the 28th day of the month following the end of the reporting period.

Section C – Bypass/Upset Requirements

1. **Definitions.**

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

2. Bypass Requirements.

a. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2. b. and 2. c. of this section.

b. Notice.

- 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:
 - 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
 - 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:
 - 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.
- Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

Section D – Administrative Requirements

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

2. Duty to Reapply.

- a. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.
- b. A permittee with a currently effective site-specific permit shall submit an application for renewal at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Department. (The Department shall not grant permission

- for applications to be submitted later than the expiration date of the existing permit.)
- c. A permittees with currently effective general permit shall submit an application for renewal at least 30 days before the existing permit expires, unless the permittee has been notified by the Department that an earlier application must be made. The Department may grant permission for a later submission date. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
- 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.
- 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.

- 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;
 - Having obtained this permit by misrepresentation or failure to disclose fully any relevant facts;
 - 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.
- 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.
- 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:
 - 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;
 - Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - 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.

- 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 noncompliance 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

THE MISSOURI DEPARTMENT OF NATURAL RESOURCES MISSOURI CLEAN WATER COMMISSION August 1, 2019

PART III - BIOSOLIDS AND SLUDGE FROM DOMESTIC TREATMENT FACILITIES

SECTION A – GENERAL REQUIREMENTS

- 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 Lawand regulations.
- 7. This permit may (after due process) be modified, or alternatively revoked and reissued, to comply with any applicable biosolids or sludge disposal standard or limitation issued or approved under Section 405(d) of the Clean Water Act or under Chapter 644 RSMo.
- 8. In addition to Standard Conditions PART III, the Department may include biosolids and sludge limitations in the special conditions portion or other sections of a site specific permit.
- 9. Exceptions to Standard Conditions PART III may be authorized on a case-by-case basis by the Department, as follows:
 - a. The Department may modify a site-specific permit following permit notice provisions as applicable under 10 CSR 20-6.020, 40 CFR § 124.10, and 40 CFR § 501.15(a)(2)(ix)(E).
 - b. Exceptions cannot be granted where prohibited by the federal sludge regulations under 40 CFR Part 503.

SECTION B - DEFINITIONS

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

SECTION C - MECHANICAL WASTEWATER TREATMENT FACILITIES

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

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

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

SECTION E - INCINERATION OF SLUDGE

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

SECTION F – SURFACE DISPOSAL SITES AND BIOSOLIDS AND SLUDGE LAGOONS

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

SECTION G - LAND APPLICATION OF BIOSOLIDS

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

5. Pollutant limits

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

TABLE 1

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

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

TABLE 2

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

e. Annual pollutant loading rate.

Table 3

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

f. Cumulative pollutant loading rates.

Table 4

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

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

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

- i. PAN can be determined as follows:
 - (Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor 1).

 Volatilization factor is 0.7 for surface application and 1 for subsurface application. Alternative volitalization factors and mineralization rates can be utilized on a case-by-case basis.
- ii. Crop nutrient production/removal to be based on crop specific nitrogen needs and realistic yield goals. NO TE: 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;
 - 300 feet of a losing stream, no discharge stream, stream stretches designated for whole body contact recreation, wild and scenic rivers, Ozark National Scenic Riverways or outstandingstate resource waters as listed in the Water Quality Standards, 10 CSR 20-7.031;
 - iii. 150 feet of dwellings or public use areas;
 - iv. 100 feet (35 feet if biosolids application is down-gradient or the buffer zone is entirely vegetated) of lake, pond, wetlands or gaining streams (perennial or intermittent);
 - v. 50 feet of a property line. Buffer distances from property lines may be waived with written permission from neighboring property owner.
 - vi. For the application of dry, cake or liquid biosolids that are subsurface injected, buffer zones identified in 5.d.i. through 5.d.iii above, may be reduced to 100 feet. The buffer zone may be reduced to 35 feet if the buffer zone is permanently vegetated. Subsurface injection does not include methods or technology reflective of combination surface/shallow soil incorporation.
- e. Slope limitation for application sites are as follows:
 - i. For slopes less than or equal to 6 percent, no rate limitation;
 - ii. Applied to a slope 7 to 12 percent, the applicator may apply biosolids when soil conservation practices are used to meet the minimum erosion levels;
 - iii. Slopes > 12 percent, apply biosolids only when grass is vegetated and maintained with at least 80 percent ground cover at a rate of two dry tons per acre per year or less.
 - iv. Dry, cake or liquid biosolids that are subsurface injected, may be applied on slopes not to exceed 20 percent. Subsurface injection does not include the use of methods or technology reflective of combination surface/shallow soil incorporation.
- f. No biosolids may be land applied in an area that it is reasonably certain that pollutants will be transported into waters of the state.
- g. Biosolids may be land applied to sites with soil that are snow covered, frozen, or saturated with liquid when site restrictions or other controls are provided to prevent pollutants from being discharged to waters of the state during snowmelt or stormwater runoff. During inclement weather or unfavorable soil conditions use the following management practices:
 - A maximum field slope of 6% and a minimum 300 feet grass buffer between the application site and waters of the state. A 35 feet grass buffer may be utilized for the application of dry, cake or liquid biosolids that are subsurface injected. Subsurface injection does not include the use of mthods or technology refletive of combination surface/shallow soil incorporation;
 - ii. A maximum field slope of 2% and 100 feet grass buffer between the application site and waters of the state. A 35 feet grass buffer may be used for the application of dry, cake or liquid biosolids that are subsurface injected. Subsurface injection does not included the use of methods or technology refletive of combination surface/shallow soil incorporation;
 - iii. Other best management practices approved by the Department.

SECTION H - SEPTAGE

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

SECTION I— CLOSURE REQUIREMENTS

- 1. This section applies to all wastewater facilities (mechanical and lagoons) and sludge or biosolids storage and treatment facilities. It does not apply to land application sites.
- 2. Permittees of a domestic wastewater facility who plan to cease operation must obtain Department approval of a closure plan which addresses proper removal and disposal of all sludges and/or biosolids. Permittee must maintain this permit until the facility is closed in accordance with the approved closure plan per 10 CSR 20 6.010 and 10 CSR 20 6.015.
- 3. Biosolids or sludge that are left in place during closure of a lagoon or earthen structure or ash pond shall not exceed the agricultural loading rates as follows:
 - a. Biosolids and sludge shall meet the monitoring and land application limits for agricultural rates as referenced in Section G, above.
 - b. If a wastewater treatment lagoon has been in operation for 15 years or more without sludge removal, the sludge in the lagoon qualifies as a Class B biosolids with respect to pathogens due to anaerobic digestion, and testing for fecal coliform is not required. For other lagoons, testing for fecal coliform is required to show compliance with Class B biosolids limitations. In order to reach Class B biosolids requirements, fecal coliform must be less than 2,000,000 colony forming units or 2,000,000 most probable number. All fecal samples must be presented as geometric mean per gram.
 - c. The allowable nitrogen loading that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. For a grass cover crop, the allowable PAN is 300 pounds/acre. Alternative, site-specific application rates may be included in the closure plan for department consideration.
 - i. PAN can be determined as follows:
 (Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor¹).

 ¹ Volatilization factor is 0.7 for surface application and 1 for subsurface application. Alternative volitalization factors and mineralization rates can be utilized on a case-by-case basis
- 4. Domestic wastewater treatment lagoons with a design treatment capacity less than or equal to 150 persons, are "similar treatment works" under the definition of septage. Therefore the sludge within the lagoons may be treated as septage during closure activities. See Section B, above. Under the septage category, residuals may be left in place as follows:
 - a. Testing for metals or fecal coliform is not required.
 - b. If the wastewater treatment lagoon has been in use for less than 15 years, mix lime with the sludge at a rate of 50 pounds of hydrated lime per 1000 gallons (134 cubic feet) of sludge.
 - c. The amount of sludge that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. 100 dry tons/acre of sludge may be left in the basin without testing for nitrogen. If 100 dry tons/acre or more will be left in the lagoon, test for nitrogen and determine the PAN using the calculation above. Allowable PAN loading is 300 pounds/acre.
- 5. Biosolids or sludge left within the domestic lagoon shall be mixed with soil on at least a 1 to 1 ratio, and unless otherwise approved, the lagoon berm shall be demolished, and the site shall be graded and contain ≥70% vegetative density over 100% of the site so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion. Alternative biosolids or sludge and soil mixing ratios may be included in the closure plan for department consideration.
- 6. Lagoon and earthen structure closure activities shall obtain a storm water permit for land disturbance activities that equal or exceed one acre in accordance with 10 CSR 20-6.200.
- 7. When closing a mechanical wastewater plant, all biosolids or sludge must be cleaned out and disposed of in accordance with the Department approved closure plan before the permit for the facility can be terminated.
 - a. Land must be stabilized which includes any grading, alternate use or fate upon approval by the Department, remediation, or other work that exposes sediment to stormwater per 10 CSR 20-6.200. The site shall be graded and contain $\geq 70\%$ 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 onsite 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

T. I D LL C									
Biosolids or Sludge	Monitoring Frequency (See Notes 1, and 2)								
produced and disposed (Dry Tons per Year)	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						

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.

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)

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.

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.
 - 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 alegal description for nearest 1/4, 1/4, 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/kgTN; or 2) when biosolids are land applied at an application rate greater than two dry tons per acre per year.
- ii. If the "Low Metals" criteria are exceeded, report the annual and cumulative pollutant loading rates in pounds per acre for each applicable pollutant, and report the percent of cumulative pollutant loading which has been reached at each site.
- iii. Report the method used for compliance with pathogen and vector attraction requirements.
- iv. Report soil test results for pH and phosphorus. If no soil was tested during the year, report the last date when tested and the results.



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

FORM B2 – APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT FOR FACILITIES WHICH RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100.000 GALLONS PER DAY

FACILITY NAME	
Sullivan Wastewater Treatment Plant	
PERMIT NO.	COUNTY
Mo. 0104736	Franklin

APPLICATION OVERVIEW

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

BASIC APPLICATION INFORMATION

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

SUPPLEMENTAL APPLICATION INFORMATION

- D. Expanded Effluent Testing Data. A treatment works that discharges effluent to surface water of the United States and meets one or more of the following criteria must complete *Part D Expanded Effluent Testing Data*:
 - 1. Has a design flow rate greater than or equal to 1 million gallons per day.
 - 2. Is required to have or currently has a pretreatment program.
 - 3. Is otherwise required by the permitting authority to provide the information.
- E. Toxicity Testing Data. A treatment works that meets one or more of the following criteria must complete *Part E Toxicity Testing Data*:
 - 1. Has a design flow rate greater than or equal to 1 million gallons per day.
 - Is required to have or currently has a pretreatment program.
 - 3. Is otherwise required by the permitting authority to provide the information.
- F. Industrial User Discharges and Resource Conservation and Recovery Act / Comprehensive Environmental Response, Compensation and Liability Act Wastes. A treatment works that accepts process wastewater from any significant industrial users, also known as SIUs, or receives a Resource Conservation and Recovery Act or CERCLA wastes must complete Part F Industrial User Discharges and Resource Conservation and Recovery Act /CERCLA Wastes.

SIUs are defined as:

- 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:
 - Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions).
 - ii. Contributes a process waste stream that makes up five percent or more of the average dry weather hydraulic or organic capacity of the treatment plant.
 - iii. Is designated as an SIU by the control authority.
- G. Combined Sewer Systems. A treatment works that has a combined sewer system must complete *Part G Combined Sewer Systems*.

ALL APPLICANTS MUST COMPLETE PARTS A, B and C

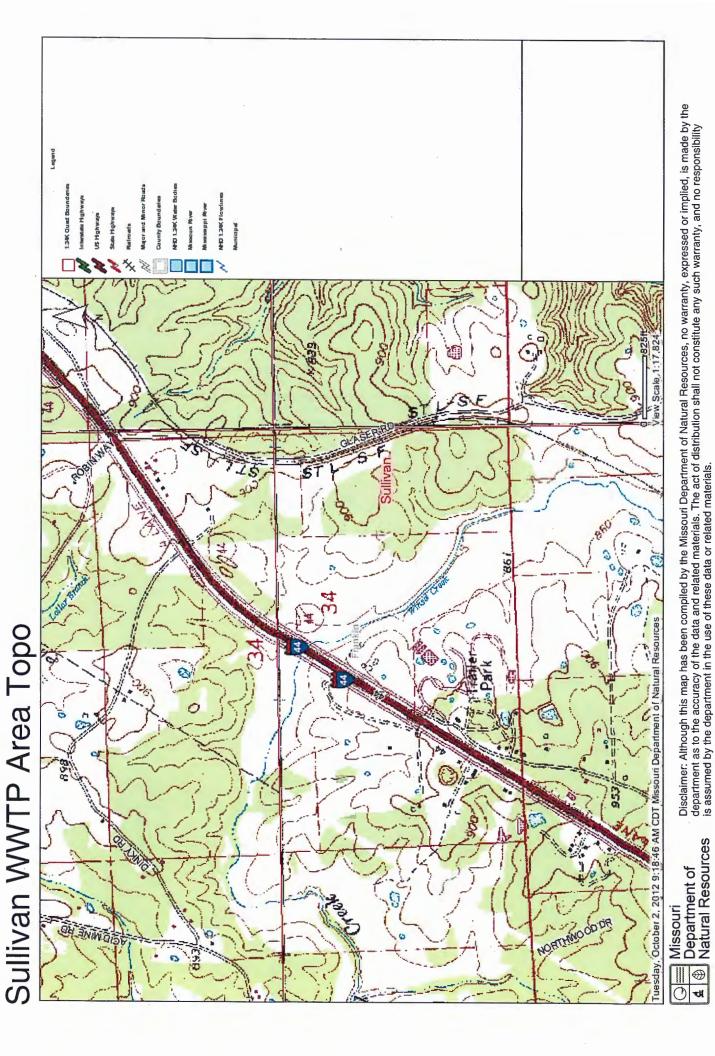


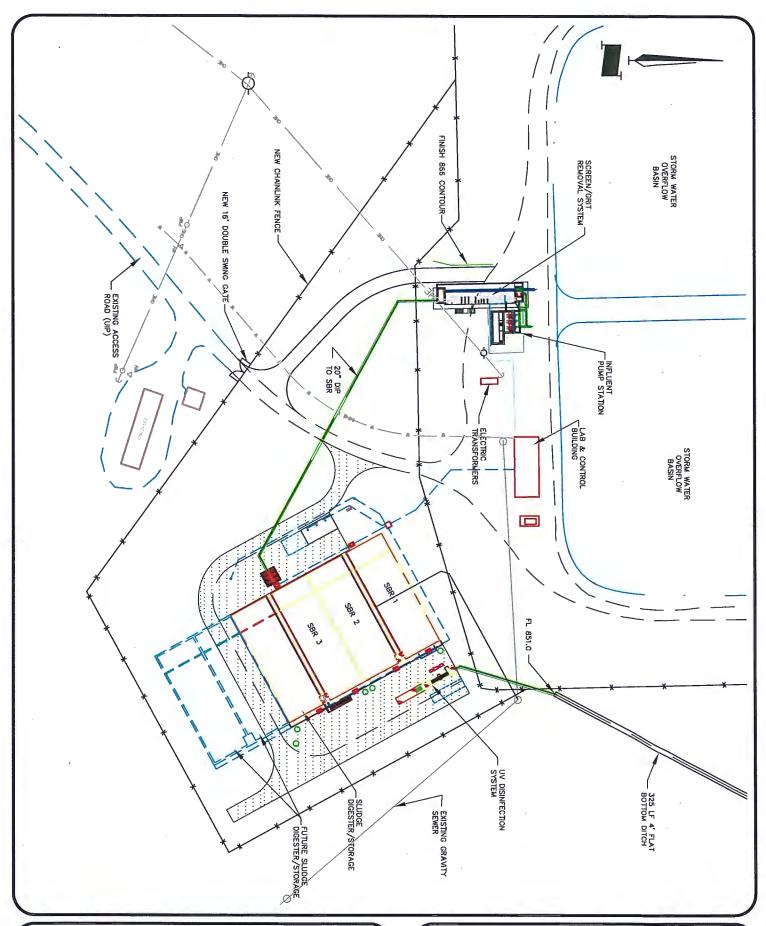
MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH FORM B2 — APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT FOR FACILITIES WHICH RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY

FOR AGENC	Y USE ONLY
CHECK NUMBER	
DATE RECEIVED	FEE SUBMITTED

PART A – BASIC APPLICATION INFORMATION										
1. This application is for:										
 An operating permit and antidegradation review pub 	lic notice.									
☐ A construction permit following an appropriate opera	A construction permit following an appropriate operating permit and antidegradation review public notice.									
☐ A construction permit, a concurrent operating permit	A construction permit, a concurrent operating permit and antidegradation review public notice.									
A construction permit (submitted before Aug. 30, 20	A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required).									
 An operating permit for a new or unpermitted facility 	. Construction Permit #	-								
An operating permit renewal: Permit #MO- 0104736										
An operating permit modification: Permit #MO	•									
All operating permit modification. Fermit #iviO										
1.1 Is this a Federal/State Funded Project?	s ☐ No Funding Agency/F	Project #:								
1.2 Is the appropriate fee included with the application (See instructions for appropriate fee)? [☐ Yes 🔽 No								
2. FACILITY		TELEPHONE NUMBER	WITH ADEA CODE							
Sullivan Wastewater Treatment Plant		573-468-8223	WITH AREA CODE							
ADDRESS (PHYSICAL)	CITY	STATE	ZIP							
320 Emma Lane	Sullivan	МО	63080							
2.1 LEGAL DESCRIPTION (Plant Site): NE 1/4	, NE ¼, NE ¼, Sec. , T 4 0 N,	R 2W Co	ounty Franklin							
2.2 UTM Coordinates Easting (X): 663680 Northing (Y): For Universal Transverse Mercator (UTM), Zone 15 North		(NAD83)								
3. OWNER City of Sullivan										
NAME	TITLE	TELEPHONE NUMBER	WITH AREA CODE							
John Garner	Water & Sewer Commissioner	573-468-4812								
ADDRESS	CITY	STATE	ZIP							
210 W. Washington	Sullivan	МО	63080							
3.1 Request review of draft permit prior to Public Notice	? ☑ Yes □ No									
4. CONTINUING AUTHORITY: Permanent organization maintenance and modernization of the facility.	which will serve as the continuing auth	ority for the opera	tion,							
NAME	VALUE AND	CITY								
City Of Sullivan		Sullivan								
ADDRESS 210 W. Washington	CERTIFICATE NUMBER (IF APPLICABLE)	STATE Mo	63080							
5. OPERATOR		1	10000							
NAME	TITLE	TELEPHONE NUMBER	R WITH AREA CODE							
Joe Philpot	Operator (Certificate #9414)	573-468-8223								
6. FACILITY CONTACT										
C. TAGILITI GOITAGI										
NAME Joe Philpot	TITLE Operator (Certificate #9414)									

FACILITY NAME Sullivan Westerwater Treatment Plant	PERMIT NO.		OUTFALL NO.	
Sullivan Wastewater Treatment Plant	MO- 0104736		2	
PART A – BASIC APPLICATION INFO	And the second section of the second section is a second section of the second section of the second section is a second section of the section of the second section of the section of th			
7. ADDITIONAL FACILITY INFORMAT	ION			
7.1 BRIEF DESCRIPTION OF FACILITIES				
Influent lift station/screening & grit removal/ digester/sludge land applied by contract had		s/sequencing batch	reactor/ultraviolet dis	infection/aerobic sludge
7.2 TOPOGRAPHIC MAP. ATTACH TO THIS BEYOND FACILITY PROPERTY BOUND INFORMATION. (YOU MAY SUBMIT MO a. The area surrounding the treatment b. The location of the downstream land	ARIES. THIS MAP MUST ORE THAN ONE MAP IF Coplant, including all unit pro	T SHOW THE OUTLIN	E OF THE FACILITY A	ND THE FOLLOWING REA.)
 The major pipes or other structures t treated wastewater is discharged fro The actual point of discharge. 	hrough which wastewater			her structures through which
e. Wells, springs, other surface water b			1/4 mile of the property b	oundaries of the treatment
works, and 2) listed in public record of f. Any areas where the sewage sludge g. If the treatment works receives waste by truck, rail or special pipe, show or	produced by the treatmer that is classified as haza	nt works is stored, treat irdous under the Resou	rce Conservation and F	Recovery Act, or RCRA,
or disposed.				
7.3 PROCESS FLOW DIAGRAM OR SCHEM ALSO, PROVIDE A WATER BALANCE S AND DECHLORINATION). THE WATER POINTS AND APPROXIMATE DAILY FLOF THE DIAGRAM.	HOWING ALL TREATME BALANCE MUST SHOW	NT UNITS, INCLUDING DAILY AVERAGE FLO	G DISINFECTION (E.G. DW RATES AT INFLUE	CHLORINATION NT AND DISCHARGE
7.4 FACILITY SIC CODE DISCHAF 4952 . 4952 .	RGE SIC CODE:	FACILITY NAICS	CODE: DISC	HARGE NAICS CODE: . 221320
7.5 NUMBER OF SEPARATE DISCHARGE I	POINTS	. 221320		ZZ13ZU
7.6 NUMBER OF PEOPLE PRESENTLY CO	NNECTED OR POPULAT	ION EQUIVALENT	DESIGN POPULATION	I EQUIVILENT
10,100 PE		1	20,000	
NUMBER OF UNITS PRESENTLY CONN	NECTED			
	MENTS	TRAILERS	OTHER	
TOTAL DESIGN FLOW (ALL OUTFALLS	′	ACTUAL FLOW		
2.0 MGD		1.1 MGD	LIE TOEATMENT EACH	U. ITVO
7.7 DOES ANY BYPASSING OCCUR ANYW Yes ☐ No ■	HERE IN THE COLLECTI (If Yes, attach an expla		HE TREATMENT FAC	ILITY?
7.8 LENGTH OF THE SANITARY SEWER C				
<u>75</u>				
7.9 IS INDUSTRIAL WASTE DISCHARGED	TO THE FACILITY IDENT		Yes 🔽	No 🗌
7.10 WILL THE DISCHARGE BE CONTINUOU		-		Web.
A. DISCHARGE WILL OCCUR DURING TH MONTHS	E FOLLOWING	OCCUR?	AYS OF THE WEEK W	ILL THE DISCHARGE
Continuous		7 Days Continuous		
7.11 IS WASTEWATER LAND APPLIED? (If Y Yes ☑ No ☐	es, Attach Form I)	7.12 DOES THIS F. SINKHOLE?	ACILITY DISCHARGE Tes Ves	TO A LOSING STREAM OR No 🗌
7.13 HAS A WASTE LOAD ALLOCATION STU Yes No 2	JDY BEEN COMPLETED	FOR THIS FACILITY?		
7.14 LIST ALL PERMIT VIOLATIONS, INCLU	DING EFFLUENT LIMIT E	EXCEEDANCES IN TH	E LAST FIVE YEARS.	(See Attached)
ATTACH A SEPARATE SHEET IF NECE	SSARY. IF NONE, WRIT	E NONE. NONE		
8. LABORATORY CONTROL INFORM	TATION			
8.1 LABORATORY WORK CONDUCTE	D BY PLANT PERSON	INEL		
Lab work conducted outside of plant. Son	ne tests are don	e outside of	plant. Yes 🗌	No 🗹
Push-button or visual methods for simple to	est such as pH, settleat	ole solids.	Yes 🗹	No 🗌
Additional procedures such as Dissolved O Oxygen Demand, titrations, solids, volatile of		en Demand, Biologic	al Yes ☑	No 🗌
More advanced determinations such as BO nutrients, total oils, phenols, etc.		fecal coliform,	Yes [7]	No □
Highly sophisticated instrumentation, such	as atomic absorption ar	nd gas chromatograp		No 🗆
MO 780-1805 (09-08)				

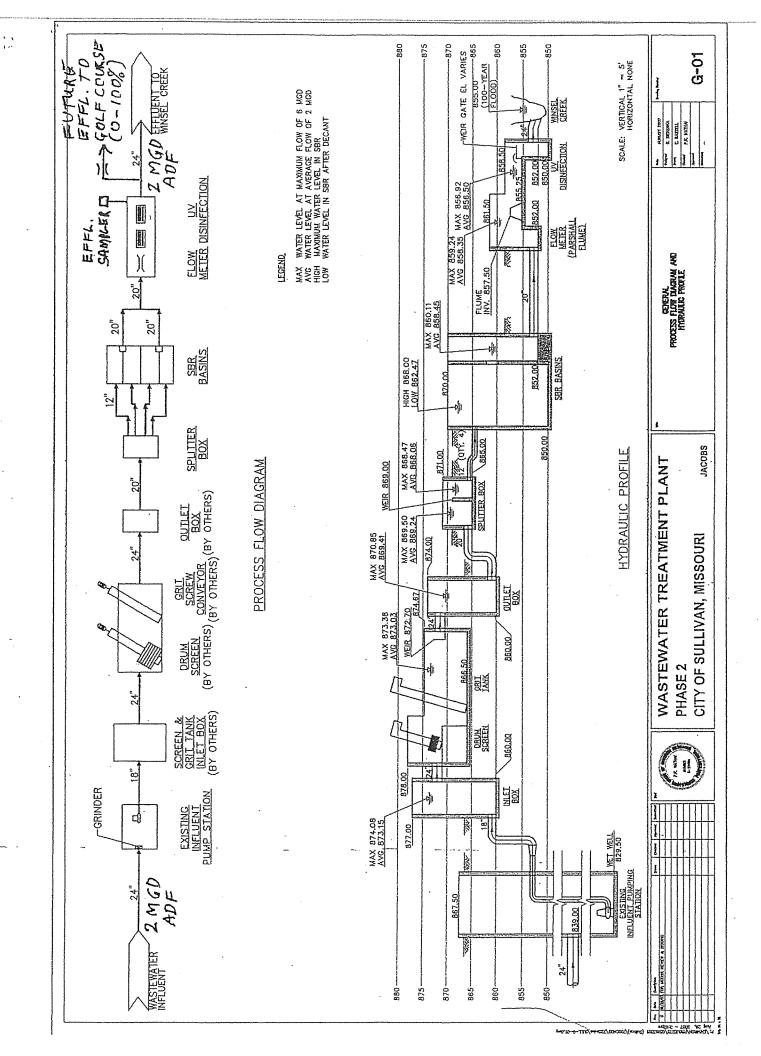






WWTP PLAN EXHIBIT

DATE: OCT 02, 2012 DRAWN BY: DG
CHECKED BY: RS
PLOT SCALE: 1" = 80'
FILE NAME: WWTP Permit 2012



FACILITY NAME Sullivan Wastewater Treatment Plant	PERMIT NO. MO- 0104736		OUTFALL N	IO.	
PART A - BASIC APPLICATION IN					
9. SLUDGE HANDLING, USE AND I	er targegen and a standard and product the first of the standard and a standard and a standard and a standard a				
9.1 IS THE SLUDGE A HAZARDOUS WAS		10 CSR 25?	***************************************	***************************************	
Yes ☐ No 🗸					
9.2 SLUDGE PRODUCTION, INCLUDING	SLUDGE RECEIVED	ROM OTHERS	······································		
Design Dry Tons/Year 381 (raw) 259 (di	gested)		Act	ual Dry Tons/Yea	r 90
9.3 CAPACITY OF SLUDGE HOLDING ST	RUCTURES				
9.4 SLUDGE STORAGE PROVIDED Cubic Feet 61,200 Days of Storage 9	0-180 Average	Percent Solids of Slu	ıdge ^{2%+}	No Sludge Sto	rage is Provided
9.5 TYPE OF STORAGE ☐ Holding Tank ☐ Basin	☐ Building	☐ Concrete Pad	☑ Other (Describe)	Aerobic Diges	ter
9.6 SLUDGE TREATMENT	***************************************				
☐ Anaerobic Digester ☐ Storag		☐ Lime Stabilization	on 🗌 La	goon	
	Heat Drying	☐ Composting	□ Ot	her (Attach Descr	iption)
9.7 SLUDGE USE OR DISPOSAL					
✓ Land Application✓ Contra☐ Surface Disposal (Sludge Disposal)	_	auled to Another Trea		☐ Solid Wast	
Other (Attach Explanation Sheet)	-agoon, Sidage Held F	or More Than Two R	ears)	☐ incineration	1
9.8 PERSON RESPONSIBLE FOR HAULI	NG SLUDGE TO DISP	POSAL FACILITY		***************************************	
NAME					
Oros & Busch					
ADDRESS		CITY		STATE	ZIP
19433 Moore Cemetery Road		Carlinville	WITH ABEA GODE	IL	62626
CONTACT PERSON Jake Oros		TELEPHONE NUMBER W 314-651-4673	TTH AREA CODE	PERMIT NO MO-	
9.9 SLUDGE USE OR DISPOSAL FACILIT	<u> </u>	314-031-4073		IVIO-	
☐ By Applicant ☐ By Others (Complete E			<u> </u>		***************************************
NAME					
ADDRESS		CITY	***	STATE	ZIP
CONTACT PERSON	<u> </u>	TELEPHONE NUMBER W	ITH AREA CODE	PERMIT NO	
				MO-	
9.10 DO THE SLUDGE OR BIOSOLIDS DIS		TH FEDERAL SLUDG	SE REGULATIONS U	NDER 40 CFR 50	03?
Yes No (Attach E			······································	***************************************	
10. DOWNSTREAM LANDOWNER(S). (ATTACH ADDIT	IONAL SHEETS AS	S NECESSARY.)		
NAME Sarah B Kuhn					
ADDRESS		CITY		STATE	ZIP
1776 E. Springfield Road		Sullivan		MO	63080
11. DRINKING WATER SUPPLY INFO	ORMATION	Jumrun		1.110	1 30000
11.1 SOURCE OF YOUR DRINKING WATER		- 			
A. PUBLIC SUPPLY (MUNICIPAL OR W		FR) (IF PUBLIC PLE	EASE GIVE NAME OF	PUBLIC SUPPL	Y
City Of Sullivan			- (0- 0,1-1,1,1,1-0,	. 022.0 00. , 2	,
B. PRIVATE WELL				· · · · · · · · · · · · · · · · · · ·	
C. SURFACE WATER (LAKE, POND OR	STREAM)				
11.2 DOES YOUR DRINKING WATER SOU CONSECUTIVE DAYS)?	IRCE SERVE AT LEA	ST 25 PEOPLE AT LI Yes 🔽	EAST 60 DAYS PER No □	YEAR (NOT NEC	CESSARILY
11.3 DOES YOUR SPPLY SERVE HOUSING THAT IS OCCUPIED SEAS		D YEAR ROUND BY Yes 🗹	THE SAME PEOPLE	? THIS DOES N	OT INCLUDE
	EN	ID OF PART A			

MAKE ADDITIONAL COPIES O	F THIS I	FORM FOR EAC	TUO H	FALL		***************************************
FACILITY NAME		PERMIT NO.			OUTFALL NO	
Sullivan Wastewater Treatment Plan		MO- 0104736	30.00		2	
PART B – ADDITIONAL APPLI	CATION	INFORMATION				
20. INFLOW AND INFILTRAT					·····	
ESTIMATE THE AVERAGE NUMBER O INFILTRATION.	F GALLON	NS PER DAY THAT FI	-OW IN	TO THE TREATMEN	NT WORKS	FROM INFLOW AND
Gallons Per Day 30,000						
BRIEFLY EXPLAIN ANY STEPS UNDER Lining of sewer mains & manholes it						
20.1 OPERATION AND MAINTENA						
ARE ANY OPERATIONAL OR MAINTEN TREATMENT WORKS THE RESPONSI Yes □ No 1/7	BILITY OF	A CONTRACTOR?				FFLUENT QUALITY) OF THE ractor and describe the contractor's
responsibilities. (Attach additional pages	if necessa	ry.)	epriorie	Thursber and status	or each cont	actor and describe the contractor's
NAME						
MAILING ADDRESS						
TELEPHONE NUMBER WITH AREA CODE						
RESPONSIBILITIES OF CONTRACTOR						
20.2 SCHEDULED IMPROVEMEN	TS AND S	CHEDULES OF IMPL	EMENT	ATION. PROVIDE IN	NFORMATIO	ON ABOUT ANY UNCOMPLETED
IMPLEMENTATION SCHEDU TREATMENT, EFFLUENT QU SEVERAL DIFFERENT IMPLE RESPONSES FOR EACH. (IF	LE OR UN IALITY OR EMENTATI	COMPLETED PLANS DESIGN CAPACITY ION SCHEDULES OR	FOR IN	MPROVEMENTS TH	AT WILL AF	FECT THE WASTEWATER TREATMENT WORKS HAS
A. List the outfall number that is covered implementation schedule	ed by this			ether the planned implocal, state or federal		or implementation schedule are
Outfall No.		,	s 🗌	No []	r agerioles.	
20.3 WASTEWATER DISCHARGE	S:		***************************************		***************************************	
COMPLETE QUESTIONS 20. EFFLUENT IS DISCHARGED						
20.4 DESCRIPTION OF OUTFALL			·····			
OUTFALL NUMBER 2						
A. LOCATION			_	 -	Manue	
1/4 NE 1/4 NE 1/4 NE Section		Township 40N	Range	<u>2</u> □ E	☑W	
UTM Coordinates Easting (X): 663810 For Universal Transverse Mer	cator (UTN	ng (۲): <u>4233940</u> /i). Zone 15 North refe	renced	to North American Da	atum 1983 (I	NAD83)
B. Distance from Shore		C. Depth Belo	w Surfa			Average Daily Flow Rate
(If Applicable)	1	(If Applicat	ole)			<u>1.1</u> mgd
300+ ft.		ft.				
E. Does this outfall have either an ☐ Yes		ent or periodic dischargovide the following info				
Number of Days Per Year Discharge		e Duration of Each		Average Flow Per		Months in Which Discharge
Occurs:	Dischar			Discharge: mgd		Occurs:
Is Outfall Equipped with a Diffuser?	Yes	■ No				
20.5 DESCRIPTION OF RECEIVIN	G WATER	2				
B. Name of Receiving Water						
Unnamed tributary of Winsel Creek		Creek (U) Losing	T =			
B. Name of Watershed (If Known Spring Creek (C) (2072))		1	Soil Conservation Se 0103-090007	rvice 14-Dig	it Watershed Code (If Known)
B. Name of State Management/R	iver Basin	(If Known)	ļ	Geological Survey 8-	Digit Hydrol	ogic Cataloging Unit Code (If
B. Critical Flow of Receiving Stre	am (If App	licable)	B. To	otal Hardness of Rec	eiving Strea	m at Critical Low Flow
	Chronic	•		f Applicable)	9	
MO 780-1805 (09-08)			<u> </u>	mg/L of CaCO₃		

FACILITY NAME Sullivan Wastewater	Treatmen	t Plant	PERMIT NO. OUTFALL NO. 10 OUTFALL NO						
PART B - ADDITIO	NAL APPL	ICATION IN	FORMATION	(CONTINUI	ED)				
20.6 DESCRIPTION						MININES MATERIAL SAN			
A. WHAT LEVE		ATMENT ARE econdary	PROVIDED? (☐ Advanced		t Apply er (Describe)				
			AL RATES (AS						
Design BOD ₅ Remova	l Or Design (CBOD₅ Remov	<i>r</i> al	<u>90</u> %	· [Design SS Re	moval 90	_%	
Design P Removal			ign N Removal			Other	-	%	
C. What type of Ultraviolet Disinfection		is used for the	effluent from t	his outfall? If	disinfection va	ries by seaso	n, please describe:		
If disinfection is by chlo	rination, is d	echlorination i	used for this ou	tfall?	☐ Yes	1 🗆	No		
Does the treatment pla	nt have post	aeration?			✓ Yes	□ N	No	******************	
DATA FOR T EFFLUENT I INFORMATION METHODS.	THE FOLLOV IS DISCHAF ON REPOR' IN ADDITIO	WING PARAM IGED. DO NO FED MUST BE N, THIS DATA	ETERS. PRO' OT INCLUDE IN EBASED ON D AMUST COMP	VIDE THE IND IFORMATION IATA COLLEC PLY WITH QA	DICATED EFF OF COMBINE TED THROUG QC REQUIRE	LUENT DATA ED SEWER C GH ANALYSIS EMENTS OF 4	S. MUST PROVIDION FOR EACH OUTFONERFLOWS IN THE SCONDUCTED US TO CER PART 136 OF ADDRESSED BY	FALL THE HIS SECTI SING 40 C AND OTH	ROUGH WHICH ION. ALL FFR PART 136 ER
OUTFALL NUMBER	2								
ΡΔΡΔ	METER		MAXIN	MUM DAILY	VALUE		AVERAGE DA	ILY VAL	UE
			VAI	LUE	UNITS	VALUE	UNITS	NO. C	F SAMPLES
pH (Minimum)			6.	56	S.U.	7.11	S.U.		252
pH (Maximum)			7.	76	S.U.		S.U.		
FLOW RATE			6.2705		MGD	1.1024	MGD	MGD 365	
TEMPERATURE (W	/inter)		25.0		°C	14.28	°C	°C 124	
TEMPERATURE (S	ummer)		25	5.9	°C	20.6	°C	°C 128	
*For pH report a min	imum and	a maximum d	daily value.						
POLLUTAN	т		UM DAILY AVERAGE HARGE		GE DAILY D	ISCHARGE	ANALYT	ICAL	ML/MDL
1 022017(1)	'	CONC.	UNITS	CONC.	UNITS	NO. OF SAMPLE		METHOD	
Conventional and No	onconventi	onal Compou	ınds						
BIOCHEMICAL OXYGEN	BOD₅	9.8	mg/L	2.66	mg/L	252	SM5210		
DEMAND (Report One)	CBOD₅		mg/L		mg/L				
E. coli		17.3	#/100 mL	5.32	#/100 mL	52	IDEXX		
TOTAL SUSPEI SOLIDS (TS		6.9	mg/L	1.85	mg/L	252	SM2540D		
AMMONIA (AS	3 N)	1.02	mg/L	0.232	mg/L	52	colorimetri	С	
CHLORINE (TOTAL RESIDUA			mg/L		mg/L				
DISSOLVED OX	YGEN		mg/L		mg/L				
TOTAL KJELD NITROGEN (T		5.6	mg/L	16.5	mg/L	4			
NITRATE PL NITRITE NITRO			mg/L		mg/L				
OIL AND GRE	ASE	1.5	mg/L	1.408	mg/L	12	EPA 1664	Α	
PHOSPHORUS (TOTAL)	2900	mg/L	2092.5	mg/L	4			
TOTAL DISSOLVE (TDS)	SOLIDS		mg/L		mg/L				
OTHER			mg/L		mg/L				
				END OF P	ARTR				

PART C - CERTIFICATION

30. CERTIFICATION

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

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

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

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

John Garner, Water and Sewer Commissioner

SIGNATURE

TELEPHONE NUMBER WITH AREA CODE

573-468-4812

DATE SIGNED

06/24/2019

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

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

Appropriate Regional Office

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

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

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

END OF PART C.

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

Do not complete the remainder of this application, unless:

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

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

MAKE ADDITIONAL COPIES OF THIS	FORM FOR EACH OUTFALL.	
FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sullivan Wastewater Treatment Plant	MO- 0104736	2

PART D - EXPANDED EFFLUENT TESTING DATA

40. EXPANDED EFFLUENT TESTING DATA

Refer to the supplemental application information to determine whether Part D applies to the treatment works.

40.1 EFFLUENT TESTING: 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 ON 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. INDICATE IN THE BLANK ROWS PROVIDED BELOW ANY DATA YOU MAY HAVE ON POLLUTANTS NOT SPECIFICALLY LISTED IN THIS FORM. EFFLUENT TESTING MUST NOT BE MORE THAN FOUR AND ONE-HALF YEARS OLD.

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

	MA	XIMUM DAILY	/ DISCHAR	GE		AVERAGE DAILY DISCHARGE					
POLLUTANT	CONC	UNITS	MASS	UNITS	CONC	UNITS	MASS	UNITS	NO. OF SAMPLES	ANALYTICAL METHOD	ML/MDL
METALS (TOTAL	RECOVERA	ABLE), CYAN	IDE, PHEN	OLS AND I	HARDNES	3					
ANTIMONY	<0.010	mg/L			<0.010	mg/L			5	200.7	
ARSENIC	<0.015	mg/L			<0.015	mg/L			5	200.7	
BERYLLIUM	<0.001	mg/L			<0.001	mg/L			5	200.7	
CADMIUM	<0.002	mg/L			<0.002	mg/L		-	5	200.7	
CHROMIUM	4.8	ug/L			3.16	ug/L			5	200.7	
COPPER	7.5	ug/L			6.42	ug/L			5	200.7	
LEAD	<0.01	mg/L			<0.01	mg/L			5	200.7	
MERCURY	<.2	ug/L			<.2	ug/L			5	245.1/7470	
NICKEL	19	ug/L			8.08	ug/L			5	200.7	
SELENIUM	<0.01	mg/L			<0.01	mg/L			5	200.7	
SILVER	<2	ug/L			<2	ug/L			5	200.7	
THALLIUM	<0.02	mg/L			<0.02	mg/L			5	200.7	
ZINC	88	ug/L			58.4	ug/L			5	200.7	
CYANIDE	7.1	ug/L			5.025	ug/L			4	SM4500-CN	
TOTAL PHENOLIC COMPOUNDS	<0.05	mg/L			<0.05	mg/L.			4	420.1	
HARDNESS (as CaCO ₃)	200	mg/L	·		190	mg/l			4	SM2340B	
JSE THIS SPACE	(OR A SE	PARATE SHE	ET) TO PR	OVIDE INF	ORMATIO	N ON OTH	IER META	LS REQUE	STED BY TH	E PERMIT WRITE	ER.
				***************************************		<u> </u>					
***************************************				***************************************							
								1			

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sullivan Wastewater Treatment Plant	MO- 0104736	2

PART D – EXPANDED EFFLUENT TESTING DATA (CONTINUED)

40.1 EXPANDED EFFLUENT TESTING DATA (CONTINUED)

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

	MAXII	MUM DAIL	Y DISCH	ARGE		AVERAG	ANALYTICAL				
POLLUTANT	CONC	UNITS	MASS	UNITS	CONC	UNITS	MASS	UNITS	NO. OF SAMPLES	METHOD	ML/MDL
VOLATILE ORGANIC CO	MPOUNDS	3									
ACROLEIN					<50	ug/L			3	EPA 624	
ACRYLONITRILE					<10	ug/L			3	EPA 624	
BENZENE					<5	ug/L			5	EPA 624	
BROMOFORM					<5	ug/L			5	EPA 624	
CARBON TETRACHLORIDE					<5	ug/L			5	EPA 624	
CHLOROBENZENE					<5	ug/L			5	EPA 624	
CHLORODIBROMO- METHANE					<5	ug/L			5	EPA 624	
CHLOROETHANE					<10	ug/L			5	EPA 624	
2-CHLORO- ETHYLVINYL ETHER					<5	ug/L			5	EPA 624	
CHLOROFORM					<5	ug/L			5	EPA 624	
DICHLOROBROMO- METHANE					<5	ug/L			5	EPA 624	
1,1-DICHLORO- ETHANE					<5	ug/L			5	EPA 624	
1,2-DICHLORO- ETHANE					<5	ug/L			5	EPA 624	
TRANS-1,2- DICHLOROETHYLENE					<20	ug/L			5	EPA 624	
1,1-DICHLORO- ETHYLENE					<5	ug/L			5	EPA 624	
1,2-DICHLORO- PROPANE					<5	ug/L			5	EPA 624	
1,3-DICHLORO- PROPYLENE											
ETHYLBENZENE					<5	ug/L			5	EPA 624	
METHYL BROMIDE					<10	ug/L			5	EPA 624	
METHYL CHLORIDE					<10	ug/L			5	EPA 624	
METHYLENE CHLORIDE					<5	ug/L			5	EPA 624	
1,1,2,2-TETRA- CHLOROETHANE					<5	ug/L			5	EPA 624	
TETRACHLORO- ETHANE					<5	ug/L			5	EPA 624	
TOLUENE					<5	ug/L			5	EPA 624	
3,4-BENZO- FLUORANTHENE					<10	ug/L			5	EPA 624	
BENZO(GH) PHERYLENE					<10	ug/L			5	EPA 624	
BENZO(K) FLUORANTHENE IO 780-1805 (09-08)					<10	ug/L			5	EPA 624	

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sullivan Wastewater Treatment Plant	MO- 0104736	2

PART D – EXPANDED EFFLUENT TESTING DATA (CONTINUED)

40.1 EXPANDED EFFLUENT TESTING DATA (CONTINUED)

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

POLLUTANT	MAXII	MUM DAIL	Y DISCH	ARGE		AVERAG	ANALYTICAL				
	CONC	UNITS	MASS	UNITS	CONC	UNITS	MASS	UNITS	NO. OF SAMPLES	METHOD	ML/MDL
BIS (2-CHLOROTHOXY) METHANE					<10	ug/L			5	EPA 625	
BIS (2-CHLOROETHYL) – ETHER					<10	ug/L			5	EPA 625	
BIS (2-ETHYLHEXYL) PHTHALATE					<10	ug/L			5	EPA 625	
4-BROMOPHENYL PHENYL ETHER					<10	ug/L			5	EPA 625	
BUTYL BENZYL PHTHALATE					<10	ug/L			5	EPA 625	
2-CHLORONAPH- THALENE					<10	ug/L			5	EPA 625	
4-CHLORPHENYL PHENYL ETHER					<10	ug/L			5	EPA 625	
CHRYSENE					<10	ug/L			5	EPA 625	
DI-N-BUTYL PHTHALATE					<10	ug/L			5	EPA 625	
DEBENZO (A,H) ANTHRACENE					<10	ug/L			5	EPA 625	
1,2-DICHLORO- BENZENE					<5	ug/L			5	EPA 625	
1,3-DICHLORO- BENZENE					<5	ug/L			5	EPA 625	
1,4-DICHLORO- BENZENE					<5	ug/L			5	EPA 625	
3,3-DICHLORO- BENZIDINE					<20	ug/L			5	EPA 625	
DIETHYL PHTHALATE					<10	ug/L			5	EPA 625	
DIMETHYL PHTHALATE					<10	ug/L			5	EPA 625	
2,4-DINITRO-TOLUENE					<10	ug/L			5	EPA 625	
2,6-DINITRO-TOLUENE					<10	ug/L			5	EPA 625	
1,2-DIPHENYL- HYDRAZINE											
1,1,1-TRICHLORO- ETHANE					<5	ug/L			5	EPA 625	
1,1,2-TRICHLORO- ETHANE					<5	ug/L			5	EPA 625	
TRICHLORETHYLENE					<5	ug/L			5	EPA 625	
VINYL CHLORIDE USE THIS SPACE (OR A	SEDABAT	E QUEET) TO BBO	VIDE INE	<5	ug/L	IED VOL	TILE ORG	5	EPA 625	TED BY
THE PERMIT WRITER	JEFARAI	LONEEL	, 10 FRO	VIDE INFO			IEK VOLA	T	ANIC COMPC	JOINDS REQUES	T
					ļ	-					ļ
					ļ		<u> </u>				<u> </u>

ACILITY NAME				PERMIT NO. MO 0104736					OUTFALL NO.			
Sullivan Wastewater Treatment Plant PART D – EXPANDED EFFLUENT TESTING			MO- 0104736					2				
40.1 EXPANDED EFFLUE				Maria and a second								
Complete Once for Each						State.			·····			
			·····	DISCHARGE AVERAGE DAIL			F DAII Y I	DISCHAR	3F		T	
POLLUTANT	CONC	UNITS	MASS	UNITS	CONC	UNITS	MASS	UNITS	NO. OF SAMPLES	ANALYTICAL METHOD	ML/MDL	
ACID-EXTRACTABLE CO	MPOUN	DS			•					<u> </u>		
P-CHLORO-M-CRESOL					<10	ug/L			1	EPA 625		
2-CHLOROPHENOL					<10	ug/L			5 .	EPA 625		
2,4-DICHLOROPHENOL					<10	ug/L			5	EPA 625		
2,4-DIMETHYLPHENOL					<10	ug/L			5	EPA 625		
4,6-DINITRO-O-CRESOL												
2,4-DINITROPHENOL					<50	ug/L			5	EPA 625		
2-NITROPHENOL					<10	ug/L			5	EPA 625		
4-NITROPHENOL					<10	ug/L			5	EPA 625		
PENTACHLOROPHENOL					<10	ug/L			5	EPA 625		
PHENOL					<10	ug/L			5	EPA 625		
2,4,6- TRICHLOROPHENOL					<10	ug/L			5	EPA 625	-	
USE THIS SPACE (OR A SE PERMIT WRITER.	PARATE	SHEET) T	O PROVII	DE INFOR	MATION (ON OTHER	R ACID-EX	TRACTA	BLE COMPOL	JNDS REQUESTE	D BY THE	
I LIMVIII VYKII LIK.												
						,						
						<u> </u>						
							<u> </u>					

4.44.4.44.4.44.4.4.4.4.4.4.4.4.4.4.4.4.4												
						1						
	1	1	L			1			1		<u> </u>	

FACILITY NAME		1	PERMI					1	ALL NO.		
Sullivan Wastewater Treat	and the state of the state of the state of	and the second second		0104736			garonana.	2			
PART D – EXPANDED E			24.02 - 0.02 2 2 2 2 2 2	2010-1207114/7707-407							
40.1 EXPANDED EFFLUI) T	A) /FD A 2		DICOLIAC	OF.		T
POLLUTANT	CONC	MUM DAIL UNITS	MASS	UNITS	CONC	UNITS	MASS	DISCHAR	NO. OF SAMPLES	ANALYTICAL METHOD	ML/MDL
BASE-NEUTRAL COMPO	DUNDS	I		I		L		1		L	1
ACENAPHTHENE					<10	ug/L			5	EPA 625	
ACENAPHTHYLENE					<10	ug/L			5	EPA 625	
ANTHRACENE		***************************************			<10	ug/L			5	EPA 625	
BENZIDINE					<80	ug/L			5	EPA 625	
BENZO(A)ANTHRACENE					<10	ug/L			5	EPA 625	
BENZO(A)PYRENE					<10	ug/L			5	EPA 625	
FLUORANTHENE					<10	ug/L			5	EPA 625	
FLUORENE					<10	ug/L			5	EPA 625	
HEXACHLOROBENZENE					<10.	ug/L			5	EPA 625	
HEXACHLOROCYCLO- PENTADIENE					<20	ug/L			5	EPA 625	
HEXACHLOROETHANE					<10	ug/L			5	EPA 625	
INDENO (1,2,3-CD) PYRENE					<10	ug/L			5	EPA 625	
ISOPHORONE					<10	ug/L			5	EPA 625	
NAPHTHALENE					<10	ug/L			5	EPA 625	
NITROBENZENE					<10	ug/L			5	EPA 625	
N-NITROSODI- PROPYLAMINE					<10	ug/L			5	EPA 625	
N-NITROSODI- METHYLAMINE					<10	ug/L			5	EPA 625	
N-NITROSODI- PHENYLAMINE											
PHENANTHRENE					<10	ug/L			5	EPA 625	
PYRENE					<10	ug/L			5	EPA 625	
1,2,4- TRICHLOROBENZENE					<10	ug/L			5	EPA 625	
USE THIS SPACE (OR SEF PERMIT WRITER.	PARATE S	НЕЕТ) ТО	PROVID	E INFORM	MATION O	N OTHER	BASE-NE	UTRAL C	OMPOUNDS I	REQUESTED BY	THE
					ND OF P						
REFER TO THE APP	PLICATIO	N OVER	VIEW TO	DETER	MINE W	HICH OT	HER PA	RTS OF I	FORM B2 YC	OU MUST COM	PLETE.

REFER TO MO 780-1805 (09-08)

MAKE ADDITIONAL COPIES OF THIS FORM FOR E	ACH OUTEAU		~~
	RMIT NO.	OUTFALL NO.	
	O- 0104736	2	
PART E – TOXICITY TESTING DATA			
50. TOXICITY TESTING DATA		THE CONTRACT OF THE CONTRACT O	
Refer to the Supplemental Application Informatio	n to determine whether Part F	annlies to the treatment works	
Publicly owned treatment works, or POTWS, med			ults of whole offluent toxicity
tests for acute or chronic toxicity for each of the f	acility's discharge points	ng chiena musi provide the res	uits of whole emdern toxicity
A. POTWs with a design flow rate greate	, , ,	ons ner dav	
B. POTWs with a pretreatment program (•	3)
C. POTWs required by the permitting aut	•		<i>"</i> .
At a minimum, these results must it	•		one year using multiple
species (minimum of two species),			
prior to the application, provided th	ie results show no appreciable	toxicity, and testing for acute o	r chronic toxicity, depending
on the range of receiving water dile	ution. Do not include information	on about combined sewer over	flows in this section. All
information reported must be base			
addition, this data must comply wit			iate QA/QC requirements for
standard methods for analytes not	•		and the state of t
 If EPA methods were not used, repaired all of the information requested be 	oon the reason for using afternation they may be submitted in a	ative methods. If test summaris	es are available that contain
complete Part E. Refer to the app	lication overview for directions	on which other sections of the t	form to complete
50.1 REQUIRED TESTS. INDICATE THE NUMB			•
YEARS.			E PAST FOUR AND ONE-HALF
CHRONIC	ACUTE		
1			
INDIVIDUAL TEST DATA. Complete the following char	t for the last three whole effluent	toxicity tests. Allow one column	per test (where each species
constitutes a test). Copy this page if more than three to		ND 110 00 TO TO	-80
A TECT INCORNATION	MOST RECENT	2 ND MOST RECENT	3 RD MOST RECENT
A. TEST INFORMATION	TD # 0000 4500	TEA 0 1 00 // 0040700	T-101.00% 0444000
TEST NUMBER TEST SPECIES AND TEST METHOD NUMBER	Pace # 60304538	EAS LOG# 2216703	EAS LOG# 2114032
AGE AT INITIATION OF TEST			
OUTFALL NUMBER			
DATES SAMPLE COLLECTED			
DATE TEST STARTED			
DURATION			
B. GIVE TOXICITY TEST METHODS FOLLOWED			
MANUAL TITLE	(See attac	hed laboratory re	borts)
EDITION NUMBER AND YEAR OF PUBLICATION			
PAGE NUMBER(S)			
C. GIVE THE SAMPLE COLLECTION METHOD(S) U	SED. FOR MULTIPLE GRAB SAN	MPLES, INDICATE THE NUMBER	OF GRAB SAMPLES USED.
24-HOUR COMPOSITE			
GRAB	1		
D. INDICATE WHERE THE SAMPLE WAS TAKEN IN	RELATION TO DISINFECTION.	CHECK ALL THAT APPLY FOR E	ACH)
BEFORE DISINFECTION			
AFTER DISINFECTION			
AFTER DECHLORINATION			
E. DESCRIBE THE POINT IN THE TREATMENT PRO	DCESS AT WHICH THE SAMPLE	WAS COLLECTED	
SAMPLE WAS COLLECTED	Outfall 2	Outfall 2	Outfall 2
F. FOR EACH TEST, INCLUDE WHETHER THE TES		CHRONIC TOXICITY, ACUTE TOX	JCITY OR BOTH.
CHRONIC TOXICITY			
ACUTE TOXICITY		□ □	团
G. PROVIDE THE TYPE OF TEST PERFORMED			
STATIC			
STATIC STATIC-RENEWAL			
FLOW-THROUGH			

H. SOURCE OF DILUTION WATER. IF LABORATORY WATER, SPECIFY TYPE; IF RECEIVING WATER, SPECIFY SOURCE

RECEIVING WATER MO 780-1805 (09-08)

LABORATORY WATER

1	PERMIT NO.	OUTFALL NO.	
	MO- 0104736	2	
PART E – TOXICITY TESTING DATA (CONT			
50.1 WHOLE EFFLUENT TOXICITY TESTS I			
TYPE OF SULTION WATER IF ON TWATER	MOST RECENT	2 ND MOST RECENT	3 RD MOST RECENT
I. TYPE OF DILUTION WATER, IF SALT WATER	, SPECIFY "NATURAL" OR TYPE	OF ARTIFICIAL SEA SALTS OR B	RINE USED.
FRESH WATER			<u> </u>
SALT WATER LONG THE DEDCENTAGE EFFICIENT USED F	TE CONCENTRATIONS IN T		<u> </u>
J. GIVE THE PERCENTAGE EFFLUENT USED F	OR ALL CONCENTRATIONS IN T	HE TEST SERIES.	-
			j
K. PARAMETERS MEASURED DURING THE TES	ST (STATE WHETHER PARAMET	FR MEETS TEST METHOD SPEC	VIEIO ATIONIS)
pH	31. (01/112 11.12.1.2.1.2.1.	LICIVILLIO (LO) III	TION HORO,
SALINITY			
TEMPERATURE			
AMMONIA			
DISSOLVED OXYGEN			j
L. TEST RESULTS			
ACUTE:			
PERCENT IN SURVIVAL IN 100% EFFLUENT	T		
LC ₅₀			
95% C.I.			
CONTROL PERCENT SURVIVAL			
OTHER (DESCRIBE)			
CHRONIC:			
NOEC			
IC ₂₅			
CONTROL PERCENT SURVIVAL			
OTHER (DESCRIBE)			<u> </u>
M. QUALITY CONTROL ASSURANCE		AND THE RESERVE OF THE PARTY OF	T
IS REFERENCE TOXICANT DATA AVAILABLE?			
WAS REFERENCE TOXICANT TEST WITHIN ACCEPTABLE BOUNDS?			
WHAT DATE WAS REFERENCED TOXICANT TEST RUN (MM/DD/YYYY)?			
OTHER (DESCRIBE)			
50.2 TOXICITY REDUCTION EVALUATION			
Is the treatment works involved in a toxicity reduction	on evaluation?	☑ No	
If yes, describe:			
50.3 SUMMARY OF SUBMITTED BIOMONIT			
If you have submitted biomonitoring test information			d one-half years, provide the
dates the information was submitted to the permittir Date Submitted (MM/DD/YYYY)	ng authority and a summary or the in	esuits.	
Date Submitted (Wilding) (1111)			
Occupant of Deputto (Coo Instructions)			
Summary of Results (See Instructions)			
	END OF PART E	-	
REFER TO THE APPLICATION OVERVIEW			I MIIST COMPLETE

MO 780-1805 (09-08)



June 20, 2019

Joe Philpot City of Sullivan 248 E. Springfield Sullivan, MO 63080

RE: Project: WET TESTING

Pace Project No.: 60304538

Dear Joe Philpot:

Enclosed are the analytical results for sample(s) received by the laboratory on June 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Bryan Witz bryan.witz@pacelabs.com (913)563-1406 Project Manager

Enclosures







CERTIFICATIONS

Project:

WET TESTING

Pace Project No.:

60304538

Kansas Certification IDs

9608 Loiret Boulevard, Lenexa, KS 66219

Missouri Inorganic Drinking Water Certification #: 10090

Arkansas Drinking Water

Arkansas Certification #: 19-016-0

Arkansas Drinking Water

Illinois Certification #: 004455

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10116

Louisiana Certification #: 03055

Nevada Certification #: KS000212018-1 Oklahoma Certification #: 9205/9935 Missouri SEKS Micro Certification: 10070 Florida: Cert E871149 SEKS WET Texas Certification #: T104704407-18-11

Utah Certification #: KS000212018-8 Illinois Certification #: 004592

Kansas Field Laboratory Accreditation: # E-92587

Southeast Kansas Certification IDs

808 West McKay, Frontenac, KS 66763

Arkansas Certification #: 18-016-0

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10426

Louisiana Certification #: 03055 Oklahoma Certification #: 9935 Texas Certification #: T104704407 Utah Certification #: KS00021



SAMPLE SUMMARY

Project:

WET TESTING

Pace Project No.:

60304538

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60304538001	OUTFALL 002	Water	06/03/19 13:30	06/04/19 09:30
60304538002	SM1	Water	06/03/19 14:00	06/04/19 09:30
60304538003	OUTFALL 002	Water	06/03/19 13:30	06/04/19 18:15



SAMPLE ANALYTE COUNT

Project:

WET TESTING

Pace Project No.:

60304538

		•		Analytes	
Lab ID	Sample ID	Method	Analysts	Reported	Laboratory
60304538001	OUTFALL 002	EPA 821/R-02/013	MEB	1	PASI-SE
60304538003	OUTFALL 002	EPA 200.7	EMR	4	PASI-K
		EPA 350.1	JMC1	1	PASI-K
		EPA 350.1	JES	1	PASI-K
		SM 4500-CN-E	WNM	1	PASI-K



ANALYTICAL RESULTS

Project:

WET TESTING

Pace Project No.: 60304538

Date: 06/20/2019 02:41 PM

Sample: OUTFALL 002	Lab ID: 603	304538001	Collected: 06/03/1	9 13:30	Received: 0	6/04/19 09:30	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Chronic Toxicity	Analytical Met	hod: EPA 82	21/R-02/013					
Toxicity, Chronic	Complete		1.0	1		06/04/19 10:3	35	



Date: 06/20/2019 02:41 PM

ANALYTICAL RESULTS

Project:

WET TESTING

Pace Project No.: 60304538

Sample: OUTFALL 002	Lab ID: 6030	4538003	Collected: 06/03/1	9 13:30	Received: 06	6/04/19 18:15 N	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
200.7 Metals, Total	Analytical Meth	od: EPA 20	00.7 Preparation Met	hod: EP	A 200.7			
Cadmium	ND	ug/L	5.0	1	06/07/19 11:50	06/11/19 20:32	7440-43-9	
Copper	ND	ug/L	10.0	1	06/07/19 11:50	06/11/19 20:32	7440-50-8	
Lead	ND	ug/L	10.0	1	06/07/19 11:50	06/11/19 20:32	7439-92-1	
Nickel	ND	ug/L	5.0	1	06/07/19 11:50	06/11/19 20:32	7440-02-0	
350.1 Ammonia, Unionized	Analytical Meth	od: EPA 35	50.1					
Unionized Ammonia as NH3	0.0018	mg/L	0.0	1		06/18/19 16:02	!	
350.1 Ammonia	Analytical Meth	od: EPA 35	50.1					
Nitrogen, Ammonia	0.13	mg/L	0.10	1		06/08/19 15:38	7664-41-7	
4500CNE Cyanide, Total	Analytical Meth	od: SM 45	00-CN-E Preparation	Metho	d: SM 4500-CN-	Ε		
Cyanide	ND	mg/L	0.0050	1	06/13/19 15:00	06/14/19 09:35	5 57-12-5	



QUALITY CONTROL DATA

Project:

WET TESTING

Pace Project No.:

60304538

QC Batch:

589258

QC Batch Method:

EPA 200.7

Analysis Method:

EPA 200.7

Analysis Description:

200.7 Metals, Total

METHOD BLANK: 2416105

Matrix: Water

Associated Lab Samples:

Associated Lab Samples:

60304538003

60304538003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Cadmium	ug/L	ND	5.0	06/11/19 20:20	
Copper	ug/L	ND	10.0	06/11/19 20:20	
Lead	ug/L	ND	10.0	06/11/19 20:20	
Nickel	ua/L	ND	5.0	06/11/19 20:20	

LABORATORY CONTROL SAMPLE:	2416106					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
Cadmium	ug/L	1000	987	99	85-115	
Copper	ug/L	1000	941	94	85-115	
Lead	ug/L	1000	1000	100	85-115	
Nickel	ug/L	1000	1030	103	85-115	

MATRIX SPIKE & MATRIX	SPIKE DUPLI	CATE: 2416	107 MS	MSD	2416108							
Parameter	Units	60304677002 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec	RPD	Max RPD	Quai
- arameter					Result	Result	70 REC	70 NEC	Lilling	KFD	KPD	Quai
Cadmium	ug/L	· ND	1000	1000	970	1000	97	100	70-130	3	20	
Copper	ug/L	ND	1000	1000	945	979	94	98	70-130	3	20	
Lead	ug/L	ND	1000	1000	932	963	93	96	70-130	3	20	
Nickel	ug/L	ND	1000	1000	950	983	95	98	70-130	3	20	

MATRIX SPIKE SAMPLE:	2416109	AND W					
Parameter	Units	60304748001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Cadmium		ND ND					- Gaaimero
4	ug/L	59.8	1000	1000	100	70-130	
Copper	ug/L	ND	1000	1040	98	70-130	
Lead	ug/L		1000	976	97	70-130	
Nickel	ug/L	ND	1000	1010	101	70-130	

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



QUALITY CONTROL DATA

Project:

WET TESTING

Pace Project No.:

60304538

QC Batch:

589486

EPA 350.1

Analysis Method:

EPA 350.1

Analysis Description:

350.1 Ammonia

Associated Lab Samples:

QC Batch Method:

60304538003

METHOD BLANK: 2417012

Matrix: Water

Associated Lab Samples:

60304538003

Blank

Result

Reporting

Limit

Analyzed

Qualifiers

Nitrogen, Ammonia

Units mg/L

Units

mg/L

Units

mg/L

Units

mg/L

ND

0.10 06/08/19 15:17

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

Parameter

2417013

Spike Conc.

5

LCS

LCS % Rec % Rec Limits

Qualifiers

Nitrogen, Ammonia

Nitrogen, Ammonia

Nitrogen, Ammonia

Result

5

200

90-110

MATRIX SPIKE SAMPLE:

2417014

60304856002 Result

Spike Conc.

< 0.10

338

5.0

MS Result

100

5.2

498

MS % Rec

102

80

% Rec Limits

90-110

90-110 M1

Qualifiers

MATRIX SPIKE SAMPLE:

2417016

Parameter

60304700004 Result

Spike Conc.

MS Result

MS % Rec % Rec Limits

Qualifiers

SAMPLE DUPLICATE: 2417015

Parameter

60305092001 Units Result

Dup Result

RPD

Max RPD

Qualifiers

Nitrogen, Ammonia

mg/L

ND

ND

18

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project:

WET TESTING

Pace Project No.:

60304538

QC Batch:

590533

SM 4500-CN-E

Analysis Method:

SM 4500-CN-E

Analysis Description:

4500CNE Cyanide, Total

Associated Lab Samples:

QC Batch Method:

60304538003

METHOD BLANK: 2420758 Associated Lab Samples:

60304538003

Matrix: Water

Blank

Result

Reporting

Limit

Analyzed

Qualifiers

Cyanide

Units mg/L

ND

0.0050 06/14/19 09:09

LABORATORY CONTROL SAMPLE:

Parameter

2420759

Spike

LCS

LCS

% Rec Limits

Parameter Cyanide

Units mg/L

Conc. 0.1 Result

% Rec

69-126

Qualifiers

SAMPLE DUPLICATE: 2420761

Date: 06/20/2019 02:41 PM

Parameter

60304655006 Units Result

Dup Result

0.093

RPD

93

Max RPD

Qualifiers

Cyanide

mg/L

< 0.0040

ND

46

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



QUALIFIERS

Project:

WET TESTING

Pace Project No.:

60304538

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-K

Pace Analytical Services - Kansas City

PASI-SE

Pace Analytical Services - SE Kansas

ANALYTE QUALIFIERS

Date: 06/20/2019 02:41 PM

M1

Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

WET TESTING

Pace Project No.:

Date: 06/20/2019 02:41 PM

60304538

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
60304538001	OUTFALL 002	EPA 821/R-02/013	590484		
60304538003	OUTFALL 002	EPA 200.7	589258	EPA 200.7	589351
60304538003	OUTFALL 002	EPA 350.1	591425		
60304538003	OUTFALL 002	EPA 350.1	589486		
60304538003	OUTFALL 002	SM 4500-CN-E	590533	SM 4500-CN-E	590711



Sample Condition Upon Receipt



Tracking #: Pace Shipping Label Used? Yes Custody Seal on Cooler/Box Present: Yes No Seals intact: Yes No Packing Material: Bubble Wrap Bubble Bags Foam None None Thermometer Used: T-296 Type of Ice: Wes Blue None Type of Ice: Wes Since None Type of Ice: Wes Type of Ice: W	
Packing Material: Bubble Wrap Bubble Bags Foam None Thermometer Used: T-296 Type of Ice: Web Blue None Cooler Temperature (°C): As-read 2.7 Corr. Factor 1.0 Corrected 7 Temperature should be above freezing to 6°C Chain of Custody present: Yes No Ni/A Chain of Custody relinquished: Yes No Ni/A Samples arrived within holding time: Yes No Ni/A Short Hold Time analyses (<72hr): Yes No Ni/A Sufficient volume: Yes No Ni/A Fuse on Ni/A Sufficient volume: Yes No Ni/A Correct containers used: Yes No Ni/A Pace containers used: Yes No Ni/A Containers intact: Yes No Ni/A Filtered volume received for dissolved tests? Yes No Ni/A Samples contain multiple phases? Matrix: Yes No Ni/A Containers requiring pH preservation in compliance? Yes No Ni/A Containers requiring pH preservation in compliance? Yes No Ni/A Containers requiring pH preservation in compliance? Yes No Ni/A Containers requiring pH preservation in compliance? Yes No Ni/A Containers requiring pH preservation in compliance? Yes No Ni/A Containers requiring pH preservation in compliance? Yes No Ni/A Containers requiring pH preservation in compliance? Yes No Ni/A Containers requiring pH preservation in compliance? Yes No Ni/A Containers requiring pH preservation in compliance? Yes No Ni/A Containers requiring pH preservation in compliance? Yes No Ni/A Containers requiring pH preservation in compliance? Yes No Ni/A Containers requiring pH preservation in compliance? Yes No Ni/A Containers requiring pH preservation in compliance? Yes No Ni/A Containers requiring pH preservation in compliance? Yes No Ni/A Containers requiring pH preservation in compliance? Yes No Ni/A Containers requiring pH preservation in compliance? Yes No Ni/A Containers requiring pH preservation in compliance? Yes No Ni/A Container	
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Samples from USDA Regulated Area: State:	
	Thinks I was a second of the s
	nta Required? Y / N
Person Contacted: Date/Time:	
Comments/ Resolution:	

CHAIN-OF-CUSTODY / Analytical Request Document
The Chain-of-Custody is a LEGAL DOCUMENT All relevant fields must be completed accurately

130

8 (V/V) (N/A) POO / FCLD-00/ Cooler (VIV) SAMPLE CONDITIONS ö Regulatory Agency State / Location (N/A) OM Received on Page: O nt 9M3T 13485 18PSV 18PS 9:30 TIME Requested Analysis Filtered (Y/N) DATE Signed: 15-3-15 51/3/ DATE > × × × ыпоттА ACCEPTED BY ! AFFILIATION Metals m4 Supply of The porce bryan witz@pacelabs. Chronic Wet Test **,** N/A JaoT sesylenA lonsitialy Na2S2O3 Preservatives HOSN Pace Project Manager HCI Invoice Information: ниоз unpany Namo ace Quote HSSO4 Section C Unpreserved SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER SIGNATURE of SAMPLER: NOTICE TEMP AT COLLECTION 1949 0200kg 3 C6-2-40130 6-24 0500 Show Varidylis DATE TIME END DATE COLLECTED RELINQUISHED BY I AFFILIATION TRME START WET Testing DATE Required Project Information Joe Philpot (G=GRAB C=COMP) 39YT 3J9MA2 Purchase Order #: MATRIX CODE (see valid codes to left) Project Name Report To Section B Copy To: SL OL WP OT TS Marie Temp 20.4 Outtall 002 ADDITIONAL COMMENTS One Character per box. (A-Z, 0-91, -) Sample Ids must be unique SAMPLE ID 248 E Springfield tequired Client Information: City of Sullivan 5M1 Requested Due Date Sullivan, MO 63080 Email 3 10 1 7 9 00 o 12 2 7 Page 13 of 52 4 # MaTI



Sample Condition Upon Receipt

(00304538

lient Name. Sullivan		pe Beda	
			Pace _ Xroads □ Client □ Other □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □
ustody Seal on Cooler/Box Present. Yes No			· ·
acking Material: Bubble Wrap [7] Bubble Bags		ım I	
	of Ice Wet Blu		
ooler Temperature (°C): As-read 3.0 Corr. Fac			Date and initials of person
emperature should be above freezing to 6°C			6/4/19
hain of Custody present	No. No	.1N/A	FB/9:30
hain of Custody relinquished	No.	, IN/A	
amples arrived within holding time	Yes ONo	[]N/A	
hort Hold Time analyses (<72hr):	Xives The	□n:A	
ush Turn Around Time requested:	∏Yes ⊠ olo	□N⁄A	
ufficient volume	XY., INC	∏N/A	
Gorrect containers used	X 105 - No	LINIA	
ace containers used	Kres (3No	ONA	
ontainers intact	VZires ILINO	DNA	
Inpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	Yes -No	□N/A	
iltered volume received for dissolved tests?	OYes CiNo	NIA	
sample labels match COC Date / time / ID / analyses	De Mo	[]N/A	1
amples contain multiple phases? Matrix UT	Elyes XIIo	[]N/A	
Containers requiring pH preservation in compliance? HNO3, H2SO4, HCI<2 NaOH>9 Sulfide NaOH>10 Cyanide) Exceptions VOA, Micro, O&G, KS TPH OK-DRO)	□Yes □No	NHA	List sample IDs, volumes, lot #'s of preservative and the date/time added
Syanide water sample checks	Lives Cino		
ead acetate strip turns dark? (Record only) otassium iodide test strip turns blue/purple? (Preserve)	Eyes ElNo		
rip Blank present	' Yes 'L')No	NAM.	
Headspace in VOA vials (~6mm)	I Wes . "Nr	DEDIN	
Samples from USDA Regulated Area State	Ciyes ONo	MIA	
Additional labels attached to 5035A / TX1005 vials in the field	d? □Yes No	MIA	
Client Notification/ Resolution: Copy COC		N	Field Data Required? Y / N
Person Contacted Date/	Time		Anna No. No.
Comments/ Resolution	THE PERSONNEL WAS THE PERSONNEL WITH THE PERSONNEL WAS THE PERSONN		
	The same of the sa		
Project Manager Review		Dat	A



Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219

> Phone: 913.599.5665 Fax: 913.599.1759

June 12, 2019

Joe Philpot City of Sullivan 248 E. Springfield Sullivan, MO 63080

Re:

Lab Project Number: 60304538

Client Project ID:

Wet Test

Dear:

Enclosed are the analytical results for sample(s) received by the laboratory. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,

Tim Harrell

Tim.Harrell@pacelabs.com

Dim Harrell

Technical Director

Pace Analytical® www.pacelabs.com

REFERENCE #60304538

Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219

> Phone: 913.599.5665 Fax: 913.599.1759

CHRONIC TOXICITY TEST FOR City of Sullivan

PERMIT # MO-0104736

PERFORMED ON:

Pimephales promelas

and

Ceriodaphnia dubia

PREPARED FOR:

City of Sullivan Attn: Joe Philpot 248 E. Springflield Sullivan, MO 63080 1-573-468-8223

PREPARED BY:
Pace Analytical Services, Inc.
808 West McKay
Frontenac, KS 66763
1-620-235-0003

June 12, 2019

Pace Analytical® TABLE OF CONTENTS

REFERENCE #60304538

Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219

> Phone: 913.599.5665 Fax: 913.599.1759

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Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219

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SUMMARY

A Chronic Whole Effluent Toxicity Test using the 7-day chronic fathead minnows (<u>Pimephales promelas</u>), static renewal larval survival and growth test, and three brood 7-day chronic Cladoceran (<u>Ceriodaphnia dubia</u>), static renewal survival and reproduction test, was conducted on effluent discharge water collected at City of Sullivan effluent discharge from June 3, 2019 to June 7, 2019. All the test methods followed are as listed in <u>EPA 821-R-02-013</u>, "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms."

Statistically significant (p<0.05) mortality is determined by Dunnet's procedure using average percent survival of each test concentration versus the average survival of the controls. If significant mortality occurs, median lethal concentrations are calculated using effluent concentrations and their corresponding percent mortality data. The 95% confidence intervals are calculated where appropriate by the Spearman-Karber method. Statistical analysis is accomplished by following steps in EPA 821-R-02-013, November 2002 and by use of Toxstat version 3.4.

In minnow section of testing, it was observed that the effluent had no significant effect on the survival of the larvae at the 100% concentration. No significant mortality was observed in the other effluent concentrations after the 7-day exposure period. The No Observed Effect Concentration (NOEC) was determined to be 100% for survival. No significant reduction in growth was observed in the 100% effluent concentration. The Toxic Units is <1. The IC25 is >100. The NOEC for growth in effluent was determined to be 100%.

In Cladoceran section of testing, it was observed that the effluent had no significant effect on the survival of the organisms in the 100% effluent concentration. No significant mortality was observed in the other effluent concentrations after the 7-day exposure period. The No Observed Effect Concentration (NOEC) was determined to be 100% for survival. No significant reduction in reproduction was observed in the 100% effluent concentrations. The Toxic Units is <1. The IC25 is >100. The NOEC for reproduction in effluent was determined to be 100%.

The chronic toxicity exhibited by the fathead minnows and the <u>Ceriodaphnia</u> treated by the effluent sampled from June 3 to June 7 from City of Sullivan effluent discharge, is acceptable as described in <u>EPA 821-R-02-013</u>.



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INTRODUCTION

Pace Analytical was contracted to perform this chronic toxicity test on effluent from City of Sullivan effluent discharge. Chronic toxicity was measured using the Pimephales promelas at larval for survival and growth test and the Ceriodaphnia dubia survival and reproduction test described in EPA 821-R-02-013, "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms." The raw data of the study is stored at Pace Analytical Services, INC. 808 West McKay, Frontenac, KS 66763.

TEST MATERIAL

City of Sullivan personnel collected sampling of the effluent. A sample of the effluent was delivered to Pace by commercial carrier on 6-4-19. Subsequent samples followed by delivery on 6-6-19 and on 6-8-19. All samples were stored at \leq 6° Celsius. Upstream water was used as a control and also to make the required dilutions in the test as described in EPA 821-R-02-013.

TEST METHODS

Pace used EPA test method 1000.0 for conducting the Fathead Minnow, Pimephales promelas, Larval Survival and Growth Test. EPA test method 1002.0 was used for conducting the Cladoceran, Ceriodaphnia dubia, Survival and Reproduction Test. The tests were conducted to estimate the NOEC, and LOEC for survival, growth, and reproduction of these test species.

The <u>Pimephales</u> and <u>Ceriodaphnia</u> tests were initiated on 6-4-19 and carried out until 6-11-19. The Pimephales tests were conducted in 500 ml plastic jars with 250 ml of test solution. Ten larvae were placed in each of at least 4 replicates to make a total of 40 larvae per sample concentration. The <u>Ceriodaphnia</u> tests were carried out in 35ml vials containing 25 ml of test solution. One Neonate was placed in each of 10 replicates to make a total of 10 neonates per sample concentration.

TEST ORGANISMS

The organisms used in these tests were cultured at Pace under controlled temperature and photoperiod conditions and/or were purchased from an external supplier. Pace maintains records of all culture techniques used in producing organisms.



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RESULTS



Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219

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TABLE 1

Permittee: City of Sullivan Effluent discharge.

Date Sampled

No. 1: 6-3-19

13:30

No. 2:

6-5-19

13:00

No. 3:

6-7-19

13:30

Test Initiated: 10:35

Date: 6-4-19

Dilution Water used: Upstream

FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL (Pimephales promelas)

DATA TABLE FOR GROWTH OF FATHEAD MINNOWS

Effluent Concentration	Average	Average Dry Weight in Milligrams in Replicate Chambers				CV% *
(%)	Α	В	С	D	(mg)	
Upstream 0%	0.436	0.633	0.493	0.532	0.524	15.85
Dilution 1 6.25%	0,456	0.465	0.448	0.463	0.458	1.68
Dilution 2 12.5%	0.589	0.478	0.479	0.451	0.499	12.26
Dilution 3 25%	0.528	0.441	0.419	0.397	0.446	12.86
Dilution 4 50%	0.435	0.455	0.465	0.505	0.465	6.33
Dilution 5 100%	0,485	0.448	0.426	0.435	0.448	5.79

^{*} Coefficient of Variation = Standard Deviation X 100 / Mean

Pace Analytical®

REFERENCE #60304538

Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219

> Phone: 913.599.5665 Fax: 913.599.1759

Permittee: City of Sullivan Effluent discharge.

FATHEAD MINNOW SURVIVAL

Conc. %	Perce		val in Re	plicate	Mean	CV %		
	Α	В	С	D	24hr	48hr	7 day	
Upstream 0%	90	100	100	100	100	100	97.5	5.94
Dilution 1 6.25%	100	100	100	100	100	100	100	0.00
Dilution 2 12.5%	100	100	100	100	100	100	100	0.00
Dilution 3 25%	100	100	100	80	100	100	95	11.41
Dilution 4 50%	100	100	100	100	100	100	100	0.00
Dilution 5 100%	100	100	100	100	100	100	100	0.00

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REFERENCE #60304538

Pace Analytical Services, Inc. 9608 Loiret Blvd. Lenexa, KS 66219

> Phone: 913.599.5665 Fax: 913.599.1759

Permittee: City of Sullivan Effluent discharge.

CERIODAPHNIA SURVIVAL AND REPRODUCTION

DATA TABLE FOR CERIODAPHNIA YOUNG PRODUCTION

Replicate	Upstream	Dilution 1	Dilution 2	Dilution 3	Dilution 4	Dilution 5
	0%	6.25%	12.5%	25%	50%	100%
1	29	23	- 28	26	27	28
2	23	26	25	23	28	29
3	21	21	21	26	31	24
4	25	22	24	29	21	28
5	30	25	27	25	28	25
6	19 .	24	25	27	23	26
7	23	27	28	24	26	25
8	25	28	29	21	25	29
9	26	24	28	24	25	26
10	26	27	28	27	29	24
Mean	24.7	24.7	26.3	25.2	26.3	26.4
SD	3.368	2.312	2.497	2.300	2.946	1.955
CV %	13.64	9.36	9.49	9.13	11.20	7.41



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Permittee: City of Sullivan Effluent discharge.

CERIODAPHNIA MEAN PERCENT SURVIVAL

		Perce	ent Effluent	(%)		
Time	Upstream	Dilution 1	Dilution 2	Dilution 3	Dilution 4	Dilution 5
Elapsed	0%	6.25%	12.5%	25%	50%	100%
24 hrs	100	100	100	100	100	100
48 hrs	100	100	100	100	100	100
7-day	100	100	100	100	100	100
SD	0.000	0.000	0.000	0.000	0.000	0.000
CV %	0.00	0.00	0.00	0.00	0.00	0.00



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TABLE 2 SUMMARY OF TEST CONDITIONS FOR THE FATHEAD MINNOW (Pimephales promelas) LARVAL SURVIVAL AND GROWTH TEST

1. Test type	Static renewal
2. Temperature	25 degrees Celsius
3. Light quality	Ambient laboratory light
4. Light intensity	Ambient laboratory levels
5. Photoperiod	16 hr light, 8 hr dark
6. Test chamber size	500 ml
7. Test solution volume	250 ml
8. Renewal of test concentrations	Daily
9. Age of test organism	< 24 hours
10. No. larvae/chamber	10
11. No. replicates/concentration	4
12. No. larvae/concentration	40
13. Feeding regime	Feed 0.15 g newly hatched brine shrimp nauplii two times daily. Larvae are not fed 12 hours prior to termination of test.
14. Cleaning	Siphon daily, immediately before test solution renewal
15. Aeration	None



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TABLE 2 (CONT.)

16. Dilution Water	Upstream
17. Effluent concentrations	0%, 6.25%, 12.5%, 25%, 50%, 100%
18. Test duration	7 days
19. Endpoints	Survival and growth
20. Test acceptability	80% or greater survival in the controls, Average dry weight in controls >0.25 mg, Coefficient of variation in the control must not exceed 40%.

TABLE 2 (CONT.) SUMMARY OF TEST CONDITIONS FOR THE CLADOCERAN (Ceriodaphnia dubia) SURVIVAL AND REPRODUCTION TEST

Static renewal
25 degrees Celsius
Ambient laboratory light
Ambient laboratory levels
16 hr light, 8 hr dark
30 ml
25 ml

TABLE 2 (CONT.)



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8. Renewal of test concentrations	Daily Fax
Ago of toot organism	< 24 hours
9. Age of test organism	< 24 flours
10. No. larvae/chamber	1
11. No. replicates/concentration	10
12. No. larvae/concentration ,	10
13. Feeding regime	Feed 0.1 ml YCT and 0.1 ml of Algae
	daily. Larvae are not fed 12 hours prior
	to termination of test.
14. Cleaning	Siphon daily, immediately before test
•	solution renewal
15. Aeration	None
16. Dilution Water	Upstream
17. Effluent concentrations	0%, 6.25%, 12.5%, 25%, 50%, 100%
18. Test duration	Until 60% or more surviving control
	females have three broods or a
•	maximum of 8 days.
19. Endpoints	Survival and Reproduction
20. Test acceptability	80% or greater survival in the controls,
·	Average reproduction rate of 15 young
	/ adult. Coefficient of variation in the

control must not exceed 40%.



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TABLE 2 (SECTION 2)

BIOMONITORING CHRONIC TOXICITY REPORT FATHEAD MINNOW (Pimephales promelas) CHEMICAL PARAMETERS CHART

Permittee: City of Sullivan Effluent discharge.

ANALYSTS: Pace Analytical Services, Inc.

Timothy Harrell Mike Bollin

SAMPLE NO. 1 COLLECTED: DATE: 6-3-19

SAMPLE NO. 2 COLLECTED: DATE: 6-5-19

SAMPLE NO. 3 COLLECTED: DATE: 6-7-19

TABLE 2 (SECTION 2) INIȚIAL WATER QUALITY EFFLÜENT CONCENTRATION

	Upstream	100%
PH	8.00	7.82
D.O.	8.20	8.20
Temp	25.0	25.0
Alk	82 ·	164
Hard	80	176
Cond	325	870
Chlorine	<0.1	<0.1

* D.O. is reported as mg/L
Alkalinity is reported as mg/L CaCO3
Hardness is reported as mg/L CaCO3
Conductance is reported as umhos
Chlorine is reported as mg/L



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TEST WATER QUALITY

24-Hour Water Quality Measurements

ETTION VICE QUA	ty moadaromento		
Effluent Concentration (%)	PH	D.O. (mg/l)	Temperature (C)
0% Control	8.13	7.10	25.1
6.25% Effluent	8.19	7.10	25.1
12.5% Effluent	8.24	7.10	25.1
25% Effluent	8.29	7.10	25.1
50% Effluent	8.30	7.10	25.1
100% Effluent	8.32	7.10	25.1

48-Hour Water Quality Measurements

40-11001 Water Quality	Measurements		
Effluent Concentration (%)	PH	D.O. (mg/l)	Temperature (C)
0% Control	8.10	7.20	25.3
6.25% Effluent	8.14	7.20	25.3
12.5% Effluent	8.15	7.20	25.3
25% Effluent	8.17	7.20	25.3
50% Effluent	8.20	7.10	25.3
100% Effluent	8.22	6.90	25.3



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FINAL WATER QUALITY

EFFLUENT CONCENTRATION

	Upstream	100%
рН	8.08	8.20
D.O.	7.00	7.10
Temp	25.1	24.9
Alk	80	166
Hard	84	182
Cond	362	980

* D.O. is reported as mg/L
Alkalinity is reported as mg/L CaCO3
Hardness is reported as mg/L CaCO3
Conductance is reported as umhos



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TEST VALIDITY

The <u>Pimephales promelas</u> control survival rate was 97.5. The mean dry weight (growth) of the <u>Pimephales promelas</u> was determined at 0.524 g/organism in the controls. The percent coefficient of variation (%CV) values for the fathead minnow control for survival and growth were 5.94 and 15.85. The <u>Ceriodaphnia dubia</u> survival rates were 100 in the control. The <u>Ceriodaphnia in the control produced an average of 24.7 young over the seven-day exposure period.</u> Percent CV values for <u>Ceriodaphnia dubia</u> control survival and reproduction was 0.00 and 13.64. Control data met or exceeded all criteria set out by <u>EPA 821-R-02-013</u> for test acceptance.

CONCLUSIONS

The No Observed Effect Concentration (NOEC) for <u>Pimephales promelas</u> was 100% for survival and 100% for growth. The No Observed Effect Concentration (NOEC) for <u>Ceriodaphnia dubia</u> was 100% for Survival and 100% for Reproduction. The tests were ran using a synthetic control against effluent concentrations of 6.25%, 12.5%, 25%, 50%, and 100%. The effluent sampled on 6-3-19, 6-5-19, and 6-7-19 exhibited acceptable chronic toxicity in <u>Pimephales promelas</u> and in <u>Ceriodaphnia dubia</u> during the exposure period as described in EPA 821-R-02-013.



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APPENDIX C

REFERENCE TOXICANTS

The absence of significant control mortality during this test indicated the health of the organisms and indicated that any significant mortality in the test concentrations was not due to contaminants or variations in testing conditions.

Reference toxicity testing is routinely performed by staff members in our biomonitoring - bioassay laboratory.

Reference Toxican	t (NaCl)	Pimephales p	<u>romelas</u>	
Concentration of Toxicant	Avg. # of Live Organisms/replicate			
	0 hrs	24 hrs	48 hrs	7 days
10 g/l	40	7	2	0
8 g/l	40	32	24	. 6
6 g/l	40	34	32	25
4 g/l	40	40	40	40
2 g/l	40	40	40	40

IC25 (5.09 g/l Sodium Chloride)

Survival NOEC: 4.0 g/l

Reference Toxican	t (NaCl)	Ceriodaphnia Dubia		
Concentration of Toxicant		Avg. # of Live Organisms/replicate		
	0 hrs	24 hrs	48 hrs	7 days
2.5 g/l	10	4	0	0
2.0 g/l	10	10	9	1
1.5 g/l	10	10	10	10
1.0 g/l	10	10	10	10
0.5 g/l	10	10	10	10

IC25 (1.22 g/l Sodium Chloride)

Survival NOEC	: 1.5 g/l	
Submitted By:		
,	Timothy Harrell, Technical Direct	cto

60304538 Sullivan FATHEAD SURVIVAL

File: 6304538A Transform: ARC SINE(SQUARE ROOT(Y))

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
	Martin Provideral State of the		-bonariah 1970 merengan merengan panggan panggan ang aktor dalah dalah		of the particular and the second or the second of the second of the second or the second of the second or the seco
EXPECTED OBSERVED	1.608	5.808	9.168 22	5.808 0	1.608 0

Calculated Chi-Square goodness of fit test statistic = 29.4810 Table Chi-Square value (alpha = 0.01) = 13.277

Data FAIL normality test. Try another transformation.

Warning - The first three homogeneity tests are sensitive to non-normal data and should not be performed.

60304538 Sullivan FATHEAD SURVIVAL

File: 6304538A Transform: ARC SINE(SQUARE ROOT(Y))

Shapiro - Wilk's test for normality

Snapiro - wiik's test for normality

D = 0.090

W = 0.644

Critical W (P = 0.05) (n = 24) = 0.916Critical W (P = 0.01) (n = 24) = 0.884

Data FAIL normality test. Try another transformation.

Warning - The first three homogeneity tests are sensitive to non-normal data and should not be performed.

60304538 Sullivan FATHEAD SURVIVAL

File: 6304538A Transform: ARC SINE(SQUARE ROOT(Y))

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN	
1	Upstream	4	1.249	1.412	1.371	
2	6.25%	4	1.412	1.412	1.412	
3	12.5%	4	1.412	1.412	1.412	
4	25%	4	1.107	1.412	1.336	
5	50%	4	1.412	1.412	1.412	
6	100%	4	1.412	1.412	1.412	

60304538 Sullivan FATHEAD SURVIVAL

File: 6304538A Transform: ARC SINE(SQUARE ROOT(Y))

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

					•
GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	ITeratura	0 007	0 001	0 041	E 04
Т	Upstream	0.007	0.081	0.041	5.94
2	6.25%	0.000	0.000	0.000	0.00
3	12.5%	0.000	0.000	0.000	0.00
4	25%	0.023	0.152	0.076	11.41
5	50%	0.000	0.000	0.000	0.00
6	100%	0.000	0.000	0.000	0.00

60304538 Sullivan FATHEAD SURVIVAL

File: 6304538A Transform: ARC SINE(SQUARE ROOT(Y))

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5 ·	0.021	0.004	0.834
Within (Error)	18	0.090	0.005	
Total	23	0.110		

Critical F value = 2.77 (0.05, 5, 18)

Since F < Critical F FAIL TO REJECT Ho: All equal

60304538 Sullivan FATHEAD SURVIVAL

File: 6304538A Transform: ARC SINE(SQUARE ROOT(Y))

	DUNNETT'S TEST -	TABLE 1 OF 2	Ho:Control <t< th=""><th>'reatment</th><th></th></t<>	'reatment	
GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT SI	[G
1 2 3 4 5 6	Upstream 6.25% 12.5% 25% 50% 100%	1.371 1.412 1.412 1.336 1.412	0.975 1.000 1.000 0.950 1.000 1.000	-0.817 -0.817 0.711 -0.817 -0.817	
Dunne	tt table value = 2.4	l (1 Tailed V	alue, P=0.05, df=18,	5)	

60304538 Sullivan FATHEAD SURVIVAL
File: 6304538A Transform: ARC SINE(SQUARE ROOT(Y))

	DUNNETT'S TEST -	TABLE 2	OF 2 Ho	:Control<	Treatment
GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Upstream	4			
2	6.25%	4	0.060	6.1	-0.025
3	12.5%	4	0.060	6.1	-0.025
4	25%	4	0.060	6.1	0.025
5	50%	4	0.060	6.1	-0.025
6	100%	4	0.060	6.1	-0.025

60304538 Sullivan FATHEAD GROWTH

File: 6304538B Transform: NO TRANSFORMATION

Shapiro - Wilk's test for normality

D = 0.047

W = 0.913

Critical W (P = 0.05) (n = 24) = 0.916

Critical W (P = 0.01) (n = 24) = 0.884

Data PASS normality test at P=0.01 level. Continue analysis.

60304538 Sullivan FATHEAD GROWTH

File: 6304538B Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance

Calculated B1 statistic = 12.28

Table Chi-square value = 15.09 (alpha = 0.01, df = 5) Table Chi-square value = 11.07 (alpha = 0.05, df = 5)

Data PASS B1 homogeneity test at 0.01 level. Continue analysis.

60304538 Sullivan FATHEAD GROWTH

File: 6304538B Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN	
1	Upstream	4	0.436	0.633	0.524	,
2	6.25%	4	0.448	0.465	0.458	
3	12.5%	4	0.451	0.589	0.499	
4	25%	4	0.397	0.528	0.446	
5	50%	4	0.435	0.505	0.465	
6	100%	4	0.426	0.485	0.448	

60304538 Sullivan FATHEAD GROWTH

File: 6304538B Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	Upstream	0.007	0.083	0.041	15.85
2	6.25%	0.000	0.008	0.004	1.68
3	12.5%	0.004	0.061	0.031	12.26
4	25%	0.003	0.057	0.029	12.86
5	50%	0.001	0.029	0.015	6.33
6	100%	0.001	0.026	0.013	5.79

60304538 Sullivan FATHEAD GROWTH

File: 6304538B Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	0.019	0.004	1.497
Within (Error)	18	0.047	0.003	
Total	23	0.066		

Critical F value = 2.77 (0.05, 5, 18)

Since F < Critical F FAIL TO REJECT Ho: All equal

60304538 Sullivan FATHEAD GROWTH

File: 6304538B Transform: NO TRANSFORMATION

	DUNNETT'S TEST -	TABLE 1 OF 2	Ho:Control <t< th=""><th>'reatment</th><th></th></t<>	'reatment	
GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1 2 3 4 5	Upstream 6.25% 12.5% 25% 50% 100%	0.524 0.458 0.499 0.446 0.465 0.448	0.524 0.458 0.499 0.446 0.465	1.821 0.674 2.148 1.626 2.085	
Dunnet	t table value = 2.41	l (1 Tailed V	alue, P=0.05, df=18,	5)	

60304538 Sullivan FATHEAD GROWTH

File: 6304538B Transform: NO TRANSFORMATION

	DUNNETT'S TEST -	TABLE 2	OF 2 Ho	:Control<	Treatment
GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	Upstream	4		and then then had appropriate	
2	6.25%	4	0.087	16.6	0.066
3	12.5%	4	0.087	16.6	0.024
4	25%	4	0.087	16.6	0.077
5	50%	4	0.087	16.6	0.058
6	100%	4	0.087	16.6	0.075

FISHER'S EXACT TEST

NUMBER OF

IDENTIFICATION	ALIVE	DEAD	TOTAL ANIMALS
CONTROL	10	0	10
12.5%	10	0	10
TOTAL	20	0	20

CRITICAL FISHER'S VALUE (10,10,10) (p=0.05) IS 6. b VALUE IS 10. Since b is greater than 6 there is no significant difference between CONTROL and TREATMENT at the 0.05 level.

FISHER'S EXACT TEST

		NUMBER OF		
IDENTIFICATION	ALIVE	DEAD	TOTAL ANIMALS	
CONTROL	. 10	0	10	
25%	10	0	10	
TOTAL	20	0	20	

CRITICAL FISHER'S VALUE (10,10,10) (p=0.05) IS 6. b VALUE IS 10. Since b is greater than 6 there is no significant difference between CONTROL and TREATMENT at the 0.05 level.

FISHER'S EXACT TEST

		NUMBER OF			
IDENTIFICATION	ALIVE	DEAD	TOTAL ANIMALS		
CONTROL	10	0	10		
39%	10	0	10		

TOTAL 20 0 20

CRITICAL FISHER'S VALUE (10,10,10) (p=0.05) IS 6. b VALUE IS 10. Since b is greater than 6 there is no significant difference between CONTROL and TREATMENT at the 0.05 level.

FISHER'S EXACT TEST

		NUMBER OF		
IDENTIFICATION	ALIVE	DEAD	TOTAL ANIMALS	
CONTROL	10	0	10	
50'%	10	0	10	
TOTAL	20	0	20	

CRITICAL FISHER'S VALUE (10,10,10) (p=0.05) IS 6. b VALUE IS 10. Since b is greater than 6 there is no significant difference between CONTROL and TREATMENT at the 0.05 level.

FISHER'S EXACT TEST

		NUMBE	R OF
IDENTIFICATION	ALIVE	DEAD	TOTAL ANIMALS
CONTROL	10	0	10
100%	10	0	10
TOTAL	20	0	20

CRITICAL FISHER'S VALUE (10,10,10) (p=0.05) IS 6. b VALUE IS 10. Since b is greater than 6 there is no significant difference between CONTROL and TREATMENT at the 0.05 level.

CITMMADV	\cap F	FISHER'S	EXACT	TESTS
- I HALIAI H LE A	יונו			

BOHLERCE OF FIBE	ILL O LIMICI I	1010		
	NUMBER	NUMBER	STG	

GROUP	IDENTIFICATION	EXPOSED	DEAD	(P=.05)
1 2 3	CONTROL 12.5% 25% 39%	10 10 10 10	0 0 0 0	
4 5	50% 100%	10 10	0 0	

60304538 Sullivan CERIODAPHNIA DUBIA SURVIVA File: 6304538D Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	Upstream	10	1.000	1.000	1.000
2	6.25%	10	1.000	1.000	1.000
3	12.5%	10	1.000	1.000	1.000
4	25%	10	1.000	1.000	1.000
5	50%	10	1.000	1.000	1.000
6	100%	10	1.000	1.000	1.000

60304538 Sullivan CERIODAPHNIA DUBIA SURVIVA File: 6304538D Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	Upstream	0.000	0.000	0.000	0.00
2	6.25%	0.000	0.000	0.000	0.00
3	12.5%	0.000	0.000	0.000	0.00
4	25%	0.000	0.000	0.000	0.00
5	50%	0.000	0.000	0.000	0.00
6	100%	0.000	0.000	0.000	0.00

60304538 Sullivan CERIODAPHNIA DUBIA REPRODU

File: 6304538E Transform: NO TRANSFORMATION

Chi-square test for normality: actual and expected frequencies

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
	AND THE PROPERTY OF THE PROPER		quicked resemble the first that the second s		A CONTROL OF THE PARTY OF THE PARTY
EXPECTED OBSERVED	4.020	14.520 16	22.920 17	14.520 19	4.020

Calculated Chi-Square goodness of fit test statistic = 3.5599

Table Chi-Square value (alpha = 0.01) = 13.277 Data PASS normality test. Continue analysis.

60304538 Sullivan CERIODAPHNIA DUBIA REPRODU

File: 6304538E Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance Calculated B1 statistic = 3.33

Table Chi-square value = 15.09 (alpha = 0.01, df = 5) Table Chi-square value = 11.07 (alpha = 0.05, df = 5)

Data PASS B1 homogeneity test at 0.01 level. Continue analysis.

60304538 Sullivan CERIODAPHNIA DUBIA REPRODU

File: 6304538E Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	Upstream	10	19.000	30.000	24.700
2	6.25%	10	21.000	28.000	24.700
3	12.5%	10	21.000	29.000	26.300
4	25%	10	21.000	29.000	25.200
5	50%	10	21.000	31.000	26.300
6	100%	10	24.000	29.000	26.400

60304538 Sullivan CERIODAPHNIA DUBIA REPRODU

File: 6304538E Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %	
1	Upstream	11.344	3.368	1.065	13.64	
2 3	6.25% 12.5%	5.344 6.233	2.312 2.497	0.731 0.790	9.36 9.49	
4 5	25% 50%	5.289 8.678	2.300	0.727 0.932	9.13 11.20	
6	100%	3.822	1.955	0.618	7.41	

60304538 Sullivan CERIODAPHNIA DUBIA REPRODU

File: 6304538E Transform: NO TRANSFORMATION

ANOVA TABLE

	•			
SOURCE	DF	SS	MS	F
Between	5	34.000	6.800	1.002
Within (Error)	54	366.400	6.785	
Total	59	400.400		

Critical F value = 2.45 (0.05, 5, 40)

Since F < Critical F FAIL TO REJECT Ho: All equal

60304538 Sullivan CERIODAPHNIA DUBIA REPRODU

File: 6304538E Transform: NO TRANSFORMATION

. D	UNNETT'S TEST - 1	ABLE 1 OF 2	Ho:Control <t< th=""><th>reatment</th><th></th></t<>	reatment	
GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
	and also are take and take and take and and take and and and take take take and and and and take take		made water total mater total, made yang total yang total yang total made and total yang total		
1	Upstream	24.700	24.700		
2	6.25%	24.700	24.700	0.000	
3 .	12.5%	26.300	26.300	-1.373	
4	25%	25.200	25.200	-0.429	
5	50%	26.300	26.300	-1.373	
6	100%	26.400	26.400	-1.459	

Dunnett table value = 2.31 (1 Tailed Value, P=0.05, df=40,5)

60304538 Sullivan CERIODAPHNIA DUBIA REPRODU

File: 6304538E Transform: NO TRANSFORMATION

	DUNNETT'S TEST -	TABLE 2	OF 2 Ho	:Control<	Treatment
GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
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2	6.25%	10 .	2.691	10.9	0.000
3	12.5%	. 10	2.691	10.9	-1.600
4	25%	10	2.691	10.9	-0.500
5	5,0%	10	2.691	10.9	-1.600
6	100%	10	2.691	10.9	-1.700

Conc. ID		1	2	3	4	5	6
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Response	8	25	28	29	21	25	29
Response	9	26	24	28	24	25	26
Response	10	26	27	28	27	29	24

*** Inhibition Concentration Percentage Estimate ***

Toxicant/Effluent: Sullivan

Test Start Date: 6/4/19 Test Ending Date: 6/11/19

Test Species: Dubia

Test Duration: 7 day

DATA FILE:

Conc.	Number Replicates	Concentration	Response Means	Std. Dev.	Pooled Response Means
1 2 3 4 5	10 10 10 10 10	0.000 6.250 12.500 25.000 50.000	24.700 24.700 26.300 25.200 26.300 26.400	3.368 2.312 2.497 2.300 2.946 1.955	25.600 25.600 25.600 25.600 25.600

^{***} No Linear Interpolation Estimate can be calculated from the input data since none of the (possibly pooled) group response means were less than 75% of the control response mean.

Conc. ID		1	2	3	4	5	6
Conc. Tes	ted	0	6.25	12.5	25	50	100
Response Response Response Response	1 2 3 4	.436 .633 .493 .532	.456 .465 .448 .463	.589 .478 .479 .451	.528 .441 .419	.435 .455 .465	.485 .448 .426 .435

*** Inhibition Concentration Percentage Estimate ***

Toxicant/Effluent: Sullivan
Test Start Date: 6/4/19. Test Ending Date: 6/11/19

Test Species: Fathead

Test Duration: 7 day

DATA FILE:

Conc.	Number Replicates	Concentration	Response Means	Std. Dev.	Pooled Response Means
1	4	0.000	0.524	0.083	0.524
2	4	6.250 12.500	0.458 0.499	0.008 0.061	0.479 0.479
4	4	25.000	0.446	0.057	0.456
5	. 4	50.000	0.465	0.029	0.456
6	4	100.000	0.449	0.026	0.449

*** No Linear Interpolation Estimate can be calculated from the input data since none of the (possibly pooled) group response means were less than 75% of the control response mean.



CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

equired Client Information:	Required Project Information:	Invoice Information:	Page: 1 Of
ompany: City of Sullivan	Report To: Joe Philpot	Attention:	
	1	Company Name:	
ullivan, MO 63080		Address	Regulatory Agency
	Purchase Order #:		
hone, 573-468-8223 Fax	Project Name: WET Testing	Pace Project Manager. bryan.witz@pacelabs.com,	State / Location
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CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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Sample Condition Upon Receipt

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CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT, All relevant fields must be completed accurately.

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Sample Condition Upon Receipt

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REPORT OF ACUTE TOXICITY TESTING
Sullivan WWTP
Outfall 002 (24 hr composite) AEC = 100%
MO-0104736
EAS LOG# 2216703
August 8, 2018 through August 10, 2018

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)

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



REPORT OF ACUTE TOXICITY TESTING
Sullivan WWTP
Outfall 002 (24 hr composite) AEC = 100%
MO-0104736
EAS LOG# 2216703
August 8, 2018 through August 10, 2018

1. REPORT SUMMATION:

1.1. Multiple Dilution Data Summation

Test Solution	Pimephales promelas Acute Toxicity Test 48 Hour Survival	Ceriodaphnia dubia Acute Toxicity Test 48 Hour Survival
Reconstituted Control (RC)	100%	100%
Upstream Control (UC)	N/A	N/A
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
TUa	<1.0	<1.0
Result of Toxicity Test	Monitor Only	Monitor Only

^{*} 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

TUa < 1.0

Ceriodaphnia dubia 48 hour WET results:

LC 50 >100% using the Graphical Method

NOAEC = 100% by Steel's Many-One Rank Test

TUa < 1.0

Approved by	(Assid	
	Sara C. Shields, Chemist	





REPORT OF ACUTE TOXICITY TESTING
Sullivan WWTP
Outfall 002 (24 hr composite) AEC = 100%
MO-0104736
EAS LOG# 2216703
August 8, 2018 through August 10, 2018

2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	Ceriodaphnia dubia:	Pimephales promelas:
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 Environmental Enterprises USA Inc. located in Slidell, Louisiana and shipped overnight for use in the whole effluent toxicity test.

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



REPORT OF ACUTE TOXICITY TESTING
Sullivan WWTP
Outfall 002 (24 hr composite) AEC = 100%
MO-0104736
EAS LOG# 2216703
August 8, 2018 through August 10, 2018

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on August 8, 2018 using KCL Lot #41713. Following are the results:

2.2.1. P. promelas - 48 hr. Acute Test - LC₅₀ = 1.252g/l 95%Cl (1.012 g/l -1.492 g/l)

EAS %CV = 9.6%

National Warning Limits (75th percentile) = 19%CV National Control Limits (90th percentile) = 33%CV

2.2.2. C. dubia - 48 hr. Acute Test - LC50 = 0.440 g/l 95%Cl (0.217 g/l - 0.662g/l)

EAS %CV = 25.4%

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: Sullivan WWTP, Outfall 002, 24 hr composite

NPDES NUMBER: MO-0104736	MO-0104736											
TYPE OF METHOD:	TYPE OF METHOD: multiple dilution, 48 hrs. PP & CD. AEC=1	rs. PP & CD.	AEC=100%. Tua report									
DATE & TIME OF COLLECTION: 08/07/18 0800 hrs - 08/08/18 0800 hrs by	08/07/18 0800 hrs - 0	8/08/18 0800	hrs by Alex James				Upstream: Winsel Creek	Winsel C	reek			
DATE & TIME OF SUBMISSION: 08/08/18 1030 hrs by Alex James	08/08/18 1030 hrs by	Alex James					Not available	e				
INITIAL OBSERVATIONS DATE	DATE TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL INT UC		INT RC					
LOG NUMBER / ID NUMBER	Aug de Contraction de	100			2216703		RC4211					
US - Hq		SCS	SB114 (8.8-9.2)	8.93	7.44		8.28					
TEMPERATURE °C RECEIVED			EAS 106		11		23					
SPECIFIC CONDUCTANCE umhos	08/08/18 1045 hrs	SCS	ERA P255-506 (437-490)	481	937		252					
HARDNESS - ppm		scs	ERA Q036-507(269-316)	280	204		89.6					
CHLORINE - ppm	08/08/18 1045 hrs	scs	A6298 (0.82 - 1.02)		<0.04		<0.04					
DISSOLVED OXYGEN - ppm	08/08/18 1045 hrs	scs	cal@840		5.8		8.5					
TOTAL ALKALINITY - ppm	08/10/18 1300 hrs	SCS	P262-506 (76.4-91.3)	87.4	175		78.6					
INITIAL AMMONIA - ppm	08/13/18 1100 hrs	scs	DMRQA38 (4.16-6.59)	5.61	<0.020		<0.020					
TOTAL DISSOLVED SOLIDS -ppm												
0 HOUR OBSERVATIONS DATE	DATE TIME	ANALYST	QC LOT	QC EXP VALUE	RC	nc	100%	%09	25%	12.5%	6.25%	X %AEC
US - Hd	08/08/18 1100 hrs	SCS	SB114 (8.8-9.2)	8.93	8.18		7.73	7.88	90.8	8.15	8.19	
TEMPERATURE °C		scs	EAS 106		24.2		23.7	23.9	23.7	23.9	24.1	
SPECIFIC CONDUCTANCE umhos	08/08/18 1100 hrs	scs	ERA P255-506 (437-490)	481	254		938	601	422	330	287	
DISSOLVED OXYGEN - ppm	08/08/18 1100 hrs	scs	cal@840		8.7		8.7	8:7	8.7	8.6	8.1	
24 HOUR OBSERVATIONS - PP DATE	DATE TIME	ANALYST	QC LOT	QC EXP VALUE	SC	On On	100%	20%	25%	12.5%	6.25%	X %AEC
NS - Hd	08/09/18 1100 hrs		SB114 (8.8-9.2)	8.91	7.68		8.26	8.16	8.14	8.17	8.25	
TEMPERATURE °C	08/09/18 1100 hrs	SCS	EAS 106		25.0		25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	08/09/18 1100 hrs	SCS	ERA P255-506 (437-490)	487	259		983	809	435	341	309	
DISSOLVED OXYGEN - ppm	08/09/18 1100 hrs	scs	cal@840		8.1		7.6	7.7	7.7	7.7	7.9	
48 HOUR OBSERVATIONS - PP DATE	DATE TIME	ANALYST	QC LOT	QC EXP VALUE	RC	nc	100%	%09	25%	12.5%	6.25%	X %AEC
US - Hq			SB114 (8.8-9.2)	8.92	8.29		8.13	8.14	8.19	8.18	8.21	
TEMPERATURE °C		SCS	EAS 106		25.0		25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos		SCS	ERA P255-506 (437-490)	488	345	*	1054	627	439	346	315	
DISSOLVED OXYGEN - ppm	08/10/18 1100 hrs	SCS	cal@840		8.0		8.3	8.3	8.3	8.3	8.3	
FINAL AMMONIA - ppm			DMRQA33 (10.0-16.8)									
24 HOLIR OBSERVATIONS - CD DATE	DATE	ANALVET	OCIOT	OC EYD VALUE	Ja	2	1000%	2007	25%	12 50%	6 25%	X %AFC
US - Hq	9/18	SCS	SB114 (8.8-9.2)	8.91	8.13	8	8.33	8.27	8.25	8.27	_	
TEMPERATURE "C	08/09/18 1100 hrs	SCS	EAS 106		25.0		25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos		scs	ERA P255-506 (437-490)	487	254		924	597	427	335	277	
DISSOLVED OXYGEN - ppm	9/18	scs	cal@840		8.2		8.6	9.8	8.8	8.7	8.5	
48 HOUR OBSERVATIONS - CD DATE	DATE TIME	ANALYST	ac LoT	QC EXP VALUE	RC	CC	100%	%09	25%	12.5%		X %AEC
US-Hq		SCS	SB114 (8.8-9.2)	8.92	8.35		8.18	8.13	8.21	8.29	8.36	
TEMPERATURE °C		SCS	EAS 106		25.0		25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos		scs	ERA P255-506 (437-490)	488	262		265	595	430	336	288	
DISSOLVED OXYGEN - ppm	08/10/18 1100 hrs	SCS	cal@840		8.1		8.3	8.3	8.4	8.4	8.4	
FINAL AMMONIA - ppm			DMRQA33 (10.0-16.8)									

Date: OS/IS/18

Approved by: (RIM.

Sullivan WWTP, Outfall 002, 24 hr composite EAS LOG# 2216703

Analyst 1: DFW Analyst 3: SCS Analyst 2: KJR X% AEC X% AEC ALIVE ALIVE HATCH NUMBER: 080718EEU HATCH NUMBER: 080718EEU 5,5,5,5 5,5,5,5 5,5,5,5 ALIVE ALIVE 6.25% 10,10 10,10 10,10 6.25% 5,5,5,5 5,5,5,5 5,5,5,5 ALIVE ALIVE 12.5% 10,10 10,10 10,10 12.5% 5,5,5,5 5,5,5,5 5,5,5,5 ALIVE ALIVE 10,10 10,10 10,10 Time Test Began: 1100 hrs Time Test Finished: 1100 hrs 25% 25% 5,5,5,5 5,5,5,5 ALIVE ALIVE 5,5,5,3 10,10 10,10 10,10 20% 20% hours 6 days 5,5,5,5 5,5,5,5 5,5,5,5 ALIVE ALIVE 10,10 10,10 10,10 100% 100% AGE: <24 AGE: August 8, 2018 August 10, 2018 ALIVE ALIVE C S 5,5,5,5 ALIVE 5,5,5,5 ALIVE 5,5,5,5 10,10 10,10 10,10 RC RC Ceriodaphnia dubia (CD) 0 HR-CD 48 HR-PP Date Test Began: Date Test Finished: PERIOD 24 HR-CD PERIOD 0 HR-PP 24 HR-PP **48 HR-CD** P. promelas (PP)

81/5/180 Date

Approved by:

ate: 08/15/1/8

Prepared by:

why 1000

ENVIRONMENTAL ANALYSIS SOUTH, INC.

City of Sullivan

4000 East Jackson Blvd Jackson, MO 63755

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



147332

WHOLE EFFLUENT TOXICITY TESTING CHAIN OF CUSTODY

NPDES PERMIT NUMBER: MO-0104736
EFFLUENT NAME: OLTFALL #2 TO WINSEL GRAB 1 24 HR COMPOSITE (LEGAL NAME) CVCCK
COLLECTION DATA: START DATE: 8-7-18 START TIME: 8:00 Am
FINISH DATE: 8-8-18 FINISH TIME: 8:00 Am
UPSTREAM NAME: (GRAB SAMPLE) (LEGAL NAME)
COLLECTION DATA: DATE: TIME:
SAMPLER NAME: Alex Tames CARRIER: City of Sullivin
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 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: OLEGOPORDS DATE: 8-8-16 TIME: 1030
LABORATORY USE ONLY LOG NUMBER: 2216703
RECEIVED TEMPERATURE:°C THERMOMETER ASSIGNED NUMBER:
HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST
UPSTREAM LOG NUMBER:
RECEIVED TEMPERATURE:°C THERMOMETER ASSIGNED NUMBER:
HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST
RECEIVED BY: AM WEGO DATE: 8/8/18 TIME: 1030



MISSOURI DEPARTMENT OF NATURAL RESOURCES

RETURN FORM TO. Southeast Regional Office 2155 N. Westwood Blvd. Poplar Bluff. MO 63901

Facility Name			OR WHOLE EFFL	0 5 0		N. Westwood Blvd				
	Sullivan V	WTP			Receivi	ng Water	Winsel Cr	eeknot a	vailable	
ermit Number	MO-010	4736			Laborat	tory Name	Environmer			C.
Outfall		4730			Laborato	ry Report #				
	002			CAMBLE				MO_22	16703	
			le Cellection	SAMPLE	INFORMATION		-H (CH)	YY- 1		
Facility Name SUPermit Number M Outfall OO Sample Number Ef U 1		Samp	le Collection		Sample 1 em	perature (°C)	pH (SU)	Hand delivered? (If yes, ≤ 4 hrs?	Hold Time ≤ 36 hours?	Sample Acceptable
	Effluent or Upstream	Sample Type	Beginning Date	End Date	At Collection	. At Lab	At Lab			
1	Effluent	24 hr comp	08/07/18	08/08/18		11	7.44	BYON	BYON	BYON
2								DYDN	DYDN	DYDN
3								DYDN	DYDN	OYON
4								OYON	OYON	OYON
escribe any unu	sual conditions du	ring sampling tha	t might influence tes	st results						1
	TEST	INFORMATIO	N - ACUTE		I .	0,	A/QC CONDITI	ONS - ACUTE		
Test Mathed		2002.0		2000.0					YES	NO
	C. dubia	2002.0	P. promelas	2000.0	Diller State		. 1.92	1.11	123	110
Initiated:	08/08/201				the specified me			on required by	✓	
AEC/IWC Info:		AEC =	100%		Temperatures n	naintained during te	st (20 ± 1°C)			V
Dil vier 6 vier	100%	50%	25%	12.5%	Temperatures in	naintained during te	st (25 ± 1°C)		1	
Dilution Senes	6.25%				Dissolved oxyg	en ≥ 4.0 ing/L throu	ighout test?		1	
	C. dubia	RW □	LW E		Effluent pH ma	intained within 6.0	- 9.0 SU through	out test?	1	
Dilution Water:	P. promelas	RW□	LW B		Concurrent or in	nonthly reference to	ests within accept	able lunits?	1	
	RW = Receivin	g Stream Control	LW = Lab	Water Control	filtration, aer	samples modified ation, chemical pH adjustment)			1	
Comments:					Comments:					
		13 4 1 1 6	reek) no	t available			a test initiation	due DO below		
Receivin	g Water	(Winsel C				as aerated prior t		due DO below	60% upon ar	rival to the la
Receivin	g Water		WATER CHEMI	ISTRY (All values rep	ported in ing/L, ex	cept for pH and cor	nductivity)			
Sample Type	Sample Number	Conductivity (µmhos)						Other	60% upon ar	Other
Sample Type Upstream	Sample Number not available	Conductivity (µmhos)	WATER CHEMI Unionized Ammonia	ISTRY (All values rep	Alkalinity	pH (SU) After Warming	Total Residual Chlorine	Other		
Sample Type Upstream Effluent	Sample Number not available 2216703	Conductivity (µmhos)	Unionized Ammonia	STRY (All values re Hardness	Alkalinity 175	pH (SU) After Wanning	Total Residual Chlorine	Other DO=5.8		
Sample Type Upstream Effluent Lab Water	Sample Number not available	Conductivity (µmhos)	WATER CHEMI Unionized Ammonia	ISTRY (All values rep	Alkalinity	pH (SU) After Warming	Total Residual Chlorine	Other		
Sample Type Upstream Effluent Lab Water	Sample Number not available 2216703 RC4211	Conductivity (µmhos)	Unionized Ammonia <0.010 <0.010	Hardness 204 89.6	Alkalinity	pH (SU) After Wanning 7.73 8.18	Total Residual Chlorine	Other DO=5.8 DO=8.5	Other	Other
Sample Type Upstream Effluent Lab Water	Sample Number not available 2216703 RC4211	Conductivity (µmhos)	Unionized Ammonia <0.010 <0.010	Hardness 204 89.6	Alkalinity 175 78.6	pH (SU) After Warming 7.73 8.18	Total Residual Chlorine <0.04 <0.04 Confidence Interval % =	Other DO=5.8 DO=8.5	Other TUa=	Other < 1.0
Sample Type Upstream Effluent Lab Water	Sample Number not available 2216703 RC4211	Conductivity (µmhos)	Unionized Ammonia <0.010 <0.010	Hardness 204 89.6	Alkalinity	pH (SU) After Wanning 7.73 8.18	Total Residual Chlorine <0.04 <0.04 Confidence	Other DO=5.8 DO=8.5	Other	Other
Sample Type Upstream Effluent Lab Water	Sample Number not available 2216703 RC4211	Conductivity (µmhos)	Unionized Ammonia <0.010 <0.010	Hardness 204 89.6	Alkalinity 175 78.6	7.73 8.18 >100% >100%	Total Residual Chlorine <0.04 <0.04 Confidence Interval % = Confidence	Other DO=5.8 DO=8.5	Other TUa=	Other < 1.0
Sample Type Upstream Effluent Lab Water Comments:	Sample Number not available 2216703 RC4211	Conductivity (µmhos) 937 252	WATER CHEMI Unionized Ammonia <0.010 <0.010 Pimephales proi	Hardness 204 89.6	Alkalinity 175 78.6 LC50= Lab Water	7.73 8.18 >100% >100%	Total Residual Chlorine <0.04 <0.04 Confidence Interval % = Confidence Interval % =	Other DO=5.8 DO=8.5	Other TUa=	Other < 1.0
Sample Type Upstream Effluent Lab Water Comments: TUa limit = Mon	Sample Number not available 2216703 RC4211	Conductivity (μπhos) 937 252 Water Controls Cerioda	WATER CHEMI Unionized Ammonia <0.010 <0.010 Pimephales proceed to the control of the control	Hardness 204 89.6 melas Acute Results whia Acute Results	Alkalinity 175 78.6 LC50= LC50= Lab Water	pH (SU) After Warming 7.73 8.18 >100% >Controls	Total Residual Chlorine <0.04 <0.04 Confidence Interval % = Confidence Interval % =	Other DO=5.8 DO=8.5	Other TUa=	Other < 1.0
Sample Type Upstream Effluent Lab Water Comments: FUa limit = Mon Fathead Survival ≥ 90%	Sample Number not available 2216703 RC4211	Conductivity (μπhos) 937 252	WATER CHEMI Unionized Ammonia <0.010 <0.010 Pimephales proceed to the control of the control	Hardness 204 89.6 melas Acute Results	Alkalinity 175 78.6 LC50= Lab Water	pH (SU) After Warning 7.73 8.18 >100% >100% Controls Ceriadaph	Total Residual Chlorine <0.04 <0.04 Confidence Interval % = Confidence Interval % =	Other DO=5.8 DO=8.5	Other TUa=	Other < 1.0
Sample Type Upstream Effluent Lab Water Comments: Fua limit = Mon Fathead Survival ≥ 90% Comments:	Sample Number not available 2216703 RC4211	Conductivity (μπhos) 937 252 Water Controls Cerioday Survival ≥ 90%	WATER CHEMI Unionized Ammonia <0.010 <0.010 Pimephales prac Ceriodaphnia de	Hardness 204 89.6 melas Acute Results whia Acute Results	Alkalinity 175 78.6 LC50= LC50= Lab Water	pH (SU) After Warning 7.73 8.18 >100% >100% Controls Ceriadaph	Total Residual Chlorine <0.04 <0.04 Confidence Interval % = Confidence Interval % =	Other DO=5.8 DO=8.5	Other TUa=	Other < 1.0
Sample Type Upstream Effluent Lab Water Comments: Fua limit = Mon Fathead Survival ≥ 90% Comments: FCCEIVING	Sample Number not available 2216703 RC4211 Storing only.	Conductivity (μηρος) 937 252 Water Controls Ceriodal Survival ≥ 90% ot available	WATER CHEMI Unionized Ammonia <0.010 <0.010 Pimephales pron Ceriodaphnia d	Hardness 204 89.6 melas Acute Results whia Acute Results	Alkalinity 175 78.6 LC50= LC50= LAB Water	pH (SU) After Warning 7.73 8.18 >100% >100% Controls Ceriadaph	Total Residual Chlorine <0.04 <0.04 Confidence Interval % = Confidence Interval % =	DO=5.8 DO=8.5 N/A N/A	Other TUa=	<1.0 <1.0

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REPORT OF ACUTE TOXICITY TESTING
Sullivan WWTP
Outfall 002 (24 composite) AEC = 100%
MO-0104736
EAS LOG# 2114032
August 30, 2017 through September 1, 2017

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)
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 - 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)





REPORT OF ACUTE TOXICITY TESTING Sullivan WWTP Outfall 002 (24 composite) AEC = 100% MO-0104736 EAS LOG# 2114032 August 30, 2017 through September 1, 2017

1. REPORT SUMMATION:

1.1. Multiple Dilution Data Summation

Test Solution	Pimephales promelas Acute Toxicity Test 48 Hour Survival	Ceriodaphnia dubia Acute Toxicity Test 48 Hour Survival
Reconstituted Control (RC)	100%	100%
Upstream Control (UC)	100%	100%
6.25% Effluent	100%	95%
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
TUa	<1.0	<1.0
Result of Toxicity Test	Monitor Only	Monitor Only

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

Conc	usion:	

Pimephales promelas 48 hour WET results:

LC 50 >100% using the Graphical Method

NOAEC = 100% by Steel's Many-One Rank Test

TUa < 1.0

Ceriodaphnia dubia 48 hour WET results:

LC 50 >100% using Trimmed Spearman-Karber

NOAEC = 100% by Steel's Many-One Rank Test

TUa < 1.0

Approved by	Milas	
	Sara C Shields Chemist	

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REPORT OF ACUTE TOXICITY TESTING Sullivan WWTP Outfall 002 (24 composite) AEC = 100% MO-0104736 EAS LOG# 2114032 August 30, 2017 through September 1, 2017

2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	Ceriodaphnia dubia:	Pimephales promelas:
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.

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REPORT OF ACUTE TOXICITY TESTING
Sullivan WWTP
Outfall 002 (24 composite) AEC = 100%
MO-0104736
EAS LOG# 2114032
August 30, 2017 through September 1, 2017

2.2. REFERENCE TOXICITY TEST:

Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on August 9, 2017 using KCL Lot #41713. Following are the results:

2.2.1, P. promelas - 48 hr. Acute Test - LC₅₀ = 1.175g/l 95%Cl (0.845 g/l -1.321 g/l)

EAS %CV = 14.0%

National Warning Limits (75th percentile) = 19%CV National Control Limits (90th percentile) = 33%CV

2.2.2. C. dubia - 48 hr. Acute Test - LC₅₀ = 0.512 g/l 95%Cl (0.363 g/l - 0.660g/l)

EAS %CV = 14.5%

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
- 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
- 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

CLIENT NAME: Sullivan WWTP, Outfall 002, 24 hr composite	Sullivan WW	TP. Outf	all 002, 24 hr	composite		100000000000000000000000000000000000000							
NPDES NUMBER: MO-0104736	MO-0104736									The state of the s			
TYPE OF METHOD:	multiple dilut	ion, 48 hr	's, PP & CD,	multiple dilution, 48 hrs, PP & CD, AEC=100%, Tua report									
DATE & TIME OF COLLECTION: 08/28/17 0800 hrs - 08/29/17 0800 hrs by Alex James	08/28/17 080	0 hrs - 0	18/29/17 0800	hrs by Afex James				Upstream: Winsel Creek	Winsel C	reek			
DATE & TIME OF SUBMISSION: 08/29/17 1035 hrs by Alex James	08/29/17 103	5 hrs by	Alex James					Not available	ole				
INITIAL OBSERVATIONS DATE	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL INT UC	IT UC	INT RC					
LOG NUMBER / ID NUMBER	10	1201-515				2114032		RC4189					
DS - Hd		1045 hrs	SCS	SB114 (8.8-9.2)	8.87	7.82		8.44					
TEMPERATURE °C RECEIVED	08/29/17 1045 hrs	1045 hrs	scs	EAS 106		4		24					
SPECIFIC CONDUCTANCE umhos		045 hrs	SCS	ERA P255-506 (437-490)	482	762		269					
HARDNESS - ppm	08/31/17 0930 hrs	930 hrs	SCS	P257-507 (194-228)	199	207		70.4					
CHLORINE - ppm	08/29/17 1045 hrs	1045 hrs	SCS	A6298 (0.82 - 1.02)	0.91	<0.04		<0.04					
DISSOLVED OXYGEN - ppm	08/29/17 1045 hrs	1045 hrs	scs	cal@840		7.4		8.4					
TOTAL ALKALINITY - ppm	08/30/17 1815 hrs	1815 hrs	SCS	P255-506 (40.3-48.2)	844.8	180		58.8					
INITIAL AMMONIA - ppm	09/05/17 1030 hrs	1030 hrs	JPC	EAS 2963 (8-12)	10.4	<0.05		<0.05					
TOTAL DISSOLVED SOLIDS -ppm													
0 HOUR OBSERVATIONS DATE	DATE	TIME	YST.	QC LOT	QC EXP VALUE	RC	nc	100%	%05	75%	12.5%	6.25%	X %AEC
US - Hq		100 hrs	scs	SB114 (8.8-9.2)	8.87	8.03		7.38	7.52	7.70	7.78	7.89	
TEMPERATURE °C		100 hrs	scs	EAS 106		24.1		25.2	23.7	24.1	23.7	23.9	
SPECIFIC CONDUCTANCE umhos	08/30/17 1100 hrs	100 hrs	scs	ERA P255-506 (437-490)	484	262		876	547	408	330	292	
DISSOLVED OXYGEN - ppm	08/30/17 1100 hrs	100 hrs	SCS	cal@840		8.5		8.4	8.5	8.5	8.5	8.5	
24 HOUR OBSERVATIONS - PP DATE		TIME	ANALYST	QC LOT	QC EXP VALUE	RC	nc	100%	20%	25%	12.5%	6.25%	X %AEC
ns - Hd	08/31/17 1100 hrs	100 hrs	scs	SB114 (8.8-9.2)	8.86	8.16		8.38	8.23	8.12	8.08	8.12	
TEMPERATURE °C	08/31/17 1100 hrs	100 hrs	SCS	EAS 106		24.9		24.9	24.9	24.9	24.9	24.9	
SPECIFIC CONDUCTANCE umhos	08/31/17 1100 hrs	100 hrs	scs	ERA P255-506 (437-490)	474	273		877	564	412	338	302	
DISSOLVED OXYGEN - ppm	08/31/17 1100 hrs	100 hrs	scs	cal@840		7.5		9.7	7.5	7.5	7.5	7.5	
48 HOUR OBSERVATIONS - PP DATE		TIME	ANALYST	QC LOT	QC EXP VALUE	RC	nc	100%	20%	25%	12.5%	6.25%	X %AEC
ns-Hd		100 hrs	SCS	SB114 (8.8-9.2)	8.84	8.21		8.22	90.8	7.92	7.89	7.94	
TEMPERATURE °C		100 hrs	scs	EAS 106		25.0		25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	09/01/17 1100 hrs	100 hrs	scs	ERA P255-506 (437-490)	475	296		919	614	420	341	308	
DISSOLVED OXYGEN - ppm	09/01/17 1100 hrs	100 hrs	SCS	cal@840		7.8		7.8	7.8	7.7	7.7	7.8	
FINAL AMMONIA - ppm				DMRQA33 (10.0-16.8)									
													0
24 HOUR OBSERVATIONS - CD DATE	7 147	TIME	ANALYST	QC LOT	QC EXP VALUE	RC S	20	100%	20%	25%	12.5%	6.25%	X %AEC
00 - 10			200	20114 (0.0-3.2)	00.00	0		10.0	0.23	0	0.03	2 0	
TEMPERATURE 'C		100 hrs	SCS	EAS 106		25.0		25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos		100 hrs	SCS	ERA P255-506 (437-490)	474	260		848	551	413	299	301	
DISSOLVED OXYGEN - ppm	1/17	100 hrs	SCS	cal@840		1.8		8.7	8.7	8.7	8.6	8.5	
48 HOUR OBSERVATIONS - CD DATE	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	22	20	100%	20%	25%	12.5%	6.25%	X %AEC
ns - Hd		100 hrs	SCS	SB114 (8.8-9.2)	8.84	8.27		8.10	8.00	7.94	7.93	7.98	
TEMPERATURE °C	09/01/17 1100 hrs	100 hrs	SCS	EAS 106		25.0		25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	09/01/17 1100 hrs	100 hrs	SCS	ERA P255-506 (437-490)	475	286		842	556	411	342	300	
DISSOLVED OXYGEN - ppm	09/01/17 1100 hrs	100 hrs	SCS	cal@840		8.3		8.7	8.6	8.3	8.3	8.3	
FINAL AMMONIA - ppm				DMRQA33 (10.0-16.8)									
(2	,	-										

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Sullivan WWTP, Outfall 002, 24 hr composite EAS LOG# 2114032

	Ohrs Analyst 2: KJR Analyst 2: KJR Analyst 3: SCS	HATCH NUMBER: 288 c-k	25% 12.5% 6.25% X% AEC	ALIVE ALIVE ALIVE	10,10 10,10 10,10	10,10 10,10 10,10	10,10 10,10 .	HATCH NUMBER: 3525 c-k	250) A 22 E9/ A 21/ A 21	0/67.0 0/6.71	ALIVE ALIVE	ALIVE ALIVE 5,5,5,5 5,5,5,5	ALIVE ALIVE 5,5,5,5 5,5,5 5,5,5,5 5,5,5
Time Test Began: 1100 hrs	Time Test Finished: 1100 hrs		50% 25%	ALIVE ALIVE	10,10 10,10	10,10 10,10	10,10 10,10	ω.	50% 25%		ALIVE ALIVE		
Time Te	Time Test	8 days	100%	ALIVE /	10,10	10,10	10,10	<24 hours	100%	AI IVE			
August 30, 2017	mber 1, 2017	AGE:[on	ALIVE				AGE: <24	on	ALIVE			
Aug	September		RC	ALIVE	10,10	10,10	10,10		RC	ALIVE		5,5,5,5	5,5,5,5
Date Test Began:	Date Test Finished:	P. promelas (PP)		PERIOD	0 HR-PP	24 HR-PP	48 HR-PP	Ceriodaphnia dubia (CD)		PERIOD		0 HR-CD	0 HR-CD 24 HR-CD

te: 04/06/17

Approved by:

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

Sullivan WWTP, Outfall 002, 24 hr composite EAS#: 2114032

							•	
Notes & Comments	at 4 degrees until test was initiated 08/30/17							
Z	ample received in the lab 08/29/17 and stored at 4 degrees un							

Prepared by

20 July

ENVIRONMENTAL ANALYSIS SOUTH, INC.

4000 East Jackson Blvd Jackson, MO 63755

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



WHOLE EFFLUENT TOXICITY TESTING CHAIN OF CUSTODY

CLIENT: City of Sulliver
NPDES PERMIT NUMBER: MO - 0104736
EFFLUENT NAME: OUT Fall 2 To Greek GRAB 24 HR COMPOSITE & (LEGAL NAME)
COLLECTION DATA: START DATE: 8-28-17 START TIME: 8:00 Am
FINISH DATE: 8-29-17 FINISH TIME: 8:00 Am
UPSTREAM NAME: (GRAB SAMPLE) (LEGAL NAME)
COLLECTION DATA: DATE: TIME:
SAMPLER NAME: CARRIER:
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 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: Clap John John Date: 8-29-17 TIME: 18;3244
LABORATORY USE ONLY EFFLUENT LOG NUMBER: 211403 2
RECEIVED TEMPERATURE:°C THERMOMETER ASSIGNED NUMBER:
HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST
UPSTREAM LOG NUMBER:
RECEIVED TEMPERATURE:°C THERMOMETER ASSIGNED NUMBER:
HEADSPACE: YES OF NO SAMPLES ICED OF DELIVERED SAME DAY AS TEST
// //

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Facility Name			OIL WINDED DITE	UENT TOXICITY		N. Westwood Blv		10 03701		
	Sullivan V	WWTP				ing Water		reeknot a		
ermit Number	MO-010	4736			Labora	tory Name	Environme	ntal Analysi	s South, In	c.
Outfall	002				Laborate	ory Report #		MO_21	14032	
				SAMPLE	INFORMATIO	N	1			
Sample Number		Samp	le Collection		Sample Ten	nperature (°C)	pH (SU)	Hand delivered? (If yes, ≤ 4 hrs?	Hold Time ≤36 hours?	Sample Acceptable
	Effluent or Upstream	Sample Type	Beginning Date	End Date	At Collection	At Lab	At Lab			
1	Effluent	24 hr comp	08/28/17	08/29/17	-	4	7.82	BYDN	BYDN	BYDN
2					-			DYDN	□ Y □ N	DYDN
3								DYDN	OYON	OYON
4								DYDN	DYDN	DYDN
escribe any unus	sual conditions du	ring sampling tha	t might influence tes	st results			J.,			
		•								
	TEST	INFORMATIO	N - ACIFE		11	0	A/QC CONDIT	IONS - ACTITE		
T . M . 1 . 1				2000.0	· .	· · · · · · · · · · · · · · · · · · ·	ange conditi	IONS-ACUIE	YES	NO
Test Method:	C. dubia	2002.0	P. promelas	2000.0					TES	NO
Date Test Initiated:	08/30/201				the specified m			on required by	1	
AEC/IWC Info:		AEC =	100%			naintained during to				1
Dilution Series	100%	50%	25%	12.5%		naintained during te			1	
Dilution Series	6.25%					en ≥ 4.0 mg/L thro			1	
Dilai- Water	C. dubia	RW 🗆	LW 🖹		Effluent pH ma	intained within 6.0	- 9.0 SU through	out test?	1	
Dilution Water:	P. promelas	RW □	LW 🗃	1	Concurrent or r	nonthly reference to	ests within accept	able limits?	1	
· ·	1. prometas					,			V.	
	-	g Stream Control	LW = Lab \	Water Control	Were effluent filtration, aer	samples modifie ation, chemical pH adjustment)		ing? (ex.	V	1
Comments:	RW = Receiving	g Stream Control			Were effluent filtration, aer chlorination or Comments:	samples modifie		ing? (ex.		V
Comments:	RW = Receiving	g Stream Control		Water Control t available	Were effluent filtration, aer chlorination or Comments:	samples modifie		ing? (ex.	'	
Comments:	RW = Receiving	g Stream Control	reek) no		Were effluent filtration, aer chlorination or Comments:	samples modifie ation, chemical pH adjustment)	addition include	ing? (ex.		
Comments:	RW = Receiving	g Stream Control	reek) no	t available STRY (All values re	Were effluent filtration, aer chlorination or Comments:	samples modification, chemical pH adjustment)	addition include	ing? (ex. ling de-	Other	Other
Comments: Receivin	RW = Receiving Water Sample	g Stream Control (Winsel C	Creek) no WATER CHEMI Unionized	t available STRY (All values re	Were effluent filtration, aer chlorination or Comments:	samples modification, chemical pH adjustment) cept for pH and col pH (SU)	addition include addition include addition include addition include additional additional additional addition include additional addi	ing? (ex. ling de-	Other	Other
Comments: Receivin	RW = Receiving Water Sample Number	g Stream Control (Winsel C	Creek) no WATER CHEMI Unionized	t available STRY (All values re	Were effluent filtration, aer chlorination or Comments:	samples modification, chemical pH adjustment) cept for pH and col pH (SU)	addition include addition include addition include addition include additional additional additional addition include additional addi	ing? (ex. ling de-	Other	Other
Comments: Receiving Sample Type Upstream	RW = Receiving G Water Sample Number not available	(Winsel C	WATER CHEMI Unionized Ammonia	t available STRY (All values re Hardness	Were effluent filtration, aer chlorination or Gomments: Alkalinity 180	samples modifie ation, chemical pH adjustment) cept for pH and co pH (SU) After Warming 7.38	nductivity) Total Residual Chlorine	Other	Other	Other
Sample Type Upstream Effluent Lab Water	RW = Receiving Water Sample Number not available 2114032	Winsel C Conductivity (µmhos)	WATER CHEMI Unionized Ammonia	t available STRY (All values re Hardness	Were effluent filtration, aen chlorination or Comments:	samples modified ation, chemical pH adjustment) ccept for pH and compared pH (SU) After Warming	nductivity) Total Residual Chlorine	ong? (ex.	Other	Other
Sample Type Upstream Effluent Lab Water	RW = Receiving Water Sample Number not available 2114032	Conductivity (µmhos) 762 269	Varience (Ammonia) Varience (Ammonia) Varience (Ammonia) Varience (Ammonia) Varience (Ammonia) Varience (Ammonia)	t available STRY (All values re Hardness	Were effluent filtration, aer chlorination or Comments: Alkalinity 180 58.8	samples modified ation, chemical pH adjustment) cept for pH and compH (SU) After Warming 7.38 8.03	addition included and addition included and addition included and additional additional and additional	Other	Other	Other
Sample Type Upstream Effluent Lab Water	Sample Number not available 2114032 RC4189	Winsel C Conductivity (µmhos)	WATER CHEMI Unionized Ammonia <0.010 <0.010	t available STRY (All values re Hardness 207 70.4	Were effluent filtration, aer chlorination or Gomments: Alkalinity 180	samples modifie ation, chemical pH adjustment) cept for pH and co pH (SU) After Warming 7.38 8.03	addition include and addition include and addition include and addition include and additional additional and additional addit	Other DO=7.4 DO=8.4	Other TUa=	
Sample Type Upstream Effluent Lab Water	Sample Number not available 2114032 RC4189	Conductivity (µmhos) 762 269	WATER CHEMI Unionized Ammonia <0.010 <0.010	t available STRY (All values re Hardness 207 70.4	Were effluent filtration, aer chlorination or Comments: Alkalinity 180 58.8	samples modification, chemical pH adjustment) ccept for pH and compH (SU) After Warming 7.38 8.03	addition included and addition included and addition included and additional additional and additional	Other DO=7.4 DO=8.4		<1.0
Sample Type Upstream Effluent Lab Water	Sample Number not available 2114032 RC4189	Conductivity (µmhos) 762 269	WATER CHEMI Unionized Ammonia <0.010 <0.010	t available STRY (All values re Hardness 207 70.4	Were effluent filtration, aer chlorination or Comments: Alkalinity 180 58.8	samples modifie ation, chemical pH adjustment) cept for pH and co pH (SU) After Warming 7.38 8.03	addition included and addition included and addition included and additional additional and additional	Other DO=7.4 DO=8.4	TUa=	
Sample Type Upstream Effluent Lab Water	Sample Number not available 2114032 RC4189	Conductivity (µmhos) 762 269	WATER CHEMI Unionized Ammonia <0.010 <0.010	t available STRY (All values re Hardness 207 70.4	Were effluent filtration, aen chlorination or Comments: Alkalinity 180 58.8 LC50= LC50=	samples modification, chemical pH adjustment) ccept for pH and compH (SU) After Warming 7.38 8.03	addition included and included	Other DO=7.4 DO=8.4	TUa=	<1.0
Sample Type Upstream Effluent Lab Water Comments:	RW = Receiving Water Sample Number not available 2114032 RC4189	Conductivity (µmhos) 762 269	WATER CHEMI Unionized Ammonia <0.010 <0.010	t available STRY (All values re Hardness 207 70.4	Were effluent filtration, aer chlorination or Comments: Alkalinity 180 58.8 LC50= LC50=	samples modified attion, chemical pH adjustment) ccept for pH and compared pH (SU) After Warming 7.38 8.03 >100% >100% Controls	addition included and addition included and addition included and addition included and additional additional and additional	Other DO=7.4 DO=8.4	TUa=	<1.0
Sample Type Upstream Effluent Lab Water Comments:	Sample Number not available 2114032 RC4189	Conductivity (µmhos) 762 269	VATER CHEMI Unionized Ammonia <0.010 <0.010 Pimephales prom Ceriodaphnia di	t available STRY (All values re Hardness 207 70.4 selas Acute Results abia Acute Results	Were effluent filtration, aer chlorination or Comments: Alkalinity 180 58.8 LC50= LC50= Lab Water	samples modification, chemical pH adjustment) cept for pH and color pH (SU) After Warming 7.38 8.03 >100% >100% Controls Ceriodaph	addition included and included	Other DO=7.4 DO=8.4	TUa=	<1.0
Sample Type Upstream Effluent Lab Water Comments: Ua limit = Monit	RW = Receiving Water Sample Number not available 2114032 RC4189	Conductivity (µmhos) 762 269	VATER CHEMI Unionized Ammonia <0.010 <0.010 Pimephales prom Ceriodaphnia di	t available STRY (All values re Hardness 207 70.4	Were effluent filtration, aer chlorination or Comments: Alkalinity 180 58.8 LC50= LC50=	samples modified attion, chemical pH adjustment) ccept for pH and compared pH (SU) After Warming 7.38 8.03 >100% >100% Controls	addition included and addition included and addition included and addition included and additional additional and additional	Other DO=7.4 DO=8.4	TUa=	<1.0
Sample Type Upstream Effluent Lab Water Comments: Ua limit = Monit Fathead M Survival ≥ 90%	RW = Receiving Sample Number not available 2114032 RC4189 Foring only.	Conductivity (µmhos) 762 269 Vater Controls Ceriodap Survival ≥ 90%	WATER CHEMI Unionized Ammonia <0.010 <0.010 Pimephales pron Ceriodaphnia di	t available STRY (All values re Hardness 207 70.4 selas Acute Results abia Acute Results	Were effluent filtration, aer chlorination or Comments: Alkalinity 180 58.8 LC50= LC50= Lab Water	samples modification, chemical pH adjustment) cept for pH and color pH (SU) After Warming 7.38 8.03 >100% >100% Controls Ceriodaph	addition included and included	Other DO=7.4 DO=8.4	TUa=	<1.0
Sample Type Upstream Effluent Lab Water Comments: Ua limit = Monit Fathead N Survival ≥ 90% Comments:	Sample Number not available 2114032 RC4189 Receiving Valimow	Conductivity (µmhos) 762 269 Vater Controls Ceriodap Survival ≥ 90% ot available	WATER CHEMI Unionized Ammonis <0.010 <0.010 Pimephales prom Ceriodaphnia di	t available STRY (All values re Hardness 207 70.4 selas Acute Results abia Acute Results	Were effluent filtration, aer chlorination or Comments: Alkalinity 180 58.8 LC50= LC50= Lab Water Minnow	samples modification, chemical pH adjustment) cept for pH and color pH (SU) After Warming 7.38 8.03 >100% >100% Controls Ceriodaph	addition included and included	Other DO=7.4 DO=8.4 N/A N/A	TUa=	<1.0 <1.0

ENVIRONMENTAL ANALYSIS SOUTH, INC.

4000 East Jackson Blvd Jackson, MO 63755

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



WHOLE EFFLUENT TOXICITY TESTING CHAIN OF CUSTODY

CLIENT: CUF OF OUR CLUEEN
NPDES PERMIT NUMBER: MO-0104736
EFFLUENT NAME: Outfall to Winsel GRAB 1 24 HR COMPOSITE (LEGAL NAME)
COLLECTION DATA: START DATE: 8-28-17 START TIME: 8:00 Am
FINISH DATE: 8-29-17 FINISH TIME: 8:00 Am
UPSTREAM NAME: (GRAB SAMPLE) (LEGAL NAME)
COLLECTION DATA: DATE: TIME:
SAMPLER NAME: CARRIER:
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 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 SUFFICIENT ICE TO COOL SAMPLES TO A RANGE OF 0 - 6°C WHEN SHIPPING OVERNIGHT SAMPLER CHECK LIST NO HEADSPACE IN BOTTLES SHIPPING OVERNIGHT SHIPPING OVERNIGHT SHIPPING OVERNIGHT SUFFICIENT ICE TO COOL SAMPLES TO A RANGE OF 0 - 6°C WHEN SHIPPING OVERNIGHT SHIPPING OVERNIGHT
RELINQUISHED BY: DATE:TIME:
LABORATORY USE ONLY EFFLUENT LOG NUMBER:
RECEIVED TEMPERATURE:°C THERMOMETER ASSIGNED NUMBER:
HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST
UPSTREAM LOG NUMBER:
RECEIVED TEMPERATURE:°C THERMOMETER ASSIGNED NUMBER:
HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

Wetres.

Environmental Analysis South, Inc.

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



REPORT OF ACUTE TOXICITY TESTING
Sullivan WWTP
Outfall 002 (24 composite) AEC = 100%
MO-0104736
EAS LOG# 2008409
August 24, 2016 through August 26, 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
Sullivan WWTP
Outfall 002 (24 composite) AEC = 100%
MO-0104736
EAS LOG# 2008409
August 24, 2016 through August 26, 2016

1. REPORT SUMMATION:

1.1. Multiple Dilution Data Summation

Test Solution	Pimephales promelas Acute Toxicity Test 48 Hour Survival	Ceriodaphnia dubia 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% 95%		
100% Effluent	100%			
Estimated 48 Hour LC ₅₀ Value	>100% Effluent	>100% Effluent		
TUa	<1.0	<1.0		
Result of Toxicity Test	Monitor Only	Monitor Only		

^{*} 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

TUa < 1.0

Ceriodaphnia dubia 48 hour WET results:

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

TUa < 1.0

Approved by	Khuld	
	Sara C. Shields Chemist	

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REPORT OF ACUTE TOXICITY TESTING Sullivan WWTP Outfall 002 (24 composite) AEC = 100% MO-0104736 EAS LOG# 2008409 August 24, 2016 through August 26, 2016

2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	Ceriodaphnia dubia:	Pimephales promelas:
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.

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REPORT OF ACUTE TOXICITY TESTING
Sullivan WWTP
Outfall 002 (24 composite) AEC = 100%
MO-0104736
EAS LOG# 2008409
August 24, 2016 through August 26, 2016

2.2. REFERENCE TOXICITY TEST:

Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on August 3, 2016 using KCL Lot #41713. Following are the results:

2.2.1. *P. promelas* - 48 hr. Acute Test – LC_{50} = 1.118g/l 95%Cl (0.983 g/l -1.274 g/l)

EAS %CV = 13.8%

National Warning Limits (75th percentile) = 19%CV National Control Limits (90th percentile) = 33%CV

2.2.2. *C. dubia* - 48 hr. Acute Test - LC₅₀ = 0.523 g/l 95%CI (0.456 g/l - 0.600g/l)

EAS %CV = 17.2%

National Warning Limits (75th percentile) = 29%CV National Control Limits (90th percentile) = 34%CV

2.3. LITERATURE CITED:

- APHA. 1992. Standard methods for the examination of water and wastewater, 18th Ed. American Public Health Association, Washington, D.C
- 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

	C CLEAN .	1 10 000 11		I IIII Edition Colonel 2002								
CLIENT NAME: Sullivan WWVTP, Outfall 002, 24 hr composite	n www.P. Outr	all 002, 24 hr	composite									
NPDES NUMBER: MO-0104736	04736											
TYPE OF METHOD: multiple	e dilution, 48 hr	s, PP & CD,	multiple dilution, 48 hrs, PP & CD, AEC=100%, Tua report									
DATE & TIME OF COLLECTION: 08/22/16 0900 hrs - 08/23/16 0900 hrs by Joy Philpot	16 0900 hrs - 00	3/23/16 0900	hrs by Joy Philpot				Upstream:	: Winsel Creek	reek			
DATE & TIME OF SUBMISSION: 08/24/16 0850 hrs by Fed Ex	16 0850 hrs by	Fed Ex					Collected		08/23/16 by Joy Philpot	ilpot		
INITIAL OBSERVATIONS DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL INT UC	NT UC	INT RC					
LOG NUMBER / ID NUMBER					2008409	2008409A	RC4164					
	08/24/16 0915 hrs	scs	SB114 (8.8-9.2)	8.96	7.19	7.17	7.99					
	08/24/16 0915 hrs	SCS	EAS 106		4	4	19					
SPECIFIC CONDUCTANCE umhos 08/24	08/24/16 0915 hrs	SCS	ERA243-506 (308-346)		341	812	257					
	08/24/16 0915 hrs	scs	DMRQA34 (184-250)	240	300	180	80					
	08/24/16 0915 hrs	SCS	tap water	+	<0.04	<0.04	<0.04					
	08/24/16 0915 hrs	SCS	cal@840		7.8	7.7	9.3					
	08/25/16 1100 hrs	SCS	DMRQA36 (35.7-48.3)	41.3	176	170	57.0					
INITIAL AMMONIA - ppm 08/30	08/30/16 1045 hrs	JPC	DMRQA35 (8.12-12.2)	10.9	<0.05	<0.05	<0.05					
TOTAL DISSOLVED SOLIDS -ppm												
0 HOUR OBSERVATIONS DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	nc	100%	20%	72%	12.5%	6.25%	X %AEC
	08/24/16 1100 hrs	scs	SB114 (8.8-9.2)	8.96	8.13	7.56	7.57	7.58	7.59	7.60	7.58	
TEMPERATURE °C 08/24	08/24/16 1100 hrs		EAS 106		24.3	24.2	25.0	24.9	24.5	24.3	24.2	
SPECIFIC CONDUCTANCE umhos 08/24	08/24/16 1100 hrs	SCS	ERA243-506 (308-346)	240	237	772	786	790	786	783	781	
DISSOLVED OXYGEN - ppm 08/24	08/24/16 1100 hrs		cal@840		8.7	8.3	8.4	8.4	8.6	8.5	8.5	
24 HOUR OBSERVATIONS - PP DATE	TIME	YST.	QC LOT	QC EXP VALUE	RC	nc	100%	20%	72%	12.5%	6.25%	X %AEC
	08/25/16 1100 hrs		SB114 (8.8-9.2)	8.99	8.02	8.30	8.40	8.37	8.37	8.37	8.35	
	08/25/16 1100 hrs		EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
	08/25/16 1100 hrs		ERA229-506 (308-346)	319	259	798	797	779	6//	779	786	
DISSOLVED OXYGEN - ppm 08/25	08/25/16 1100 hrs	- 1	cal@840		8	7.7	7.7	7.7	7.6	9.2	7.6	
	TIME	YST.	QC LOT	QC EXP VALUE	RC	nc	100%	20%	72%	12.5%	6.25%	X %AEC
	08/26/16 1100 hrs		SB114 (8.8-9.2)	9.01	8.07	8.34	8.45	8.44	8.43	8.44	8.42	
	08/26/16 1100 hrs		EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
	08/26/16 1100 hrs	SCS	ERA243-506 (308-346)	322	287	812	822	869	819	817	812	
	08/26/16 1100 hrs	SCS	cal@840		8.2	8.0	8.0	8.0	8.1	8.0	8.0	
FINAL AMMONIA - ppm			DMRQA33 (10.0-16.8)									
24 HOUR OBSERVATIONS - CD DATE	TIME	ANALYST	ac LoT	QC EXP VALUE	RC	nc	100%	20%	25%	12.5%	6.25%	X %AEC
	08/25/16 1100 hrs	SCS	SB114 (8.8-9.2)	8.99	8.05	8.32	8.38	8.35	8.38	8.36	8.40	
	08/25/16 1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
	08/25/16 1100 hrs	scs	ERA243-506 (308-346)	319	229	229	922	774	776	497	588	
DISSOLVED OXYGEN - ppm 08/25	08/25/16 1100 hrs	SCS	cal@840		8.4	8.7	8.8	8.7	8.9	8.8	8.8	
48 HOUR OBSERVATIONS - CD DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	nc	100%	20%	25%	12.5%	6.25%	X %AEC
	08/26/16 1100 hrs	SCS	SB114 (8.8-9.2)	9.01	8.35	8.39	8.47	8.44	8.46	8.46	8.47	
TEMPERATURE °C 08/26	08/26/16 1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
	08/26/16 1100 hrs	SCS	ERA243-506 (308-346)	322	244	728	778	782	783	782	770	
	08/26/16 1100 hrs	SCS	cal@840		8.3	8.7	8.8	8.7	8.8	8.3	8.8	
FINAL AMMONIA - ppm			DMRQA33 (10.0-16.8)									
	•			٠								

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

EAS LOG# 2008409 Sullivan WWTP, Outfall 002, 24 hr composite

Time Test Began: 1100 hrs Time Test Finished: 1100 hrs August 24, 2016 August 26, 2016 Date Test Began: Date Test Finished:

Analyst 1: DFW Analyst 2: KJR Analyst 3: SCS HATCH NUMBER: 9915 c-k 9 days AGE:

P. promelas (PP)

	RC	C	100%	20%	25%	12.5%	6.25%	X% AEC
PERIOD	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	

HATCH NUMBER: 3365 c-k Ceriodaphnia dubia (CD)

	S	2	100%	50%	25%	12 5%	£ 25%	X% AFC
		3	200	200	20.00	2000	20.50	2000
PERIOD	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	4,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	

Approved by: (

Sullivan WWTP, Outfall 002, 24 hr composite EAS#: 2008409

	Notes & Comments	
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Prepared by:

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ENVIRONMENTAL ANALYSIS SOUTH, INC.

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WHOLE EFFLUENT TOXICITY TESTING CHAIN OF CUSTODY

MISSOURI DEPARTMENT OF NATURAL RESOURCES RETURN FORM TO: Southeast Regional Office

	IPDES MONITO	RING REPORT	OR WHOLE EFFL	UENT TOXICITY T	ESTS 2155	N. Westwood Blve	-				
Facility Name	Sullivan V	WWTP			Receive	ing Water	Winsel Cr	eek			
ermit Number	MO-010	4736			Labora	tory Name	Environme	ntal Analysi	s South, In	c.	
Outfall	002				Laborato	ory Report #		MO_20	08409		
				SAMPLE	INFORMATION	٧	4				
Sample Number		Samp	le Collection		Sample Tem	perature (°C)	pH (SU)	Hand delivered? (If yes, ≤ 4 hrs?	Hold Time ≤36 hours?	Sample Acceptable	
	Effluent or Upstream	Sample Type	Beginning Date	End Date	At Collection	At Lab	At Lab				
1	Effluent	24 hr comp	08/22/16	08/23/16		4	7.19	DYBN	BYON	BYON	
2	Upstream	grab	08/23/16	08/23/16		4	7.17	DYBN	BYUN	BYON	
3								DYDN	OYON	DYDN	
4								DYDN	DYDN	OYON	
Describe any unus	ual conditions du	uring sampling tha	t might influence tes	t results	1			L		I	
	TEST	INFORMATIO	N - ACUTE			0	A/QC CONDITI	IONS - ACUTE			
Test Method:	C. duhia	2002,0	P. promelas	2000.0						NO	
Date Test					Did test condition	ons meet all test ac	centability criterio	on required by			
Initiated: AEC/IWC Info:	08/24/201	AEC w			the specified me				V		
ALCHWC IIII.		AEC -	100%	1						V	
Dilution Series	100%	50%	25%	12.5%		naintained during to en ≥ 4.0 mg/L thro		,	1		
	6.25%			1					equired by test? climits? (ex. de- Other Other Other		
Dilution Water:	C. dubia	RW ■	LW 🗆			intained within 6.0			1		
	P. promelas	RW 🖹	LW 🖸			nonthly reference to			est? limits? (ex. de-		
	RW = Receivin	g Stream Control	LW = Lab \	Water Control		samples modifie ation, chemical pH adjustment)			1		
Comments:					Comments:			0.00			
			WATER CHEMI	STRY (All values re	ported in mg/L, ex	cept for pH and co	nductivity)				
Sainple Type	Sample Number	Conductivity (µmhos)	Unionized Ammonia	Hardness	Alkalinity	pH (SU) After Warming	Total Residual Chlorine	Other	Other	Other	
Upstream	2008409A	812	<0.010	180	170	7.56	<0.04	DO=7.7			
Effluent	2008409	341	<0.010	300	176	7.57	<0.04	DO=7.8			
Lab Water	RC4164	257	<0.010	80	57.0	8.13	<0.04	DO=9.3			
Comments:		1				1,,,,,,	· · · · · · · · · · · · · · · · · · ·				
ΓUa limit = Monit	toring only.		Pimephales pron	nelas Acute Results	LCso=	>100%	Confidence Interval % =	N/A	TUa≔	<1.0	
		J	Ceriodaphnia d	uhia Acute Results	LC50=	>100%	Confidence	N/A	TUa=	<1.0	
						7 100 70	Interval % =	14//		1.0	
					Lab Water	Controls		1			
Fathead N		Water Controls Cerinday	ohnia dubia	Fathead	Minnow	Ceriodani	hnia dubia				
Survival ≥ 90%	BY ON	Survival ≥ 90%		Survival ≥ 90%	BYON	Survival ≥ 90%	BY D N				
Comments:											
SIGNATURE AN	D TITLE OF AL	JTHORIZED IND	IVIDUAL, IN ACC	ORDANCE WITH	10 CSR 20-6.010	DATE		I	PHONE NUMB	ER	
		700		mit and							
erving 1 U									,		

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Environmental Analysis South, Inc.

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



REPORT OF ACUTE TOXICITY TESTING Sullivan Wastewater Treatment Plant Outfall 002 (24 hr composite) AEC = 100% MO-0104736 EAS LOG# 1902523 August 12, 2015 through August 14, 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)





REPORT OF ACUTE TOXICITY TESTING Sullivan Wastewater Treatment Plant Outfall 002 (24 hr composite) AEC = 100% MO-0104736 EAS LOG# 1902523 August 12, 2015 through August 14, 2015

1. REPORT SUMMATION:

1.1. Single Dilution Data Summation ,

	Pimephales promelas Acute Toxicity Test	Ceriodaphnia dubia Acute Toxicity Test
Survival in the Effluent at 48 Hours	100%	100%
Survival in the Reconstituted Control (RC) at 48 Hours	100%	100%
Survival in the Upstream Control (UC) at 48 Hours	N/A	N/A
Statistical Results Comparing the Survival Data of the Effluent with the	No Significant Difference at alpha = 0.05	No Significant Difference at alpha = 0.05
Control (arc sine square root transformation)	PASS	PASS

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

Conclusion: The mortality observed with both species was determined not to be significantly different than that observed in the control sample. Based on these results the outfall passed the whole effluent toxicity test with both indicator species.

Approved by	Muld4	
	Sara C. Shields, Chemist	

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REPORT OF ACUTE TOXICITY TESTING Sullivan Wastewater Treatment Plant Outfall 002 (24 hr composite) AEC = 100% MO-0104736 EAS LOG# 1902523 August 12, 2015 through August 14, 2015

2. TEST METHOD SUMMARY 2.1. TEST CONDITIONS AND METHODS:

	Ceriodaphnia dubia:	Pimephales promelas:
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	4
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.





REPORT OF ACUTE TOXICITY TESTING Sullivan Wastewater Treatment Plant Outfall 002 (24 hr composite) AEC = 100% MO-0104736 EAS LOG# 1902523 August 12, 2015 through August 14, 2015

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on August 5, 2015 using KCL Lot #41713. Following are the results:

2.2.1. P. promelas - 48 hr. Acute Test – $LC_{50} = 1.076 \text{ g/l} 95\%\text{CI} (0.688-1.464 \text{ g/l})$

EAS %CV = 18.0%

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

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

2.2.2. C. dubia - 48 hr. Acute Test - LC₅₀ = 0.486 g/l 95%CI (0.301-0.671g/l)

EAS %CV = 19.0%

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

CLIENT NAME: Sullivan WWTP, Outfall 002, 24 hr composite	Sullivan WW	TP, Outfa	II 002, 24 hr	composite									
NPDES NUMBER: MO-0104736	MO-0104736												
TYPE OF METHOD:	single dilution, 48 hrs, PP & CD, AEC=100%	1, 48 hrs,	PP & CD, AE	C=100%									
DATE & TIME OF COLLECTION: 08/10/15 0800 hrs - 08/11/15 0800 hrs by	08/10/15 080	0 hrs - 08	/11/15 0800	hrs by Joe Philpot				Upstream: Winsel Creek	Winsel C	eek			
DATE & TIME OF SUBMISSION: 08/12/15 0950 hrs by Fed Ex	08/12/15 095	0 hrs by	ed Ex					Not available	e				
INITIAL OBSERVATIONS DATE		TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL INT UC	AT UC	INT RC					
LOG NUMBER / ID NUMBER	*				#	1902523		RC4134					
US - Hq	08/12/15 1000 hrs	000 hrs	SCS	SB114 (8.8-9.2)	8.91	7.90		7.88					
TEMPERATURE °C RECEIVED		000 hrs	SCS	EAS 106		3		22					
SPECIFIC CONDUCTANCE umhos	08/12/15 1000 hrs	000 hrs	SCS	ERA229-506 (490-549)	535	692		248					
HARDNESS - ppm		000 hrs	SCS	DMRQA34 (184-250)	240	160		80					
CHLORINE - ppm	08/12/15 1000 hrs	000 hrs	SCS	tap water	+	<0.04		<0.04				٠	
DISSOLVED OXYGEN - ppm		000 hrs	SCS	cal@840		8.9		8.7					
TOTAL ALKALINITY - ppm		300 hrs	SCS	P235-506 (32.1-38.3)	38.1	153	-	63.7					
INITIAL AMMONIA - ppm	08/17/15 1330 hrs	330 hrs	JPC	DMRQA34 (5.78-8.90)	7.79	<0.05		<0.05					
TOTAL DISSOLVED SOLIDS -ppm													
0 HOUR OBSERVATIONS DATE	DATE	TIME	ANALYST	ac LoT	QC EXP VALUE	SC C	2	100%	20%	25%	12.5%	6.25%	X %AEC
US - Hq		100 hrs	SCS	SB114 (8.8-9.2)	8.91	8.35		7.92					
TEMPERATURE °C	08/12/15 1100 hrs	100 hrs	scs	EAS 106		24.1		24.4					
SPECIFIC CONDUCTANCE umhos	08/12/15 1100 hrs	100 hrs	SCS	ERA229-506 (490-549)	535	271		691			- 0		
DISSOLVED OXYGEN - ppm	08/12/15 1100 hrs	100 hrs	SCS	cal@840		8.7		8.5					
24 HOUR OBSERVATIONS - PP DATE	DATE	TIME	YST	QC LOT	QC EXP VALUE	RC	သ	100%	20%	25%	12.5%	6.25%	X %AEC
US - Hq	08/13/15 1100 hrs	100 hrs	scs	SB114 (8.8-9.2)	8.88	8.15		8.13					
TEMPERATURE °C	08/13/15 1100 hrs	100 hrs	SCS	EAS 106		25.0		25.0					
SPECIFIC CONDUCTANCE umhos		100 hrs	SCS	ERA229-506 (490-549)	531	291		729					
DISSOLVED OXYGEN - ppm	08/13/15 1100 hrs	100 hrs	SCS	cal@840		7.9		7.9					
48 HOUR OBSERVATIONS - PP DATE	DATE	TIME	YST.	QC LOT	QC EXP VALUE	RC	CC	100%	%09	722%	12.5%	6.25%	X %AEC
NS - Hd	08/14/15 1100 hrs	100 hrs	SCS	SB114 (8.8-9.2)	8.88	8.33		8.18					
TEMPERATURE °C		100 hrs	SCS	EAS 106		25.0		25.0					
SPECIFIC CONDUCTANCE umhos		100 hrs	scs	ERA229-506 (490-549)	536	341		758					
DISSOLVED OXYGEN - ppm	08/14/15 1100 hrs	100 hrs	SCS	cal@840		7.8		8.0					
FINAL AMMONIA - ppm				DMRQA33 (10.0-16.8)			,						
			-07		11. 11. 12. 12. 12. 12. 12. 12. 12. 12.	000	9	4000/	/800	7020	42 50/	C 250/	V % AEC
24 HOUR OBSERVATIONS - CD DATE	3/45	1100 hrs	ANALYSI	QC LOI	CC EXP VALUE	2 2 2	3	8 23	9/ 00	0/67	0/6.7	0.43/0	2700
Do- Lid		2001	200	(2.6-9.2)	900	0.00		2 20					
TEMPERATURE C		100 hrs	SCS	EAS 106		25.2		7.67					
SPECIFIC CONDUCTANCE umhos		100 hrs	SCS	EKA229-506 (490-549)	531	507		0/0					
DISSOLVED OXYGEN - ppm	3/13	I I UO IIIS	202	cal@640		0.0	9	6.0	7007	20.0	40.50/	6 250/	V 0/ AEC
48 HOUR OBSERVATIONS - CD DATE	DATE	TIME	ANALYST	QC LOT	CC EXP VALUE	2	20	2001	20%	%67	14.5%	0.22.0	A WAEC
NS - Hd		100 hrs	SCS	SB114 (8.8-9.2)	8.88	8.45		8.26					
TEMPERATURE °C		100 hrs	SCS	EAS 106		24.7		24.7					•
SPECIFIC CONDUCTANCE umhos		100 hrs	SCS	ERA229-506 (490-549)	536	282		669					
DISSOLVED OXYGEN - ppm	08/14/15 1100 hrs	1100 hrs	scs	cal@840		7.9		8.5					
FINAL AMMONIA - ppm				DMRQA33 (10.0-16.8)									
	,												

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

EAS LOG# 1902523 Sullivan WWTP, Outfall 002, 24 hr composite

Analyst 1: DFW Analyst 2: KJR Analyst 3: SCS X% AEC X% AEC ALIVE ALIVE ALIVE 6.25% 6.25% ALIVE HATCH NUMBER: 9539 c-k HATCH NUMBER: 3081 c-k ALIVE ALIVE 12.5% 12.5% ALIVE ALIVE Time Test Finished: 1100 hrs Time Test Began: 1100 hrs 25% 25% ALIVE ALIVE 20% 20% hours 7 days 10,10,10,10 10,10,10,10 10,10,10,10 5,5,5,5 ALIVE ALIVE 5,5,5,5 5,5,5,5 100% 100% AGE: <24 AGE: August 12, 2015 August 14, 2015 ALIVE ALIVE nc S 10,10,10 10,10,10,10 10,10,10,10 ALIVE 5,5,5,5 5,5,5,5 5,5,5,5 ALIVE RC SC Ceriodaphnia dubia (CD) 48 HR-PP Date Test Began: Date Test Finished: 0 HR-PP 24 HR-PP PERIOD PERIOD 24 HR-CD **48 HR-CD** 0 HR-CD P. promelas (PP)

Approved by: Alfillo

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

Notes & Comments

Date: 08/18/1

Prepared by:



ENVIRONMENTAL ANALYSIS SOUTH, INC.

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WHOLE EFFLUENT TOXICITY TESTING CHAIN OF CUSTODY

NPDES PERMIT NUMBER: MO-0104736
EFFLUENT NAME: Out Fall # 2 GRAB 24 HR COMPOSITE X
COLLECTION DATA: START DATE: 8-10-15 START TIME: 8:00 Am
FINISH DATE: 8-11.15 FINISH TIME: 8100 Am
UPSTREAM NAME: (GRAB SAMPLE)
COLLECTION DATA: DATE: TIME:
SAMPLER NAME: Joe Philpot CARRIER:
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 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 A COLUMN OF THE SAMPLES TO A RANGE OF 0 - 6°C WHEN SHIPPING OVERNIGHT OF THE SAMPLES TO A RANGE O
RELINQUISHED BY: Juffly DATE: 8-11-15 TIME: 8:15 Am
LABORATORY USE ONLY EFFLUENT LOG NUMBER: 1902523
RECEIVED TEMPERATURE: 3 °C THERMOMETER ASSIGNED NUMBER:
HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST
UPSTREAM LOG NUMBER:
RECEIVED TEMPERATURE:°C THERMOMETER ASSIGNED NUMBER:
HEADSPACE: YES OF NO SAMPLES ICED OF DELIVERED SAME DAY AS TEST
RECEIVED BY: Sau Wegon DATE: 8/12/15 TIME: 950 TIDE: 950



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM - P.O. BOX 176, JEFFERSON CITY MO, 65102
WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

FACILITY NAME		EE	DATE & TIME COLLECTED EFFLUENT 08/10/15 0800-08/11/15 0800 UPSTREAM not available				
Sullivan WWTP			EFFLUENT 08/10/15 0800-08/11/15 0800	UPSTRE	AM not available		
PERMIT NUMBER MO-0104736			PERMIT OUTFALL NUMBER Outfall # 002				
COLLECTOR'S NAME Joe Philpot			3				
RECEIVING STREAM COLLECTION SITE AND Winsel CreekNot available	DESCRIPTION						
PERMIT ALLOWABLE EFFLUENT CONCENTR	ATION (AEC)		EFFLUENT SAMPLE TYPE (CHECK ONE)				
100%			24HR COMPOSITE GRAI	в 🗆 о	THER		
SAMPLE NUMBER EFFLUENT 1902523	UPSTREAM not ava	ilable	UPSTREAM SAMPLE TYPE (CHECK ONE) 24HR COMPOSITE GRAI	· [7] 0	THER not available		
PERMITTED EFFLUENT DAILY MAXIMUM LIMI			PERMITTED EFFLUENT DAILY MAXIMUM LIMITAT		THER HOL AVAILABLE		
CHLORINE		ng/L	AMMONIA		mg/L		
PART B - TO BE COMPLETED	IN FULL BY PERFOR	MING LABOR	RATORY				
PERFORMING LABORATORY	h lan		TEST TYPE	- I T A	Cinala Dilution		
Environmental Analysis Sout	n, Inc.		Acute Static Non renew	al lest	Single Dilution		
MO_1902523			48 hour				
DATE OF LAST REFERENCE TOXICANT TEST August 5, 2015	ING		TEST METHOD Methods for Measuring the Acute Toxicity of Efflue Marine Organisms	nts and Recei	ving Waters to Freshwater and		
DATE AND TIME SAMPLES RECEIVED AT LAE 08/12/15 0950 hrs by Fed Ex			TEST START DATE AND TIME 08/12/15 1100 hrs		DATE AND TIME 15 1100 hrs		
SAMPLE DECHLORINATED PRIOR TO ANALYS			TEST ORGANISM #1 AND AGE		WISM #2 AND AGE		
EFFLUENT	UPSTREAM		Pimephales promelas 7 days	Cerioda	phnia dubia < 24 hours		
SAMPLE FILTERED ¹ PRIOR TO ANALYSIS? EFFLUENT			90% OR GREATER SURVIVAL IN SYNTHETIC CONTROL? X YES NO	none	VATER USED TO ACHIEVE AEC		
FILTER MESH SIEVE SIZE ² None			EFFLUENT ORGANISM #1 % MORTALITY AT AEC 0%	effluent 0%	ORGANISM #2 % MORTALITY AT AE		
SAMPLE AERATED DURING TESTING?	YES XI NO	-	UPSTREAM ORGANISM #1 % MORTALITY RC=0%	RC=0%	ORGANISM #2 % MORTALITY		
PH ADJUSTED? YES X NO EFFLUENT UPSTREAM UPSTREAM			TEST RESULT AT AEC FOR ORGANISM #1 PASS FAIL	TEST RESU	S FAIL		
MINIMUM REQUIRED ANALYT	ICAL RESULTS FOR T	HE 100% EF	FLUENT SAMPLE				
PARAMETER	RESULT		METHOD		WHEN ANALYZED		
Temperature °C	3	SM18 2550B stored at 4 degree C until test setup			08/12/15 1000 hrs		
pH Standard Units	7.90	SM18 4500)-H B		08/12/15 1000 hrs		
Conductance µMohs	692	SM18 2510			08/12/15 1000 hrs		
Dissolved Oxygen mg/L	8.9	03/12/14 09	945 hrsSM18 4500-O G	08/12/15 1000 hrs			
Total Residual Chlorine mg/L	<0.04	SM18 4500)-Cl G	08/12/15 1000 hrs			
Unionized Ammonia mg/L	<0.05x0.04<0.010	SM18 4500)-NH3 F @ 25 degree C		08/17/15 1330 hrs		
*Total Alkalinity mg/L	153	SM18 2320)B		08/12/15 1300 hrs		
*Total Hardness mg/L	160	SM18 2340	O C		08/12/15 1000 hrs		
*Recommended by USEPA guid			t that may be confused with, or attac				

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 SAMPLE ³						
PARAMETER	RESULT	METHOD	WHEN ANALYZED			
Temperature °C	22	SM18 2550B stored at 4 degree C until test setup	08/12/15 1000 hrs			
pH Standard Units	7.88	SM18 4500-H B	08/12/15 1000 hrs			
Conductance µMohs	248	SM18 2510B	08/12/15 1000 hrs			
Dissolved Oxygen mg/L	8.7	SM18 4500-O G	08/12/15 1000 hrs			
Total Residual Chlorine mg/L	<0.04	SM18 4500-CI G	08/12/15 1000 hrs			
Unionized Ammonia mg/L	<0.05x0.04<0.010	SM18 4500-NH3 F @ 25 degree C	08/17/15 1330 hrs			
*Total Alkalinity mg/L	63.7	SM18 2320B	08/12/15 1300 hrs			
*Total Hardness mg/L	80	SM18 2340 C	08/12/15 1000 hrs			
*Recommended by USEPA guid			100/12/10 1000 1110			

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 <u>Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms</u>, 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.

		NOTES	
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.

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.						
FACILITY NAME	PERMIT NO.		OUTFALL NO.			
Sullivan Wastewater Treatment Plant	MO- 0104736		2			
PART F - INDUSTRIAL USER DISCHARGE	S AND RCRA/CERCL	A WASTES				
60. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES						
Refer to the Supplemental Application Information to determine whether Part F applies to the treatment works.						
All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete this form.						
GENERAL INFORMATION						
60.1 PRETREATMENT PROGRAM						
Does the treatment works have, or is it subject to, an approved pretreatment program? ☑ Yes □ No						
60.2 NUMBER OF NON-CATEGORICAL SIGNIFICANT INDUSTRIAL USERS, or SIUs AND CATEGORICAL INDUSTRIAL USERS, or CIUs. PROVIDE THE NUMBER OF EACH OF THE FOLLOWING TYPES OF INDUSTRIAL USERS THAT DISCHARGE TO THE TREATMENT WORKS.						
A. Number of Non-Categorical SIUs 2		B. Numbe	r of CIUs			
60.3 SIGNIFICANT INDUSTIRAL USER INFO	EMATION	<u> </u>				
Supply the following information for each SIU. If me		es to the treatmen	t works, provide the inform	nation requested for each.		
Submit additional pages as necessary. NAME	V					
Huggins Metal Finishing dba Sullivan Precisi	on Metal Finishing					
MAILING ADDRESS			CITY	STATE ZIP		
995 N. Service Road West			Sullivan	MO 63080		
60.4 INDUSTRIAL PROCESSES						
DESCRIBE ALL OF THE INDUSTRIAL PROCESS	ES THAT AFFECT OR CO	ONTRIBUTE TO T	HE SIU's DISCHARGE.			
Anodizing and paint shop.						
60.5 PRINCIPAL PRODUCT(S) AND RAW M						
Describe all of the principle processes and raw mater PRINCIPAL PRODUCT(S)	terials that affect or contrib	oute to the SIU's di	scharge.			
Chrome plating and anodizing of aluminum a	and titanium					
RAW MATERIAL(S)	and manian					
Nitric and Sulfuric Acid. Chromium based pro	oducts.		•			
60.6 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.						
48,000 gpd 🗹 Continuous	☐ Intermittent					
B. NON-PROCESS WASTEWATER FLOW RATE. Indicate the average daily volume of non-process wastewater discharged into the collection system in gallons per day, or gpd, and whether the discharge is continuous or intermittent.						
C.						
450 gpd ☐ Continuous	✓ Intermittent					
60.7 PRETREATMENT STANDARDS						
Indicate whether the SIU is subject to the following A. Local Limits	∠ Ye	es 🗍 I	Ma			
A. Local Limits B. Categorical Pretreatment Standards	<u>v</u> re [Z] Ye					
If subject to categorical pretreatment standards, which category and subcategory? Metal Finishing and Plating						
60.8 PROBLEMS AT THE TREATMENT WORKS ATTRIBUTED TO WASTE DISCHARGED BY THE SIU						
Has the SIU caused or contributed to any problems Yes No If Yes, describe each		e) at the treatment	works in the past three ye	ears?		
	•					
				•		

MAKE ADDITIONAL COPIES OF THIS FORM FOR	R EACH OUTFALL.						
FACILITY NAME	PERMIT NO.			OUTFALL NO.			
Sullivan Wastewater Treatment Plant	MO- 0104736			2			
PART F - INDUSTRIAL USER DISCHARGE	S AND RCRA/CERCL	A WASTI	ES				
60. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES							
Refer to the Supplemental Application Information to determine whether Part F applies to the treatment works.							
All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete this form.							
GENERAL INFORMATION							
60.1 PRETREATMENT PROGRAM							
Does the treatment works have, or is it subject to, an approved pretreatment program? ☑ Yes □ No							
60.2 NUMBER OF NON-CATEGORICAL SIGNIFICANT INDUSTRIAL USERS, or SIUS AND CATEGORICAL INDUSTRIAL USERS, or CIUS. PROVIDE THE NUMBER OF EACH OF THE FOLLOWING TYPES OF INDUSTRIAL USERS THAT DISCHARGE TO THE TREATMENT WORKS.							
A. Number of Non-Categorical SIUs 2		В.	Numb 0	per of CIUs		***************************************	
60.3 SIGNIFICANT INDUSTIRAL USER INFO	RMATION	<u> </u>					
Supply the following information for each SIU. If mo Submit additional pages as necessary.		jes to the t	reatme	nt works, provide the informa	tion requeste	d for each.	
NAME Aerofil Technology Incorporated							
MAILING ADDRESS			I	CITY	STATE	ZIP	
225 Industrial Park Drive				Sullivan	MO	63080	
60.4 INDUSTRIAL PROCESSES							
DESCRIBE ALL OF THE INDUSTRIAL PROCESSI	ES THAT AFFECT OR C	ONTRIBU	TE TO	THE SIU's DISCHARGE.			
Filler flush from contract packaging operation							
60.5 PRINCIPAL PRODUCT(S) AND RAW MA	ATERIAL (S)		***************************************	***************************************	*******		
Describe all of the principle processes and raw mate	erials that affect or contril	oute to the	SIU's o	discharge.			
PRINCIPAL PRODUCT(S)							
Flush from various product lines with the exce	eption of the pesticide	business	unit.				
RAW MATERIAL(S)							
Dependant on current contract.							
60.6 FLOW RATE						,	
A. PROCESS WASTEWATER FLOW RATE gallons per day, or gpd, and whether the				cess wastewater discharged	nto the collec	ction system in	
3 0 0 gpd ☐ Continuous	✓ Intermittent						
B. NON-PROCESS WASTEWATER FLOW system in gallons per day, or gpd, and wh	RATE. Indicate the aver ether the discharge is co	age daily v	olume r interm	of non-process wastewater d nittent.	scharged into	o the collection	
C.							
1,750 gpd ☑ Continuous	☐ Intermittent						
60.7 PRETREATMENT STANDARDS							
Indicate whether the SIU is subject to the following							
A. Local Limits	☑ Ye] No			
B. Categorical Pretreatment Standards	Y		V] No			
If subject to categorical pretreatment standards, wh	ich category and subcate	gory?					
60.8 PROBLEMS AT THE TREATMENT WOF	KS ATTRIBUTED TO W	ASTE DIS	CHARC	GED BY THE SIU			
Has the SIU caused or contributed to any problems ☐ Yes ☐ No If Yes, describe each		e) at the tr	eatmer	nt works in the past three year	s?		
	•						

MAKE ADDITIONAL COPIES OF THIS FORM FO							
FACILITY NAME	PERMIT NO.	OUTFALL NO.					
Sullivan Mo. Wastewater Treatment Plant	MO- 0104736	2					
	S AND RCRA/CERCLA WASTES (CONTIN	UED)					
	D BY TRUCK, RAIL, OR DEDICATED PIPELINE						
☐ Yes	or has it in the past three years received RCRA has	zardous waste by truck, rail or dedicated pipe?					
WASTE TRANSPORT. Method by which RCRA w							
☐ Truck ☐ Rail ☐ Dedica							
	ste number and amount (volume or mass, specify t						
EPA HAZARDOUS WASTE NUMBER	AMOUNT	UNITS					
60.10 CERCLA, OR SUPERFUND, WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER AND OTHER REMEDIAL ACTIVITY WASTEWATER							
	s currently (or has it been notified that it will) receive	e waste from remedial activities?					
	s and the requested information for each current an						
60.11 WASTE ORIGIN							
Describe the site and type of facility at which the C	ERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years).					
	e and disposes of treated water into the sewer						
60.12 POLLUTANTS							
*	or are expected to be received). Included data on v	volume and concentration if known (Attach					
additional sheets if necessary)	of are expected to be receivedy. Included data on the	rolatio and concentration, it knows (* sizes)					
After air stripping we receive "clean" water.							
Alter all stripping we receive clean water.							
60.13 WASTE TREATMENT	D						
A. Is this waste treated (or will it be treated) prior to entering the treatment works?						
	a shout the removal efficiency):						
· ·							
Air stripping of Trichloroethylene from well w	vater. No hazards remaining.						
:							
B. Is the discharge (or will the discharge b							
☑ Continuous ☐ Intern	nitterit						
If intermittent, describe the discharge schedule:							
	END OF PART F						
REFER TO THE APPLICATION OVERVIEN	N TO DETERMINE WHICH OTHER PARTS	OF FORM B2 YOU MUST COMPLETE.					
MO 780-1805 (09-08)							

MAKE ADDITIONAL COPIES OF THIS FORM FOR E	ACH OUTFALL.								
FACILITY NAME P	ERMIT NO.	OUTFALL NO.							
Sullivan Mo. Wastewater Treatment Plant N	IO- 0104736	2							
PART G - COMBINED SEWER SYSTEMS									
70. COMBINED SEWER SYSTEMS (COM	PLETE THIS PART IF	THE TREATMENT WORKS HAS A COMBINED SEWER SYSTEM.)							
Refer to the Supplemental Application Information	n to determine whe	ether Part G applies to the treatment works.							
70.1 SYSTEM MAP									
Provide a map indicating the following: (May be included)	ed with basic applicati	ion information.)							
A. All CSO Discharges.									
B. Sensitive Use Areas Potentially A ecosystems and Outstanding Nati		., beaches, drinking water supplies, shellfish beds, sensitive aquatic							
C. Waters that Support Threatened and Endangered Species Potentially Affected by CSOs.									
70.2 SYSTEM DIAGRAM									
Provide a diagram, either in the map provided above of information:	r on a separate drawir	ing, of the Combined Sewer Collection System that includes the following							
A. Locations of Major Sewer Trunk L	ines, Both Combined	and Separate Sanitary.							
•	*	eed into the Combined Sewer System.							
C. Locations of In-Line or Off-Line St	•								
D. Locations of Flow-Regulating Dev E. Locations of Pump Stations.	ices.								
E. Locations of Pump Stations. 70.3 PERCENT OF COLLECTION SYSTEM THAT IS COMBINED SEWER									
70.4 POPULATION SERVED BY COMBINED SE									

70.6 CSO OUTFALLS. COMPLETE THE FOLLO	WING ONCE FOR E	ACH CSO DISCHARGE POINT							
70.7 DESCRIPTION OF OUTFALL									
A. Outfall Number									
B. Location									
C. Distance from Shore (if applicable)		D. Depth Below Surface (if applicable)							
ft		ft							
E. Which of the following were monitored during the last year for this CSO?									
☐ Rainfall ☐ CSO Pollutant Concentrations	□ cs	SO CSO Flow Volume Receiving Water Quality							
F. How many storm events were monitored las	t year?								
70.8 CSO EVENTS									
A. Give the Number of CSO Events in the Last Yea	ır E	B. Give the Average Duration Per CSO Event							
	Approximate _	Hours Actual Approximate							
C. Give the Average Volume Per CSO Event		D. GIVE THE MINIMUM RAINFALL THAT CAUSED A CSO EVENT IN THE LAST YEAR INCHES OF RAINFALL							
Million Gallons ☐ Actual ☐ 70.9 DESCRIPTION OF RECEIVING WATERS	Approximate	THE LAST TEARINCHES OF RAINFALL							
A. Name of Receiving Water	***************************************								
7. Numb of Nosciving Valor									
B. Name of Watershed/River/Stream System	U.S. Sc	oil Conservation Service 14-Digit Watershed Code (If Known)							
Name of State Management/River Basin	U.S. Ge	eological Survey 8- Digit Hydrologic Cataloging Unit Code (If Known)							
70.10 CSO OPERATIONS									
		y this CSO (e.g., permanent or intermittent beach closings, permanent or al loss, or violation of any applicable state water quality standard.)							
	ENDO	PART G.							
REFER TO THE APPLICATION OVERVIEW TO		FICH OTHER PARTS OF FORM B2 YOU MUST COMPLETE.							
MO 780-1805 (09-08)									



MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM

FORM I – PERMIT APPLICATION FOR **OPERATION OF WASTEWATER IRRIGATION SYSTEMS**

FOR AGENCY USE ONLY	
PERMIT NUMBER MO -	
DATE RECEIVED	

INST	RUCTIONS: The following forms must be submitted with	Form I: FORM B or B2 for domestic wastewater. FORM A for industrial wastewater.						
1. F/	ACILITY INFORMATION							
1.1	Facility Name	1.2 Permit Number						
Sulliv	an Wastewater Treatment Plant	_{МО-} <u>010473</u>						
1.3	Type of wastewater to be irrigated: ☐ Domestic ☐	Municipal						
	☑ Municipal with Pretreatment Program or Significant Industrial	rial Users						
	SIC Codes (list all that apply, in order of importance) 347102	06_						
1.4	Months when the business or enterprise will operate or gene ☑ 12 months per year ☐ Part of year (list Months): _	į						
1.5	This system is designed for:							
	□ No-discharge □ Partial irrigation when feasible and o							
	☐ Irrigation during recreation season (April – October) and c ☑ Other (explain) Land Application	lischarge during November – March.						
1.6	List the Facility outfalls which will be applicable to the irrigation	nn system						
1.0	Outfall Numbers: 2	ni system.						
2. S	TORAGE BASINS							
2.4	Number of storage bosins:							
2.1	Number of storage basins: Type of basin: Steel Concrete	□ Eiborglass □ Earthon						
	Type of basin: ☐ Steel							
3. L	AND APPLICATION SYSTEM							
3.1	Number of irrigation sites 2 Total Acres	77.5						
0.1	Location:14,14,14, Sec 4 T 39N R							
	Location:1/4,1/4, Sec 32 T 41N R	2W Franklin County 50.3 Acres						
	Attach pages as needed.							
3.2	Attach a site map showing topography, storage basins, irriga other pertinent features.	tion sites, property boundary, streams, wells, roads, dwellings, and						
3.3	Type of vegetation: ☑ Grass hay ☑ Pasture ☐	Timber Row crops Other (describe)						
3.4	Wastewater flow (dry weather) gallons/day:							
	Average annual: 700,000 Seasonal	Off-season						
	Months of seasonal flow:							
790.16	S86 (D8-14)							

	<u> </u>						
3. LAND APPLICATION SYSTEM (continued)							
3.5 Land Application rate per acre (design flow including 1 in 10 year sto	ormwater flows):						
Design:inches/yearinches/hour	inches/day inches/week						
Actual: inches/year inches/hour _	inches/day inches/week						
Total Irrigation per year (gallons): Design	,146,145_ Actual						
Actual months used for Irrigation (check all that apply): ☑ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☑ Jun ☐ Jul ☐	Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec						
3.6 Land Application Rate is based on: ☐ Nutrient Management Plan (N&P) ☐ Hydraulic Loading ☐ Other (describe) Nutrient loading base on soils analysis							
3.7 Equipment type:							
3.8 Public Use Areas. Public access shall not be allowed to public use area irrigation sites when application is occurring. Method of Public Access Restriction: ☐ Site is Fenced ☐ Wastewater disinfection prior to irrigation ☑ Site is not for public use ☐ Other (describe):							
Separation distance (in feet) from the outside edge of the wetted irri Permanent flowing stream Losing Stream Property boundary Dwellings Water supply was a supp	Intermittent (wet weather) streamLake or pond						
3.10 The facility must develop and retain an Operation and Maintenance Date of O&M Plan:							
4. CERTIFICATION							
I certify under penalty of law that I have personally examined and am fam attachments and that based on my inquiry of those individuals immediated the information is true, accurate and complete. I am aware that there are including the possibility of fine or imprisonment.	y responsible for obtaining this information, I believe that						
OWNER OR AUTHORIZED REPRESENTATIVE	OFFICIAL TITLE						
John Garner	Water and Sewer Commissioner						
EMAIL ADDRESS waterdep@fidnet.com	TELEPHONE NUMBER WITH AREA CODE						
\mathcal{A}	(314) 468-4812						
SIGNATURE JOHN STELL	06/24/2019						
780-1686 (08-14)							



City of Sullivan, MO

Wastewater Treatment

Facility

Biosolids Removal & Land Application 2018 Compliance Report



Contact Information

Jake Oros/President	(618) 406-6180
Bill Miller Jr/Director of Operations	(636) 359-1575
Bill Burris/Regional Manager	(217) 494-8141
Austin Wuehhels/Compliance Director	(618) 977-9945



Please find enclosed information concerning the removal and land application of lime from the City of Sullivan, MO Wastewater Treatment Facility for the reporting period 2018.

This report includes the following:

- 1. City of Sullivan, MO Gallons/Tons Applied Totals For 2018
- 2. Farmers/Land Owners Addresses/ Contact Information
- 3. Biosolid Laboratory Analysis
- 4. User Information Data That Includes:
 - A. Aerial Map
 - B. Soils Map
 - C. Nutrient Breakdown Summary
 - D. Soil Laboratory Analysis
 - E. Appendix G Sludge User Information Sheet

If you have any questions or need of additional information, do not hesitate to contact me at (618) 977-9945.

Sincerely,

Austin Wuebbels Compliance Director

City of Sullivan, MO Tons Applied Totals for 2018

Farmers Name 🦿 F	ield#	A/C	Gallons Hauled I	Ory Tons Applied
Leonard Armstrong	#1	27.15	398,722	38.24
Brent Halmich	#2	50.32	747,423	49.87
Totals		77.47	1146145	88.11

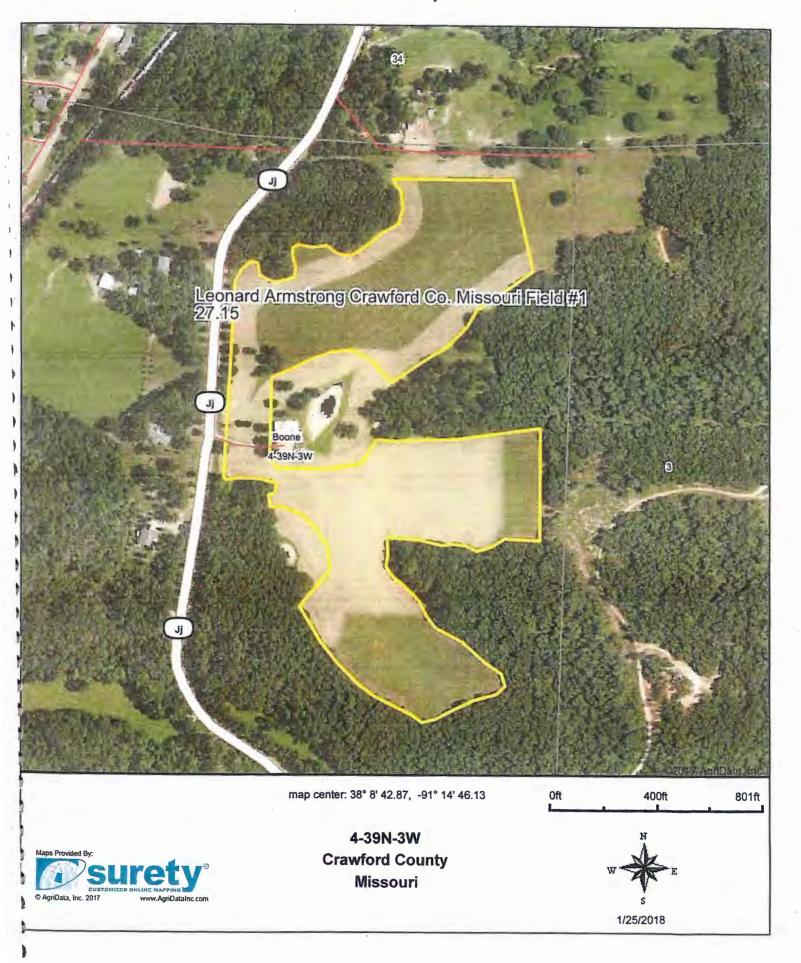


Farmers/ Land Owner Addresses/ Contact Numbers

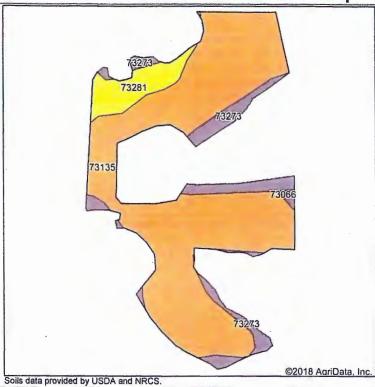
Leonard Armstrong 953 Adams St. Bourbon, MO 63449 314-541-2829

Brent Halmich 9214 Hwy J, Sullivan, MO 63080 573-259-5657

Aerial Map



Soils Map





State: Missouri County: Crawford Location: 4-39N-3W Township: Boone Acres: 27.15

Date: 1/9/2019





Code	Soil Description	Acres	Percent of field	Non-Irr Class Legend	Non-Irr Class *c	Tall fescue	*n NCCPI - Soybeans
73135	Union silt loam, 3 to 8 percent slopes	21.57	79.4%	(19)	Ille		39
73273	Coulstone-Bender complex, 15 to 35 percent slopes, extremely stony	3.24	11.9%		Vie		1
73281	Hobson silt loam, 3 to 15 percent slopes	2.20	8.1%		IVe		25
73066	Bender very cobbly fine sandy loam, 3 to 15 percent slopes, stony	0.14	0.5%		Vis	1	8
				Wei	ghted Average	*-	*n 33.2

^{*}n: The aggregation method is "Weighted Average using major components" *c: Using Capabilities Class Dominant Condition Aggregation Method

Oros & Busch Application Technologies, Inc. Project name: Sullivan. MO

Project name: Sumvan, MO	E, MO	Landowner	name: Leonar	Landowner name: Leonard Armstong #1	
		Date:1-23-18-1-26-18	3-1-26-18		
Site information		Agronomic Rates Per Acre (as applied data)	Acre (as appli	ed data)	
		Dry tons	1.41	Phosphorous	56.34
Acres applied to:	27.15	Total Kjeldahl Nitrogen	163.39	Potassium	0.00
Estimated gallons applie	398,722.00	Ammonia Nitrogen	6.20		
% solids as applied	2.30	Organic Nitrogen	157.19		
Specific Gravity	1.00	P.A.N.	37.64		
Dry tons applied	38.24	Carryover from prior yrs	0	= 37.64 Total av	37.64 Total available lbs. of nitrogen for t

	lbs/dry ton lbs/acre applied		0.0366		0.0039	5.9159	163.3924	6.1976	157.1947	56.3422	
	lbs/dry ton	0.0086	0.0260	1.1600	0.0028	4.2001	116.0026	4.4001	111.6025	40.0009	0
	dry results		=;	580.00	1.400	2,100.00		1 1 1	55,800.00	20,000.00	
		Molybdenum	Selenium	Zinc	Mercury	Chromium	Total Kjeldahl Nitrogen	Ammonia Nitrogen	Organic Nitrogen	Phosphorous	Total Solids
	lbs/acre applied	0.0000	0.0000	1.6058	0.000	0.0242	0.0121	0.0676	0.3099		
esuits		0.0000	0.0000	1.1400	0.0000	0.0172	0.0086	0.0480	0.2200		
boratory R	dry results lbs/dry ton			570.00		10.00	1, 30, 1	111.14	110.00		
Actual La			Manganese	Copper	Potassium	Arsenic	Cadmium	Lead	Nickel		

Light BLUE numbers are "Less than" values from analysis

Accumulative Compliance Report Landowner name: Leonard Armstong #1 Date:1-23-18-1-26-18

Site information

Acres applied to:	27.15
Estimated gallons applied:	398,722.00
% solids as applied	2.30
Specific Gravity	1.00
Dry tons applied	38.24

Agronomic Rates Per Acre (as applied data)

_	
Dry tons	1.41
Total Kjeldahl Nitrogen	163.39
Ammonia Nitrogen	6.20
Organic Nitrogen	157.19
P.A.N.	37.64
Phosphorous	56.34
Potassium	0.00

Actual Laboratory Results LBS/Acre

	-abolatoly	Lesuits Fr
Manganese		0.0000
Copper		1.1400
Potassium		0.0000
Arsenic		0.0172
Cadmium		0.0086
Lead		0.0480
Nickel		0.2200
Molybdenum		0.0086
Selenium		0.0260
Zinc		1.1600
Mercury		0.0028
Chromium		4.2001
Total Kjeldahl		116.0026
Ammonia Nitr		4.4001
Organic Nitro	gen	111.6025
Phosphorous		40.0009



PLKHY AGRICUE TURAL LABORATORY, INC P.O. 80X 418, HISHWAY 54 EAST BOWLING GREEN, MO 63XM 573/24 2931; www.pertyngliib.com CONTROL ID 14609 REPORT NUMBER C0340

SUBMITTED FOR: SEND TO:

OROS & BUSCH 128 WEST NAUB CARLINVILLE, IĻ 62626 10/05/2016

SOIL REPORT RATING MODERATE DESIRED VERY HIGH EXCESS GROWER. **OROS & BUSCH** pH (Salt) 6.30 FARM: PHOSPHORUS (P) 23 lbs/a FIELD: SULFUR (SO4-S) 3 ibs/a SAMPLE CALCIUM (Ca) 76 4854 bs/s ACRES 0.00 MAGNESIUM (Mg) 524 tos/a CEC 15.60 me POTASSIUM (K) 215 as/a SOIL TEXTURE: Silt Loam SODIUM (Na) ibsia ORGANIC MATTER 3.30 % Salts dS/m BORON (B) ppm Neul A: 1.00 IRON (Fe) ppm BASE SATURATION PERCENT MANGANESE (Mn) ppm CALCIUM: 77.81 COPPER (Cu) ppm MAGNESIUM: 14.01 ZINC (Zn) POTASSIUM: 1.77 CHLORIDES (CI) SOIL FERTILITY RECOMMENDATIONS

CROPPING	YIELD								CRE			
CROPPING	GOAL	MIROCEN	PT-75PT-ATE P205	POTASH K?2	SAHAR 3	BORCH	190s Fe	PANGALSE IM	GC#PER CV	200.0 25		
CORN	BU/AC	150	151	93	69	15						
SOYBEANS	BU/AC	50	0.	68	96	15						
							· ·					
DATE/AMOUNT APPLIED												

LIME RECOMMENDATIONS:

APPLIED:

COMMENTS:

www.perryaglab.co

Bio user Sheet

The undersigned hereby understands the type of material they will be receiving, as well as the location

of its origin. By signing below, the landowner gives right of trespass on their designated property, for the	
sole purpose of spreading Bio waste water sludge and all associated activities. This in no way reveys	
Oros & Busch, or their contract representatives of their responsibilities of maintaining a safe product.	
be land applied on the landowner sites. Either party may terminate this agreement at any time. This	
agreement shall become effective on 1-00-2018 (date) and shall automatically terminate upon	
completion of the project	
Lange amount of print name heart Agus/ Rouge	
hereby give permission to Oros & Busch, its employees and subcontractors to access my property.	
tiereby give permission to oros or buscovits employees and subcoditactors to access my property.	
I understand the material will originate from	
Cullium Culm Bauchen St. Clair Marcha Mater Dinate	
Sullivan, Cuba, Bourbon, St. Clair Waste Water Plants	
Oros & Busch representative	
BILL MILLER	
To 4 Am A	
Farmer Name FRANKA NAME / NONS / NONS / PARA PROPERTY	in
Address 953 Adams ST. Boundon Mo. 6844	
Phone # 314 541 - 28 29	
escription of application site:	
JJ propinty crawfood co mo.	
N S PROPERTY CITY STAR COLLEGE	

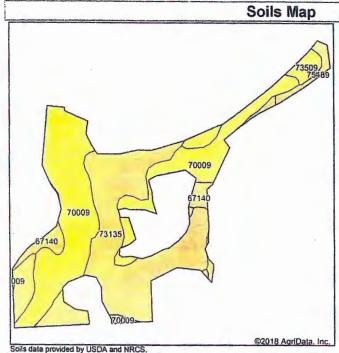
Aerial Map

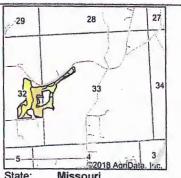


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32-41N-2W Franklin County Missouri W E

6/21/2018





State: Missouri County: Franklin Location: 33-41N-2W Township: Meramec 50.32 Acres: Date: 1/9/2019





	Soil Description	Acres	Percent of field	Non-Irr Class Legend		Com	Alfalfa hay	Caucasian bluestem	Common bermudagrass	Orchardgrass red clover	Tall fescue	Warm season grasses		Oats	Soybeans	Winter wheat		*n NCCPI Soybeans
70009	Goss gravelly silt loam, 8 to 15 percent slopes	22.71	45.1%		lVe	3	4	7	5	6	5	7	17					40
/3133	Union silt loam, 3 to 8 percent slopes	21.93	43.6%		IIIe	8	3	6	4	5	5	6		2	3	3	7	39
67140	Gladden- Midco complex, 1 to 3 percent slopes, frequently flooded	2.63	5.2%		Illw	4	5	7	6	6	6	8			1	2	3	45
73509	Union silt loam, 8 to 15 percent slopes, eroded	1.99	4.0%		IVe		3	6	4	5	5	6						24
75489	Gladden- Midco complex, 0 to 3 percent slopes, frequently flooded	1.06	2.1%		lilw		5	7	7	6	6	.8						45
			Wei	ghted A	verage	5	3.6	6.5	4.6	5.5	5.1	6.6	7.7	0.9	1.4	1.4	3.2	°n 39.

^{*}n: The aggregation method is "Weighted Average using major components" *c: Using Capabilities Class Dominant Condition Aggregation Method

Soils data provided by USDA and NRCS.

Oros & Busch Application Technologies, Inc.

of the state of th					
Project name: Sullivan, MO	n, MO	Landowner na	Landowner name: Brent Halmich #2	Ilmich #2	
		Date:6-23-18-6-29-18	5-29-18		
Site information		Agronomic Rates Per Acre (as applied data)	cre (as applie	d data)	
	The Partie of th	Dry tons	0.99	Phosphorous	39.64
Acres applied to:	50.32	Total Kjeldahl Nitrogen	0.00	Potassium	0.00
Estimated gallons applie	747,423.00	Ammonia Nitrogen	3.77		
% solids as applied	1.60	Organic Nitrogen	0.00		
Specific Gravity	1.00	P.A.N.	3.77		
Dry tons applied	49.87	Carryover from prior yrs	0		3.77 Total available lbs. of nitrogen for t
The same of the sa		The state of the s		The state of the s	The same of the sa

	lbs/acre applied	0.0614					0.0000			39.6416	
	lbs/dry ton	0.0620	0.0000	0.9000	0.0026	2.8001	0.0000	3.8001	0.0000	40.0009	0
	dry results			450.00	1.300	1,400.00				20,000.00	
		Molybdenum	Selenium	Zinc	Mercury	Chromium	Total Kjeldahl Nitrogen	Ammonia Nitrogen	Organic Nitrogen	Phosphorous	Total Solids
	lbs/acre applied	0.0000	0.0000	0.8325	0.0000	0.0753	0.0101	0.0515	0.1487		
Sesults	dry results lbs/dry ton	0.0000	0.0000	0.8400	0.0000	0.0760	0.0102	0.0520	0.1500		
boratory F	dry results			420.00			9 0		•		
Actual La			Manganese	Copper	Potassium	Arsenic	Cadmium	Lead	Nickel		

Light BLUE numbers are "Less than" values from analysis

Accumulative Compliance Report Landowner name: Brent Halmich #2 Date:6-23-18-6-29-18

Site information

Acres applied to:	50.32
Estimated gallons applied:	747.423.00
% solids as applied	1.60
Specific Gravity	1.00
Dry tons applied	49.87

Agronomic Rates Per Acre (as applied data)

Dry tons	0.99
Total Kjeldahl Nitrogen	0.00
Ammonia Nitrogen	3.77
Organic Nitrogen	0.00
P.A.N.	3.77
Phosphorous	39.64
Potassium	0.00

Actual Laboratory Results LBS/Acre

y	* * * * * * * * * * * * * * * * * * *	- France
Manganese	0.00	000
Copper	0.84	100
Potassium	0.00	000
Arsenic	0.07	60
Cadmium	0.01	02
Lead	0.05	
Nickel	0.15	00
Molybdenum	0.06	20
Selenium	0.00	00
Zinc	0.90	00
Mercury	0.00	26
Chromium	2.80	01
Total Kjeldahl Nitrogen	0.00	00
Ammonia Nitrogen	3.80	01
Organic Nitrogen	0.00	00
Phosphorous	40.00	09

CONTROL ID

26691

REPORT NUMBER | E0365 | DATE

02/02/2018

SUBMITTED FOR:

PERRY AGRICUIT DIRACT ARCRATORY, INC.

P.O. SOS AID, EVG-PSAY SE BASE ECALING SHEEL MOTODA 510 (24270) www.perostocom

SEND TO:

OROS & BUSCH 128 WEST NAUB CARLINVILLE, IL 62626

SOIL REPORT RATING VERY LOW LOW MODERATE DESIRED VERY HIGH ! EYCESS GROWER. OROS&BUSCH | pH (Salt) 6.20 FARM: PHOSPHORUS (P) 24 lbs/a FIELD. SULFUR (SO4-S) 27 ibs/a SAMPLE. 165 CALCIUM (Ca) 5229 lbs/a ACRES: 0.00 MAGNESIUM (Mg) 473 rbs/a CEC: POTASSIUM (K) 16.46 me 327 lbs/a SOIL TEXTURE: Silt Loam SODIUM (Na) lbs/a ORGANIC MATTER: 1.53 % Salts dS/m BORON (B) ppm 1.00 Meul, A: IRON (Fe) ppm BASE SATURATION PERCENT MANGANESE (Mn) ppm CALCIUM: 79.41 COPPER (Cu) MAGNESIUM: 11.97 ZINC (Zn) ppm POTASSIUM: 2.55 CHLORIDES (CI) SOIL FERTILITY RECOMMENDATIONS SUGGESTED TREATMENT POUNDS / ACRE YIELD **CROPPING OPTIONS** GOAL NITFOGEN STATUR WAGNESE 171 5 CORN **BU/AC** 150 93 38 SOYBEANS **BU/AC** 50 0 67 60 5 DATE/AMOUNT APPLIED COMMENTS: LIME RECOMMENDATIONS: APPLIED:

Bio user Sheet

The undersigned hereby understands the type of material they will be receiving, as well as the location of its origin. By signing below, the landowner gives right of trespass on their designated property, for the sole purpose of spreading Bio waste water sludge and all associated activities. This in no way relieves Oros & Busch, or their contract representatives of their responsibilities of maintaining a safe product to be land applied on the landowner sites. Either party may terminate this agreement at any time. This agreement shall become effective on
Brend Halmich pring name Brent Halmich do
hereby give permission to Oros & Busch, its employees and subcontractors to access my property. I understand the material will originate from
Suffivan, Cuba, Bourbon, St., Clair Waste Water Plants
Oros & Busch representative
BILL MILLER
Former Name Brant Halmich
ADDRESS 9714 Hay Sallivan WO 63080
more 1 573 6273242 Cell 573 259 5657
Description of application size. 4-10, 1m ich Farm A

INSTRUCTIONS FOR COMPLETING FORM B2

APPLICATION FOR CONSTRUCTION OR OPERATING PERMITS FOR FACILITIES WHICH RECEIVE BASICALLY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY

(Facilities less than or equal to 100,000 gallons per day of domestic waste must use FORM B.) (Facilities that receive wastes other than domestic must fill out FORM A and other forms as appropriate.)

PART A - BASIC APPLICATION INFORMATION

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

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

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

CONSTRUCTION PERMIT FEES (Include fee with application.)

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

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

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

Annual fee/Design flow

Annual fee/Design flow

\$3,000......30,000 gpd to1 mgd

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

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

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

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

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

- a. Municipals \$200 each.
- b. All others 25 percent of annual fee.

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

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

INSTRUCTIONS FOR COMPLETING FORM B2

APPLICATION FOR CONSTRUCTION OR OPERATING PERMITS FOR FACILITIES WHICH RECEIVE BASICALLY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY (Continued)

- 9.10 Refer to University of Missouri Extension Environmental Quality publications about biosolids numbers WQ420-426. Available on the Web at http://extension.missouri.edu/explore/envqual/. Additionally, the federal sludge regulations are available through the U.S. Government Printing Office at www.gpoaccess.gov/cfr/index.html.
- 10. Provide the name and address of the first downstream landowner, different from that of the permitted facility, through whose property the discharge will flow. For discharges that leave the permitted facility and flow under a road or highway, or along the right-of-way, the downstream property owner is the landowner that the discharge flows to after leaving the right-of-way.
- 11. 11.3 Self explanatory.

PART B - ADDITIONAL APPLICATION INFORMATION

20. - 20.3 Self – explanatory.

Global Positioning System, or GPS, is a satellite-based navigation system. The department prefers that a GPS receiver is used at the outfall pipe 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/.

20.5 - 20.7 Self – explanatory.

PART C - CERTIFICATION

- Signature All applications must be signed as follows and the signatures must be original:
 - 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

40.1 Self – explanatory. ML/MDL means minimum limit or minimum detection limit.

PART E - TOXICITY TESTING DATA

50.1 - 50.3 Self - explanatory.

PART F - INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

- 60. Federal regulations are available through the U.S. Government Printing Office at www.gpoaccess.gov/cfr/index.html.
- 60.1 Self explanatory
- 60.2 A non-categorical significant industrial user is an industrial user that is not a CIU and meets one or more of the following:
 - 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.

60.3 - 60.13 Self – explanatory.

PART G - COMBINED SEWER SYSTEMS

70. - 70.10 Self - explanatory.

This completed form, along with the applicable permit fees, should be submitted to the appropriate Department of Natural Resources Office (See end of Part C). Submittal of an incomplete application may result in the application being returned. Map of regional offices with addresses and phone numbers are available on the Web at www.dnr.mo.gov/regions/ro-map.pdf. If there are any questions concerning this form, please contact the appropriate Regional Office or the Department of Natural Resources, Water Protection Program, Water Pollution Branch, NPDES Permits and Engineering Section at 573-751-6825.

MO 780-1805 (09-08)

Effluent Sampling for Sullivan WWTP MO-0104736

Renewal Submittal June 24, 2019

Permit Expires December 31, 2019

There have been some discussions as to the best way to handle our sampling of effluent at the plant due to the way a sequencing batch reactor (SBR) functions. The current requirement is for 48 aliquots over a 24 hour period. This works out to a sample every 30 minutes over 24 hours for a continuously discharging plant.

The SBR has three reactor cells that discharge for an hour in a sequence as each batch is processed. So we discharge 6 times per each cell for 18 discharges per day or approximately 18 hours of flow. This is in normal mode not storm mode. We have tried different methods for getting the 48 aliquots by trying flow based, etc. None of these work out real well to guarantee the 48 aliquots per 24 hour period.

After further discussion with the operator if we go back to one sample every 30 minutes we will get 36+ aliquots (2 x 18 hours) during actual flow and the other 12 will still come out of the discharge flume which is still effluent water. This should still represent what the plant is discharging as the maximum time that the water in the outfall flume is not flowing would be 1 hour as the cycle is the three basins for an hour each of discharge every 4 hour interval.

We hope that this will be considered acceptable for the permit renewal.