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, 92nd Congress) as amended,

Permit No.:	MO-0028037
Owner:	City of Nixa
Address:	P.O. Box 395, Nixa, MO 65714
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Nixa WWTP
Facility Address:	972 Old Riverdale Road, Nixa, MO 65714
Legal Description:	See Page 2
UTM Coordinates:	See Page 2
Receiving Stream:	See Page 2
First Classified Stream and ID:	See Page 2
USGS Basin & Sub-watershed No.:	See Page 2

authorizes activities pursuant to the terms and conditions of this permit in accordance with the Missouri Clean Water Law and/or the National Pollutant Discharge Elimination System; it does not apply to other regulated activities.

FACILITY DESCRIPTION

See Page 2

November 1, 2023
Effective Date

June 30, 2028
Expiration Date

John Hoke, Director, Water Protection Program

FACILITY DESCRIPTION (continued):

Outfall #001 – POTW
The use or operation of this facility shall be by or under the supervision of a Certified "A" Operator.
Mechanical bar screen / peak flow basin / grit and grease removal basin / influent pump station / 3 oxidation ditches / 4 final clarifiers / chemical phosphorus treatment / tertiary filtration / UV disinfection / 3 aerated intermediate sludge holding tanks / 1 final sludge holding tank / sludge belt filter press / biosolids mixed with compost material / biosolids and compost material storage area / biosolids and compost are land applied

Design population equivalent is 40,000.
Design flow is 4.0 million gallons per day.
Actual flow is 1.6 million gallons per day.
Design sludge production is 1,317 dry tons/year.

Legal Description:	Sec. 30, T27N, R21W, Christian County
UTM Coordinates:	X=475685, Y=4096497
Receiving Stream:	Finley Creek (P)
First Classified Stream and ID:	Finley Creek (P) (2352)
USGS Basin & Sub-watershed No.:	(11010002-0208)

Permitted Feature INF – Influent Monitoring Location – Headworks

Legal Description:	Sec. 24, T27N, R22W, Christian County
UTM Coordinates:	X=474491, Y=4097463

Permitted Feature SM1 – Eliminated

OUTFALL #001	TABLE A-1. INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall 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 **November 1, 2035**. These interim effluent limitations in **Table A-1** are effective beginning **November 1, 2023** and remain in effect through **October 31. 2035** or as soon as possible. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
eDMR Limit Set: M						
Flow	MGD	*		*	once/weekday***	24 hr. total
Biochemical Oxygen Demand$_5$	mg/L		45	30	once/week	composite**
Total Suspended Solids	mg/L		45	30	once/week	composite**
E. coli (**Note 1, Page 7**)	#/100mL		630	126	once/week	grab
Ammonia as N (January)	mg/L	9.5		2.9	once/week	composite**
Ammonia as N (February)	mg/L	9.5		2.9	once/week	composite**
Ammonia as N (March)	mg/L	9.5		2.9	once/week	composite**
Ammonia as N (April)	mg/L	4.5		1.4	once/week	composite**
Ammonia as N (May)	mg/L	4.5		1.4	once/week	composite**
Ammonia as N (June)	mg/L	4.5		1.4	once/week	composite**
Ammonia as N (July)	mg/L	4.5		1.4	once/week	composite**
Ammonia as N (August)	mg/L	4.5		1.4	once/week	composite**
Ammonia as N (September)	mg/L	4.5		1.4	once/week	composite**
Ammonia as N (October)	mg/L	9.5		2.9	once/week	composite**
Ammonia as N (November)	mg/L	9.5		2.9	once/week	composite**
Ammonia as N (December)	mg/L	9.5		2.9	once/week	composite**
Total Phosphorus	mg/L	*		0.5	once/month	composite**
Total Kjeldahl Nitrogen	mg/L	*		*	once/week	composite**
Nitrite + Nitrate	mg/L	*		*	once/week	composite**
Aluminum, Total Recoverable	µg/L	*		*	once/month	composite**

EFFLUENT PARAMETER(S)	UNITS	MINIMUM		MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
pH – Units****	SU	6.0		9.0	once/week	grab

EFFLUENT PARAMETER(S)	UNITS	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Biochemical Oxygen Demand$_5$ – Percent Removal (**Note 2, Page 7**)	%	85	once/month	calculated
Total Suspended Solids – Percent Removal (**Note 2, Page 7**)	%	85	once/month	calculated

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE DECEMBER 28, 2023.

OUTFALL #001	TABLE A-1. (Continued) INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall 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 **November 1, 2035**. These interim effluent limitations in **Table A-1** are effective beginning **November 1, 2023** and remain in effect through **October 31, 2035** or as soon as possible. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		MONTHLY AVERAGE		MONTHLY TOTAL §	MEASUREMENT FREQUENCY	SAMPLE TYPE
eDMR Limit Set: M						
Total Nitrogen (**Note 3, Page 7**)	mg/L	*			once/week	calculated
Total Nitrogen	lbs.			*	once/week	calculated
MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE DECEMBER 28, 2023.						
eDMR Limit Set: A						
EFFLUENT PARAMETER(S)	**UNITS**	**ANNUAL AVERAGE ¥**		**ANNUAL TOTAL Φ**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Total Nitrogen	mg/L	*			once/year	calculated
Total Nitrogen	lbs.			*	once/year	calculated
MONITORING REPORTS SHALL BE SUBMITTED **ANNUALLY**; THE FIRST REPORT IS DUE JANUARY 28, 2025.						
eDMR Limit Set: Q						
EFFLUENT PARAMETER(S)	**UNITS**	**DAILY MAXIMUM**		**MONTHLY AVERAGE**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Oil & Grease	mg/L	*		*	once/quarter *****	grab
MONITORING REPORTS SHALL BE SUBMITTED **QUARTERLY**; THE FIRST REPORT IS DUE JANUARY 28, 2024.						

* Monitoring requirement only.
** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.
*** Once each weekday means: Monday, Tuesday, Wednesday, Thursday, and Friday.
**** pH is measured in pH units and is not to be averaged.
***** See table below for quarterly sampling.

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

OUTFALL #001	TABLE A-2. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall number(s) as specified in the application for this permit. The final effluent limitations in **Table A-2** shall become effective on **November 1, 2035**. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
eDMR Limit Set: M						
Flow	MGD	*		*	once/weekday***	24 hr. total
Biochemical Oxygen Demand$_5$	mg/L		45	30	once/week	composite**
Total Suspended Solids	mg/L		45	30	once/week	composite**
E. coli (**Note 1, Page 7**)	#/100mL		630	126	once/week	grab
Ammonia as N (January)	mg/L	9.5		2.9	once/week	composite**
Ammonia as N (February)	mg/L	9.5		2.9	once/week	composite**
Ammonia as N (March)	mg/L	9.5		2.9	once/week	composite**
Ammonia as N (April)	mg/L	4.5		1.4	once/week	composite**
Ammonia as N (May)	mg/L	4.5		1.4	once/week	composite**
Ammonia as N (June)	mg/L	4.5		1.4	once/week	composite**
Ammonia as N (July)	mg/L	4.5		1.4	once/week	composite**
Ammonia as N (August)	mg/L	4.5		1.4	once/week	composite**
Ammonia as N (September)	mg/L	4.5		1.4	once/week	composite**
Ammonia as N (October)	mg/L	9.5		2.9	once/week	composite**
Ammonia as N (November)	mg/L	9.5		2.9	once/week	composite**
Ammonia as N (December)	mg/L	9.5		2.9	once/week	composite**
Total Phosphorus	mg/L	*		0.5	once/month	composite**
Total Kjeldahl Nitrogen	mg/L	*		*	once/week	composite**
Nitrite + Nitrate	mg/L	*		*	once/week	composite**
Aluminum, Total Recoverable	µg/L	*		*	once/month	composite**

EFFLUENT PARAMETER(S)	UNITS	MINIMUM		MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
pH – Units****	SU	6.0		9.0	once/week	grab

EFFLUENT PARAMETER(S)	UNITS	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Biochemical Oxygen Demand$_5$ – Percent Removal (**Note 2, Page 7**)	%	85	once/month	calculated
Total Suspended Solids – Percent Removal (**Note 2, Page 7**)	%	85	once/month	calculated

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE DECEMBER 28, 2035.

OUTFALL #001	TABLE A-2. (Continued) FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall number(s) as specified in the application for this permit. The final effluent limitations in **Table A-2** shall become effective on **November 1, 2035**. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		MONTHLY AVERAGE		MONTHLY TOTAL §	MEASUREMENT FREQUENCY	SAMPLE TYPE
eDMR Limit Set: M						
Total Nitrogen (**Note 3, Page 7**)	mg/L	*			once/week	calculated
Total Nitrogen	lbs.			*	once/week	calculated
MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE DECEMBER 28, 2035.						
eDMR Limit Set: A						
EFFLUENT PARAMETER(S)	**UNITS**	**ANNUAL AVERAGE GOAL ¥**		**ANNUAL TOTAL Φ**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Total Nitrogen	mg/L	10			once/year	calculated
Total Nitrogen	lbs.			*	once/year	calculated
Annual Nitrogen Credit (+ or -) **€**						
Point Source Credits	lbs.			*	once/year	documented
Nonpoint Source Credits	lbs.			*	once/year	documented
Nitrogen 12-Month Total, After Credit Adjustment **Ϫ**	lbs.			121,764	once/year	calculated
MONITORING REPORTS SHALL BE SUBMITTED **ANNUALLY**; THE FIRST REPORT IS DUE JANUARY 28, 2037.						
eDMR Limit Set: Q						
EFFLUENT PARAMETER(S)	**UNITS**	**DAILY MAXIMUM**		**MONTHLY AVERAGE**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Oil & Grease	mg/L	*		*	once/quarter *****	grab
MONITORING REPORTS SHALL BE SUBMITTED **QUARTERLY**; THE FIRST REPORT IS DUE JANUARY 28, 2036.						

* Monitoring requirement only.
** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.
*** Once each weekday means: Monday, Tuesday, Wednesday, Thursday, and Friday.
**** pH is measured in pH units and is not to be averaged.
***** See table on Page 4 for quarterly sampling.

§ - The facility shall calculate pounds per month by using the monthly average concentration in mg/L multiplied by 8.34 and multiplied by the total monthly flow in MG.

¥ - Annual Average is calculated as the average of the 12 calendar months (January 1st through December 31st) of weekly samples in mg/L.

Φ - Annual Total is calculated as the sum of the 12 calendar months (January 1st through December 31st) of monthly samples in pounds (lbs.).

€ - See Special Condition 2. The annual nitrogen credit will document a permittee's credit sales and purchases.

Ϫ - The Nitrogen 12-Month Total, After Credit Adjustment (ACA) value is calculated by increasing or decreasing the facility's actual annual effluent nitrogen load for the previous 12 calendar months (January 1st through December 31st) by the documented point and/or nonpoint nutrient annual credits (sold or purchased). The ACA is the value evaluated for compliance.

PERMITTED FEATURE INF	TABLE B-1. INFLUENT MONITORING REQUIREMENTS

The monitoring requirements in **Table B-1** shall become effective on **November 1, 2023** and remain in effect until expiration of the permit. The influent wastewater shall be monitored by the permittee as specified below:

PARAMETER(S)	UNITS	MONITORING REQUIREMENTS				
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
eDMR Limit Set: IM						
Biochemical Oxygen Demand$_5$ (**Note 2**)	mg/L			*	once/month	composite**
Total Suspended Solids (**Note 2**)	mg/L			*	once/week	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 DECEMBER 28, 2023.

* Monitoring requirement only.

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

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

Note 2 – Influent sampling for BOD_5 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 3 – Total Nitrogen is calculated as; TN = Total Kjeldahl Nitrogen + Nitrate+Nitrite.

C. SCHEDULE OF COMPLIANCE

The facility shall attain compliance with final effluent limitations as soon as possible but in no case later than **twelve (12) years** of the effective date of this permit.

1. Within six months of the effective date of this permit, the permittee shall report progress made in attaining compliance with the final effluent limits for Total Nitrogen.

2. The permittee shall submit interim progress reports detailing progress made in attaining compliance with the final effluent limits every 12 months from the effective date of this permit. The **November 1, 2028** annual report shall detail the permittee's compliance approach to meet final limits (i.e. installation of technology, purchase TN credits, or hybrid including installation of technology and purchase of TN credits).

3. Within **twelve (12) years** of the effective date of this permit, the permittee shall attain compliance with the final effluent limits for Total Nitrogen.

Please submit progress reports to the Missouri Department of Natural Resources via the Electronic Discharge Monitoring Report (eDMR) Submission System.

D. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Parts I, II, & III standard conditions dated August 1, 2014, May 1, 2013, and August 1, 2019, and hereby incorporated as though fully set forth herein. Annual reports required per Standard Conditions Part III Section K shall be submitted online to the Department via the Department's eDMR system as an attachment. This supersedes Standard Conditions Part III Section K #4. EPA reports shall continue to be submitted online via the Central Data Exchange system.

E. SPECIAL CONDITIONS

1. Electronic Discharge Monitoring Report (eDMR) Submission System. Per 40 CFR Part 127 National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, reporting of effluent monitoring data and any report required by the permit (unless specifically directed otherwise by the permit) shall be submitted by the permittee via an electronic system to ensure timely, complete, accurate, and nationally consistent set of data about the NPDES program. All reports uploaded into the system shall be reasonably named so they are easily identifiable, such as "WET Test Chronic Outfall 002 Jan 2023," or "Outfall 004 Daily Data Mar 2025."
   (a) eDMR Registration Requirements. The permittee must register with the Department's eDMR system through the Missouri Gateway for Environmental Management (MoGEM) before the first report is due. Registration and other information regarding MoGEM can be found at https://dnr.mo.gov/data-e-services/missouri-gateway-environmental-management-mogem. Information about the eDMR system can be found at https://dnr.mo.gov/water/business-industry-other-entities/reporting/electronic-discharge-monitoring-reporting-system-edmr. The first user shall register as an Organization Official and the association to the facility must be approved by the Department. Regarding Standard Conditions Part I, Section B, #7, the eDMR system is currently the only Department approved reporting method for this permit unless a waiver is granted by the Department. See paragraph (c) below.
   (b) Electronic Submissions. To access the eDMR system, use the following link in your web browser: https://apps5.mo.gov/mogems/welcome.action. If you experience difficulties with using the eDMR system you may contact edmr@dnr.mo.gov or call 855-789-3889 or 573-526-2082 for assistance.
   (c) Waivers from Electronic Reporting. The permittee must electronically submit compliance monitoring data and reports unless a waiver is granted by the Department in compliance with 40 CFR Part 127. The permittee may obtain an electronic reporting waiver by first submitting an eDMR Waiver Request Form: https://dnr.mo.gov/document-search/electronic-discharge-monitoring-report-waiver-request-form-mo-780-2692. The Department will either approve or deny this electronic reporting waiver request within 120 calendar days.

2. The full implementation of this operating permit, which includes implementation of any applicable schedules of compliance, shall constitute compliance with all applicable federal and state statutes and regulations in accordance with §644.051.16, RSMo, and the Clean Water Act (CWA) section 402(k); however, this permit may be reopened and modified, or alternatively revoked and reissued:
   (a) To comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) To incorporate an approved pretreatment program or modification thereto pursuant to 40 CFR 403.8(c) or 40 CFR 403.18(e), respectively.

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

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

5. Reporting of Non-Detects:
   (a) An analysis conducted by the permittee or their contracted laboratory shall be conducted in such a way that the precision and accuracy of the analyzed result can be enumerated.
   (b) See sufficiently sensitive test method requirements in Standard Conditions Part I, Section A, No. 4 regarding proper testing and method minimum levels used for sample analysis.
   (c) The permittee shall not report a sample result as "Non-Detect" without also reporting the method minimum level of the test. Reporting as "Non Detect" without also including the method minimum level, will be considered failure to report, which is a violation of this permit.
   (d) The permittee shall provide the "Non-Detect" sample result using the less than symbol and the method minimum level (e.g., <50 µg/L, if the method minimum level for the parameter is 50 µg/L).
   (e) Where the permit contains a Department determined Minimum Quantification 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.

(f) For the daily maximum, the facility shall report the highest value. If the highest value was a non-detect, use the less than "<" symbol and the laboratory's highest method minimum level.
(g) For reporting an average based on all non-detected values, remove the "<" sign from the values, average the values, and then add the "<" symbol back to the resulting average.
(h) For reporting an average based on a mix of detected and non-detected values (not including *E. coli*), assign a value of "0" for all non-detects for that reporting period and report the average of all the results.
(i) When *E. coli* is not detected above the method minimum level, the permittee must report the data qualifier signifying less than detection limit for that parameter (e.g., <1 #/100mL, if the method minimum level is 1 #/100mL). For reporting a geometric mean based on a mix of detected and non-detected values, use one-half of the detection limit (instead of zero) for non-detects when calculating geometric means.
(j) See the Fact Sheet Appendix - Non-Detect Example Calculations for further guidance.

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 continue to implement and update if necessary, the 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 https://dnr.mo.gov/document-search/capacity-management-operations-maintenance-plan-editable-template. Additional information regarding the Departments' CMOM Model is available at https://dnr.mo.gov/print/document-search/pub2574.

   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 City of Nixa's WWTPs for the previous year.
   (b) A summary of the general maintenance and repairs to the collection system serving the the City of Nixa's WWTPs for the previous year.
   (c) A summary of any planned maintenance and repairs to the collection system serving the City of Nixa's WWTPs 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 Southwest Regional Office during normal business hours or by using the online Sanitary Sewer Overflow/Facility Bypass Application located at: https://dnr.mo.gov/data-e-services/missouri-gateway-environmental-management-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 ensure 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. The permittee shall perform a minimum of four whole effluent toxicity tests in the four and one-half year period prior to the next permit renewal application. The four tests shall consist of four acute toxicity tests in accordance with Special Conditions #15.

15. 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: 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 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.

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 10-20), 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. Stormwater Pollution Prevention Plan (SWPPP): A SWPPP must be implemented upon permit issuance. Through implementation of the SWPPP, the permittee shall minimize the release of pollutants in stormwater from the facility to the waters of the state. The SWPPP shall be developed in consultation with the concepts and methods described in the following document: Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators, (Document number EPA 833-B-09-002) published by the United States Environmental Protection Agency (USEPA) in June 2015.
    (a) The SWPPP must identify any stormwater outfall from the facility and Best Management Practices (BMPs) used to prevent or reduce the discharge of contaminants in stormwater. The stormwater outfalls shall either be marked in the field or clearly marked on a map and maintained with the SWPPP.
    (b) The SWPPP must include a schedule and procedures for a once per month routine site inspection.
        (1) The monthly routine inspection shall be documented in a brief written report, which shall include:
            i. The person(s) conducting the inspection.
            ii. The inspection date and time.
            iii. Weather information for the day of the inspection.
            iv. Precipitation information for the entire period since the last inspection.
            v. Description of the discharges observed, including visual quality of the discharges (sheen, turbid, etc.).
            vi. Condition of BMPs
            vii. If BMPs were replaced or repaired.
            viii. Observations and evaluations of BMP effectiveness.
        (2) Any deficiency observed during the routine inspection must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report.
        (3) The routine inspection reports must be kept onsite with the SWPPP and maintained for a period of five (5) years.
        (4) The routine inspection reports shall be made available to Department personnel upon request.
    (c) The SWPPP must include a schedule and procedures for a once per year comprehensive site inspection.

(1) The annual comprehensive inspection shall be documented in a written report, which shall include:
   i. The person(s) conducting the inspection.
   ii. The inspection date and time.
   iii. Findings from the areas of your facility that were examined;
   iv. All observations relating to the implementation of your control measures including:
      1. Previously unidentified discharges from the site,
      2. Previously unidentified pollutants in existing discharges,
      3. Evidence of, or the potential for, pollutants entering the drainage system;
      4. Evidence of pollutants discharging to receiving waters at all facility outfall(s), and the condition of and around the outfall, and
      5. Additional control measures needed to address any conditions requiring corrective action identified during the inspection.
   v. Any required revisions to the SWPPP resulting from the inspection;
   vi. Any incidence of noncompliance observed or a certification stating that the facility is in compliance with Special Condition E.17.

(2) Any deficiency observed during the comprehensive inspection must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report.

(3) The comprehensive inspection reports must be kept onsite with the SWPPP and maintained for a period of five (5) years.

(4) The comprehensive inspection reports shall be made available to Department personnel upon request.

(d) The SWPPP must be kept on-site and should not be sent to the Department unless specifically requested.

(e) The SWPPP must be reviewed and updated at a minimum once per permit cycle, as site conditions or control measures change.

18. The permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP.

(a) Permittee shall adhere to the following minimum Best Management Practices (BMPs):
   (1) Minimize the exposure of industrial material storage areas, loading and unloading areas, dumpsters and other disposal areas, maintenance activities, and fueling operations to rain, snow, snowmelt, and runoff, by locating industrial materials and activities inside or protecting them with storm resistant coverings, if warranted and practicable.
   (2) Provide good housekeeping practices on the site to prevent potential pollution sources from coming into contact with stormwater and provide collection facilities and arrange for proper disposal of waste products, including sludge.
   (3) Implement a maintenance program to ensure that the structural control measures and industrial equipment is kept in good operating condition and to prevent or minimize leaks and other releases of pollutants.
   (4) Prevent or minimize the spillage or leaks of fluids, oil, grease, fuel, etc. from equipment and vehicle maintenance, equipment and vehicle cleaning, or activities.
   (5) Provide sediment and erosion control sufficient to prevent or control sediment loss off of the property. This could include the use of straw bales, silt fences, or sediment basins, if needed.
   (6) Provide stormwater runoff controls to divert, infiltrate, reuse, contain, or otherwise minimize pollutants in the stormwater discharge.
   (7) Enclose or cover storage piles of salt or piles containing salt, used for deicing or other commercial or industrial purposes.
   (8) Provide training to all employees who; work in areas where industrial materials or activities are exposed to stormwater, are responsible for stormwater inspections, are members of the Pollution Prevention Team. Training must cover the specific control measures and monitoring, inspection, planning, reporting and documentation requirements of this permit. Training is recommended annually for any applicable staff and whenever a new employee is hired who meets the description above.
   (9) Eliminate and prevent unauthorized non-stormwater discharges at the facility.
   (10) Minimize generation of dust and off-site tracking of raw, final, or waste materials by implementing appropriate control measures.

19. <u>Biosolids Composting Requirements for General Public Use:</u>
(a) Applicability. A sewage sludge compost product will be considered suitable for general public use when the permittee meets the requirements under this permit special condition. General public use means the compost is for crops and vegetation including use in residential areas, public use areas and for horticulture, silviculture and agricultural uses.
(b) Composting Facility Description.
   (1) Raw materials will consist of dewatered sewage sludge or biosolids, wood chips, yard waste or other compostable materials.
(c) If the compost is to be distributed to the public it shall meet the Class A requirements for pathogen reduction by having undergone one of the Processes to Further Reduce Pathogens found in Appendix B of 40 CFR 503.
(d) The permittee will maintain a detailed operations plan for the composting process.
(e) Information Sheet for Users.

An information/instruction sheet shall be provided to each user of compost to provide information on the origin of the compost, appropriate application rates, and other pertinent information for proper handling and use of the compost.

(f) Annual Use Rate. Compost that is land applied by the permit holder shall not exceed the most restrictive of the following criteria:
   (1) Application rates shall not exceed the annual plant available nutrient requirements for nitrogen and phosphorus based on the vegetation to be grown, a realistic crop yield goal, soil testing results and testing of the compost for nutrient content.
   (2) Application rate shall not exceed 20 dry tons per acre per year.

(g) One Time or Occasional Use Rates.
Compost that is used by the permit holder for soil amendments or land reclamation shall not exceed a total of 200 dry tons per acre on either a one time basis or a cumulative total over a five year period. Subsequent application rates shall not exceed the annual use rate listed above. The compost shall be incorporated into the soil by tillage practices as soon as practical after application.

(h) Final Compost Monitoring.
Composite samples of the final compost product shall be collected at representative locations and monitored as described in 40 CFR 503 and Standard Conditions Part III.

(i) Records and Reporting Requirements.
   (1) Time, locations and results shall be recorded for each monitoring requirement and maintained for at least five years. Copies of these records shall be made available to the Department upon request.
   (2) The total quantity of compost distributed during the year must be recorded.
   (3) An annual report shall be submitted by February 19th summarizing compost activities monitoring. A copy of the individual laboratory reports and daily records need not be submitted unless requested by the Department. The reports shall be submitted to the Department via eDMR and to the EPA Region VII office as part of the annual sludge report.

(j) Composted sewage sludge that does not meet the requirements for general public use may still be land applied in accordance with permit Standard Conditions Part III.

20. Nutrient Removal: The permittee should strive to operate the treatment facility to maximize the level of nutrient removal to achieve the following target goals and limits:

Total Nitrogen (as TKN and Nitrate + Nitrite)	$\leq$ 121,764 lbs./year as a 12-month total limit
Total Nitrogen (as TKN and Nitrate + Nitrite)	$\leq$ 10 mg/L as an annual average goal

The target goals for concentration (mg/L) are not to be considered as effluent limits for this permit. However, the Total Nitrogen mass loading limits (lbs./year) are enforceable. The Department reserves the right to reopen this permit to impose limits for nutrients pursuant to Missouri Law after such criteria or a TMDL limiting nutrients is adopted.

A TMDL for Total Phosphorus and Total Nitrogen in the James River Watershed has been adopted, and the value for Total Nitrogen mass (lbs/year) is a limit to be imposed through the Special Condition and Schedule of Compliance of this permit.

21. Trading. The watershed permittees are authorized to participate in nutrient trading for the purpose of complying with the TN allocations listed in Appendix B of the Fact Sheet. Additionally, the James River TMDL authorizes nutrient trading as a means of achieving the cumulative TN wasteload allocations established by the TMDL.

22. Watershed Compliance. Through treatment, other pollutant reductions at the facility, or point and/or nonpoint source nutrient trading, the individual watershed permittees must meet mass-based loads for TN as stated in Appendix B. If trading is the chosen method, the permittee must purchase point source credits from authorized sellers and/or obtain nonpoint source nutrient credits within the watershed in an amount sufficient to compensate for the discharge of TN that is in excess of TN allocations stated in the watershed permittee list. Nonpoint pollutant reduction credits are available as specified in the Nonpoint Source Offset Implementation Plan or approved amendments thereof.

The Nitrogen 12-Month Total, After Credit Adjustment (ACA) value is calculated by increasing or decreasing the facility's actual annual effluent nitrogen load for the previous 12 calendar months (January 1st through December 31st) by the documented point and/or nonpoint nutrient annual credits (sold or purchased) from the previous year. The ACA is the value evaluated for compliance.

(a) For any calendar year in which a watershed permittee exceeds its TN Limitation and/or fails to obtain sufficient credits, shall be in violation of this permit, and the Department may take appropriate enforcement action against the watershed permittee for such exceedance.

(b) Termination, regionalization, consolidation of dischargers, purchases, sales, trades, leases, and the transaction(s) affecting the TN allocations shall not limit the Department's authority to enforce the terms and conditions of this permit nor shall it relieve the watershed permittees of their responsibility to comply with any other applicable federal, state, or local law, rule, standard, ordinance, order, judgment, or decree.

23. Nonpoint Source Credit Generation Plan. Prior to initiating credit offset projects, watershed permittees shall develop a project implementation plan for Department review, approval, and incorporation into the operating permit. Implementation plans must at a minimum include the following information:
    (a) Overview of the offset project, including specific BMPs to be implemented;
    (b) Projected Total Nitrogen credits that will be generated;
    (c) Proposed Trading ratio(s) calculations;
    (d) Implementation and credit tracking plans (i.e. legal agreements, credit tracking, annual review process, process for mitigating failing BMPs);
    (e) Relevant financial analyses (i.e. implementation cost, external funding opportunities)
    (f) Project implementation schedule; and
    (g) Inspection and on-going maintenance requirements of nonpoint source BMPs

    Only those pollutant reduction credits established in the project implementation plan approved by the Department may be used by the permittee to demonstrate compliance with the total nitrogen limits. The plan may be amended, however, Department approval must be obtained prior to initiating work associated with the change.

24. Aggregated Assessment. An owner or continuing authority of two or more facilities with a total nitrogen wasteload allocation (WLA) or derived from the James River TMDL may apply for and receive an aggregated assessment reflecting the total WLA for such facilities.
    (a) The permittee (and all individual facilities covered under the aggregated limit) shall be deemed in compliance when the aggregate mass load discharged by the facilities is less than the aggregate load limit.
    (b) If aggregated mass load limit is exceeded, facilities that achieve individual WLA load limits in Appendix B shall be deemed in compliance.
    (c) The permittee will be eligible to generate credits only if the aggregate mass load discharged by the facilities is less than the total of the WLA assigned to any of the affected facilities.
    (d) Point and/or nonpoint source nutrient trading may be used to meet the aggregated mass load limit.
    (e) The aggregation of mass load limits shall not affect any requirement to comply with local water quality-based limitations.

25. Required Elements and Reporting Requirements. Any permittee seeking to meet their mass-based permitted effluent limit for TN is required to submit to the Department the following information along with a completed permit application.

    Permittees planning to acquire credits through more than one of these three options must submit completed plans for each option.

    All annual reporting documents are due on March 28th. In addition, new trading plans or modifications of existing trading plans for the upcoming calendar year must be submitted for Department review and approval by March 28th.

    (a) **For Point Source to Point Source Trading Plans:**
        (1) Completed Point Source to Point Source Trading Plan listing all permitted point sources within the trading zone that the permittee would consider as potential credit suppliers. The plan should list potential contingencies for compliance if sufficient credits are unavailable.
            - List of Facility Names and Permit Numbers.

        (2) Annual Reporting Requirements:
            - Completed Annual Trade Accounting Worksheet
            - Completed Private Agreements, or evidence thereof, whether in the form of a Legal Contract to Trade executed by Buyer and Seller, or receipt of sale, for all credit purchases.

    (b) **For Point Source to Point Source Aggregated Assessment Plans:**
        (1) Spreadsheet displaying all facilities within the designated trading zone owned by the permittee that are to operate under this individual Aggregated Assessment Plan.
            - List of Facility Names and Permit Numbers.
            - Each participating facility's annual mass-based limits for the pollutant(s) to be traded.
            - Each participating facility's actual annual discharge in pounds for the most recent January 1 – December 31 period.
            - Display of credits generated or needed from each facility.
            - Total aggregated sums of point B through D above.

        (2) Annual Reporting Requirements:
            - Completed Annual Trade Accounting Worksheet

(c) **Point Source to Nonpoint Source Trades:**

(1) Nonpoint Source Credit Generation Plan that includes the following:

- Overview of the offset project;
- Projected credits that will be generated;
- Proposed trade ratio(s) and calculations;
- Implementation and offset tracking plans (i.e. legal agreements, tracking offsets and credits, annual review process, process for mitigating failing BMPs);
- Relevant financial analyses (i.e. implementation cost, external funding opportunities)
- Project implementation schedule; and
- Inspection and on-going maintenance requirements of nonpoint source BMPs

(2) Annual Reporting Requirements:

- Completed Annual Trade Accounting Worksheet;
- Completed Private Agreements, or evidence thereof, whether in the form of a Legal Contract to Trade executed by Buyer and Seller, or receipt of sale, for all credit purchases Verification and evidence of completed and installed practice;
- Evidence of existing Maintenance Agreements for existing Nonpoint Source Best Management Practices

REOPEN, MODIFY, OR REVOKE PROVISION

The Department may, for any reason provided by law, by summary proceedings or otherwise, revoke or suspend this permit or reopen and modify it to establish any appropriate conditions, schedules of compliance, or other provisions which may be necessary to protect human health or the environment or to implement the James River TMDL. In addition, the Department may modify or revoke and reissue the permit if the limits for Total Nitrogen no longer attain and maintain applicable water quality standards. The Department may also reopen and modify the permit to suspend the ability to trade credits to comply with the TN Allocations of this permit.

F. 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
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0028037
NIXA WWTP

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

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

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

Part I – Facility Information

Application Date: 03/06/2020
Expiration Date: 09/30/2020

Facility Type and Description: POTW - Mechanical bar screen / peak flow basin / grit and grease removal basin / influent pump station / 3 oxidation ditches / 4 final clarifiers / chemical phosphorus treatment / tertiary filtration / UV disinfection / 3 aerated intermediate sludge holding tanks / 1 final sludge holding tank / sludge belt filter press / biosolids mixed with compost material / biosolids and compost material storage area / biosolids and compost are land applied

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
#001	6.2	Tertiary	Domestic

Comments:
Changes in this permit for Outfall #001 include the addition of Total Kjeldahl Nitrogen and Nitrate + Nitrite weekly sampling, the addition of Total Nitrogen goal and limits, the revision of Total Nitrogen sampling from quarterly to weekly, and the revision of Oil & Grease from limits to monitoring only requirements. Changes in this permit for Permitted Feature INF include the addition of Ammonia, Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite. See Part II of the Fact Sheet for further information regarding the addition and revision of influent and effluent parameters. Special conditions were updated to include the addition or revision of inflow and infiltration reporting requirements, reporting of Non-detects, bypass reporting requirements, pretreatment requirements, and the Electronic Discharge Monitoring Report (eDMR) Submission System.

DEFINITIONS

After Credit Adjustment (ACA) Value: Is calculated by increasing or decreasing the facility's actual annual effluent nitrogen load for the previous 12 months by the documented nutrient annual credit (sold or purchased) from the previous year. The ACA is the value evaluated for compliance.

Allocation (or "TN Allocation"): The mass quantity (as of TN) that a discharger is potentially allowed to release to surface waters in accordance with this permit. TN Allocations may be expressed as active or reserve allocation.

Baselines: The discharge or loading limits expected of the source that would apply in the absence of trading. This applies to both buyers and sellers of credits. An example of a point source baseline is a permitted effluent limit. An example of nonpoint baselines are the nutrient discharge conditions prior to the installation of best management practices.

Best Management Practice (BMP): An action that reduces pollutant discharge to waters of the state. The eligibility and nutrient trading value of any proposed practice will be subject to approval by the Department's Water Protection Program.

Consolidation: The transfer of ownership and/or operational authority of an independent wastewater system to a larger one.

Credit: A credit is a unit of pollutant reduction measured in pounds. Credits can be generated by a point source over-controlling its discharge or by a nonpoint source installing best management practices (BMPs) that are different than or in addition to its baseline.

Discharge TN Allocation: TN Allocation specified as applying at the point of discharge (or "end-of-pipe").

Discharge TN Load: Actual TN Load measured at a watershed permittee member's point of discharge (or "end-of-pipe").

Limitation (or "TN Limitation" or "TN Load Limitation"): The mass quantity of TN specified as the maximum that an individual discharger is authorized to discharge to surface waters.

Load (or "TN Load"): The actual mass quantity (as of TN) that a discharger releases into surface waters of the James River watershed (upstream of the TMDL compliance point at Galena, MO).

Nonpoint Source: Pollutants generally resulting from land runoff, precipitation, atmospheric deposition, drainage, seepage or hydrologic modification. Nonpoint source pollution, unlike pollution from industrial and sewage treatment plants, comes from many diffuse sources.

Point Source: Any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. Point source does not include agricultural storm water discharges and return flows from irrigated agriculture.

Regionalization: When (1) an independent wastewater system directly connects to an existing regional wastewater district or (2) when two or more independent wastewater systems combine to form a single area-wide wastewater district.

Total Maximum Daily Load (TMDL): is a watershed planning tool that identifies the maximum amount of a pollutant that a water body can receive and still attain applicable water quality standards. This maximum loading is then allocated to the various sources in the watershed, and these allocations serve as targets for restoring water quality. In the context of this permit, refers to Phase III of the Total Maximum Daily Load for TN to the James River watershed, upstream of the TMDL compliance point at Galena, MO.

Total Nitrogen (TN): The sum of the Total Kjeldahl Nitrogen, Nitrite Nitrogen, and Nitrate Nitrogen.

Trading Zone: A defined geographical area (most often a watershed) within which pollutant credits can be bought and sold, and which permittees are authorized to use credits to meet mass-based permitted effluent limits. Trading zones are designated or subject to approval by the Department's Water Protection Program and identified in eligible permits. The trading zone for this framework is identified in the TMDL as the James River Watershed, upstream of Galena, MO.

NUTRIENT TRADING

Trading terms and information are as follows:

(1) **Aggregate Assessment Plans for Point Source Continuing Authorities:** One flexibility offered to permittees who serve as continuing authorities for multiple permitted facilities is the option to provide an Aggregate Assessment Plan when planning and reporting for point source offsetting and trading between two or more of their facilities. In addition to providing a more streamlined method for reporting annual compliance through multiple trades, the Aggregated Assessment removes the need to provide documented legal agreements, receipts, or other such contracts between facilities owned by the same permittee.

These continuing authorities may submit an Aggregate Assessment in place of a Point Source Trading Plan as part of the permit application process to begin trading. However, if the continuing authority also seeks credits from any other point source to meet a permit obligation for any given permit, they must submit a Point Source Trading Plan for the permits in question. Likewise for nonpoint source trading, all applications for nonpoint source trading must be accompanied by Nonpoint Source Credit Generation Plans. An optional credit accounting worksheet is provided by the Department to assist permittees develop their plans.

Note: Facilities owned by the same continuing authority that wish to participate in trading in order to meet a permit requirement must still be located in the same Trading Zone for the type of credit that is being traded.

(2) **Annual Reconciliation Period:** An Annual Reconciliation Period (also known as a "true-up" period) will occur between January 1 and March 28 of every year. Permittees will have until March 28 to use or purchase any necessary credits to meet the annual mass-based effluent limit for the annual compliance period that ended December 31.

Permittees also have until March 28 to update or modify Point Source Trading Plans, Aggregate Assessment Plans, or Nonpoint Source Credit Generation Plans that address compliance for the current and upcoming annual compliance periods.

(3) **Attenuation's Influence on Credit Determination:** The Department may calculate general estimates of nutrient attenuation in streams using observed rates of nutrient reduction measured during low-flow wasteload allocation studies completed for wastewater treatment facilities located in a representative watershed. For this approach, the observed percentage of nutrient loss for a given distance measured in the wasteload allocation study is applied for the entire extent from the wastewater treatment facility outfall to the subject water body. This approach assumes that streams having similar hydrology and are located in watersheds having similar land use, climate, and geology have similar kinetic rates related to instream nutrient loss. Due to the inherent uncertainty associated with this approach, additional conservative assumptions (i.e., trade ratios) may be employed to ensure pollutant reduction goals are achieved. Additionally, uncertainty may be reduced through the completion of site-specific low-flow wasteload allocation studies. Such studies should be completed in consultation with the Department and following the Department's quality assurance procedures for data collection.

Attenuation calculations would be employed across all permits within a designation trading zone. The Department will make this determination on a zone by zone basis. When attenuation is used, credits and credit baselines are calculated at the receiving waterbody identified in the attenuation study as opposed to directly at the point source outfall. When employed in this fashion, mass-based load limitations become more equitable across the trading zone and increases the ease of credit tracking from point sources.

For the purposes of the James River Permitting Framework, attenuation has already been considered and utilized during the development of the final permitted limits. Therefore, no further attenuation calculations will be employed for credits generated from nonpoint source BMPs or for the aggregation of mass load limits.

(4) **Centralized Trading Ledger:** To facilitate trade negotiations and provide centralized, transparent, and timely information regarding available credits in the trading zone, the Department will establish and maintain a Nutrient Trading Ledger (Ledger) unique to each respective trading zone. The Department will update the Ledger with TN data submitted by each permittee participating in a trading agreement on an annual basis. The Ledger will display each permittee in the trading zone, their permit limitations, their reported pollutant discharge in mass, and a positive or negative "credit balance." The Ledger will be maintained on the Department's website. *Disclaimer: Updates to the ledger are only as accurate and timely as what has been provided to the Department by the permittees pursuant to their reporting requirements.*

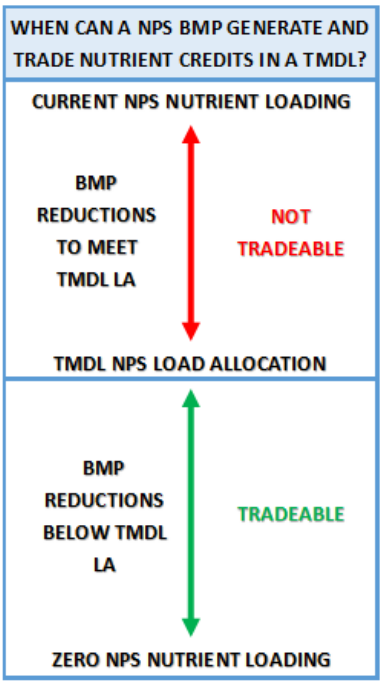
(5) **Credit Generation and Sale:** Permittees that maintain an annual discharge of TN below their permitted mass-based effluent limit for that respective pollutant are authorized to sell those pollutant reductions as "credits" to authorized credit buyers within their designated trading zone. One credit is equal to one pound of pollutant reduction. The designated trading zone is subject to approval by the Water Protection Program and will be identified in the permit.

(6) **Credit Generation and Sale (without permitted limits):** Facilities without permitted nutrient effluent limitations are also offered the opportunity to generate nutrient reduction credits. Facilities without limits established in their permits may elect to submit 5 years of representative effluent data in order to determine the facility's effluent baseline conditions. Therefore, any nutrient reductions below these baseline conditions are authorized to sell as credits. Facilities that choose to participate in trading in this way will be required to conduct weekly effluent monitoring. If the participating facility's permit does not already include weekly monitoring for nutrients, the permit must be modified in order to incorporate weekly monitoring for the parameter(s) that are to be traded. The modification must be approved and issued before credits can be sold.

(7) **Credit Use and Purchasing:** Permittees may purchase available credits from other permittees within the designated trading zone to meet the mass-based TN and/or TP limits within their permit. TN credits can only be used to meet mass-based TN limits.

(8) **Nonpoint Source Load Allocation:** "Where a TMDL has been approved or established by EPA, the applicable point source waste load allocation or nonpoint source load allocation would establish the baselines for generating credits" (EPA, 2003). Therefore, all nonpoint source practices, or combinations thereof, must first achieve the nonpoint source load allocations according to their respective land use category before generating credits within a TMDL zone. The ability of established nonpoint source Best Management Practices (BMPs) to generate nutrient reductions will be determined on a per-treated acre or per field basis, as appropriate. Only nutrient reductions achieved below the nonpoint source load allocation (represented in annual average pounds per acre) will be eligible for trading to a permittee to meet a permitted effluent limit.

Nonpoint source load allocations, determined by the Department, are unique to each TMDL and are consistent with the assumptions and requirements upon which each respective TMDL is established. These load allocations that nonpoint source nutrient reduction practices will have to meet before being allowed to generate nutrient credits will be identified in each respective TMDL.



(9) **Trading Permit Goals:** The TN goals listed in the permit are not to be considered as effluent limits for this permit, they are incorporated to further encourage reductions in the watershed. Nutrient credits cannot be purchased for meeting goals, however they can be purchased for meeting a permitted limit.

If a facility <100,000 gpd would like to sell credits when meeting a goal, they must submit applicable information explained in the Credit Generation and Sale (without permitted limits) paragraph of this section**.**

(10) **Time Terms for Credits:** All credits must be earned/generated before they can be traded or sold. Therefore, any credits purchased or used as offsets directly translate to pollutant reductions that have already occurred in the trading zone. The total loads of each trading zone, along with any reductions, credits, and offsets are verified annually at the end of the Annual Reconciliation Period on March 28th. The Time Terms will be defined in each permit along with the permittee's trading zone.

In trading zones with established Total Maximum Daily Loads (TMDLs) for nutrients or chlorophyll-a, credits have a total of two years to be traded or sold from the date the credit is reported. Once a credit is purchased or traded, the buyer can use the credit as an offset for the reporting period that just ended, or claim the credit as an offset towards their annual load limit for the current reporting period. Nutrient credits generated in trading zones with established nutrient or chlorophyll-a TMDLs cannot be used to offset any load that occurs more than two annual reporting periods from the one in which the credit was generated.

Limitations established by the Department on the Time Terms for Credits are intended to ensure consistency with the assumptions and requirements of any established TMDL wasteload allocation, water quality standard, or nutrient reduction target in the trading zone. Any allowance of credit banking beyond the designated term increases the potential that the purchase and use of banked credits would allow for excursions of collective wasteload allocations, water quality standards, or nutrient reduction targets.

(11) **Trade Negotiations:** For all trades, it is the responsibility of the permittee to negotiate trades and obtain executed trade agreements prior to applying to the Department to meet a permit limitation. Trade negotiations and agreements shall take place without the involvement of the Department. Copies of legally binding agreements shall be provided to the Department pursuant to the permit application process for any facility that is seeking to offset any nutrient load through trading.

(12) **Trade Ratios:** A mechanism applied to trades to adjust for uncertainty associated with measuring the effectiveness of non-point source nutrient reductions. The trade ratio for point source to point source trades within this trading zone will be 1:1. The trade ratios for nonpoint source trades will be approved on a case by case basis and should be addressed in each approved Nonpoint Source Credit Generation Plan. In order to safeguard the attainment of water quality standards, TMDL requirements, and/or water quality goals, the Department reserves the right to make final determinations on trade ratios associated with any given trade or practice used to meet a permitted effluent limitation.

WATERSHED PERMITTEES AND TN LIMITATIONS

Threshold Applicability. Statewide nutrient monitoring requirements in 10 CSR 20-7.015(9)(D)8. establish a threshold for point sources that have the design capacity of greater than one hundred thousand (100,000) gpd that typically discharge nitrogen and phosphorus. The James River TMDL establishes the TN wasteload allocation to point sources in the James River watershed to be 3,949 pounds per day. The Department has determined that facilities >100,000 gpd in the James River Watershed encompass 99.4% of the watershed TN loading. Upon implementation of the final effluent limits stated in the permit, collectively as a group this will attain the goals of the TMDL. Facilities less than one hundred thousand (100,000) gpd will be required to optimize their treatment facilities to meet a TN goal of 15 mg/L, this action will further the reductions in the watershed beyond the TMDL target.
This permit authorizes wastewater discharges of Total Nitrogen from wastewater treatment facilities located in the James River Watershed. Although not all facilities in the watershed will be required to meet final TN effluent limits, three categories of facilities are required to follow conditions of this permit:

- Wastewater treatment facilities authorized to discharge less than 100,000 gallons per day to the James River Watershed. These facilities have already been identified during the development of the James River Watershed TN Permitting Framework; further these facilities have been assigned TN concentration goals, as an annual average in this permit.

- Wastewater treatment facilities authorized to discharge 100,000 gallons or more per day to the James River Watershed. These facilities have already been identified during the development of the James River Watershed TN Permitting Framework; further, these facilities have been assigned waste load allocations for TN, to be regulated as annual total limits in this permit.

- Wastewater treatment facilities that, as a result of new construction or expansion, are proposed to discharge to the James River Watershed, that have not commenced the discharge prior to March 15, 2023. Any discharger with a permitted flow of 100,000 gallons or more per day that proposes an expansion to their facility, TN discharge limits shall not exceed a concentration of 10 mg/L. Any discharger with a permitted flow of less than 100,000 gallons per day that proposes an expansion to their facility, TN discharge limits shall not exceed a concentration of 15 mg/L. These facilities will not receive a waste load allocation for the new or increased discharges and will be required to offset any new TN load.

Nutrient Limit. The NPDES regulations at 40 CFR 122.45(d) require that all permit limits be expressed, unless impracticable, as both average monthly limits and maximum daily limits for all dischargers other than publicly owned treatment works (POTWs), and as average weekly limits and average monthly limits for POTWs.

In the March 3, 2004 EPA Memorandum with the subject of; Annual Permit Limits for Nitrogen and Phosphorus for Permits Designed to Protect Chesapeake Bay and its tidal tributaries from Excess Nutrient Loading under the National Pollutant Discharge Elimination System, the Office of Wastewater Management cautioned that the steady-state statistical procedures described in EPA's Technical Support Document for Water Quality-based Toxics Control (TSD) were not applicable or appropriate for developing nutrient limits for the main stem of Chesapeake Bay and its tribal tributaries. The memo stated that developing permit limits for nutrients affecting Chesapeake Bay and its tidal tributaries is different from setting limits for toxic pollutants because the exposure period of concern for nutrients is longer than one month, and can be up to a few years, and the average exposure rather than the maximum exposure is of concern. The statistical derivation procedure described in the TSD for acute and chronic aquatic life protection is not applicable to exposure periods more than 30 days (see TSD page 105). The Office of Wastewater Management concluded that due to the characteristics of nutrient loading and its effects on the water quality in Chesapeake Bay and its tidal tributaries and because the derivation of appropriate daily, weekly or monthly limits is not possible for the reasons described above, that it is therefore "impracticable" to express permit effluent limitations as daily maximum, weekly average, or monthly average effluent limitations. Due to the long term effects of nutrients on streams, an Annual Total Limit (ATL), an Annual Average Goal, and a Monthly Average and Monthly Total monitoring only requirement is applied. This value is consistent with the assumptions and requirements of the TMDL.

Nutrient monitoring will be conducted on at least a weekly basis, and the monthly mass load will be summarized based on the total flow during the month and reported as a monthly load.

Allocations. Upon timely and proper notification by the watershed permittees, as described elsewhere in this permit, the Department shall revise the watershed permittee list to incorporate changes in participation and/or allowable changes in TN limitations.

(a) Changes in participation.
   i. Participation. In the event that a new discharger, ≥100,000 gpd, is added in the James River watershed, the Department shall add the discharger and its TN limitations to the watershed permittee list as a watershed permittee. To comply with the James River Total Maximum Daily Load, the new discharge must completely offset its TN load through nutrient trading or a mutually acceptable wasteload allocation transfer between permittees. The addition will not result in an adjustment to the established TN wasteload allocations for the watershed.
   ii. Expansions. In the event that a discharger in the James River watershed expands its design average flow, the expansion will not result in an adjustment to the established TN wasteload allocation in Appendix B. Any additional loading of TN from the expansion must be offset through nutrient trading or a mutually acceptable wasteload allocation transfer between permittees.

iii. Termination. In the event that a watershed permittee is terminated, the Department shall delete the departing watershed permittee and its TN limitations from the watershed permittee list.
iv. Regionalization of dischargers. In the event that a watershed permittee with design flows ≥100,000 gpd regionalizes with another discharging facility with design flows ≥100,000 gpd in the watershed, the Department shall revise the watershed permittee list to incorporate the TN allocation adjustment to the receiving facility.
v. Consolidation of dischargers. In the event that a watershed permittee with design flows ≥100,000 gpd consolidates with another discharging facility with design flows ≥100,000 gpd in the watershed, the TN allocation will remain with each facility's discharge location and no adjustment will be made to the TN allocations. However, the consolidated discharges may be permitted under an aggregated mass load limit.

(b) For the purposes of this permit, allowable reapportions in TN allocations include those resulting from purchase, sale, trade, or lease of allocation among the watershed permittees; and other transactions approved by the Department.

Nonpoint Source Load Allocation. The James River TMDL provides an annual TN loading target of 1,670,682 lbs/year for nonpoint sources. A common approach utilized in TMDLs for allocating loading to specific stormwater driven sources is to use an area-based approach. For nonpoint sources such allocations (i.e., baselines) may be based on land cover. Realizing that more natural areas (i.e. forest) are likely to contribute less nutrients, the department is implementing a more weighted approach in this permitting framework.

The results in the Table below give these values and are based on the proportion of existing overland loading as estimated using the Spreadsheet Tool for Estimating Pollutant Loads (STEPL). Baselines for nonpoint sources not included in Table 1 are based on existing conditions.

Table 1: TN LA by land cover type weighted by proportion of existing loading estimated by STEPL

Type	Sq. Miles	Acres	STEPL estimated TN load* (lbs/year)	STEPL estimated TN load* (lbs/acre/year)	Loading Proportion (%)	LA (lbs/year)	LA (lbs/acre/year)
Developed	148.19	94,839	430,530	4.5	14.30%	238,945	2.5
Hay/Pasture	521.14	333,531	2,357,263	7.1	78.31%	1,308,288	3.9
Forest	328.18	210,033	198,650	0.9	6.60%	110,251	0.5
Cropland	3.06	1,959	23,779	12.1	0.79%	13,197	6.7
Totals:	**1,000.57**	**640,362**	**3,010,222**	**NA**	**100%**	**1,670,682**	NA

* assumes no best management practices

Part II – Effluent Limitations and Monitoring Requirements

OUTFALL #001 – MAIN FACILITY OUTFALL

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

OUTFALL #001 - RECEIVING STREAM INFORMATION

RECEIVING STREAM(S) TABLE:

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
Finley Creek	P	2352	AHP(WWH, CLH), WBC-A, SCR, HHP, IRR, LWP,	11010002-0208	0

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

Uses found in the receiving streams table, above:

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

AHP = Aquatic Habitat Protection - To ensure the protection and propagation of fish, shellfish, and wildlife. AHP is further subcategorized as:

WWH = Warm Water Habitat;
CLH = Cool Water Habitat;

CDH= Cold Water Habitat;
EAH = Ephemeral Aquatic Habitat;
MAH = Modified Aquatic Habitat;
LAH = Limited Aquatic Habitat.

This permit uses Aquatic Life Protection effluent limitations in 10 CSR 20-7.031 Table A for all aquatic 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 is further subcategorized as:

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 = Human Health Protection as it relates to the consumption of fish;
IRR = Irrigation - Application of water to cropland or directly to cultivated plants that may be used for human or livestock consumption;
LWP = Livestock and wildlife protection - Maintenance of conditions in waters to support health in livestock and wildlife;
DWS = Drinking water supply;
IND = Industrial water supply

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

WSA = Storm- and flood-water storage and attenuation;
WHP = Habitat for resident and migratory wildlife species;
WRC = Recreational, cultural, educational, scientific, and natural aesthetic values and uses;
WHC = Hydrologic cycle maintenance.

10 CSR 20-7.031(6):

GRW = Groundwater

RECEIVING STREAM(S) LOW-FLOW VALUES:

RECEIVING STREAM	LOW-FLOW VALUES (CFS)*		
	1Q10	7Q10	30Q10
Finley Creek (P)	3.5	4.22	5.39

* Low flow values obtained from USGS StreamStats. https://streamstats.usgs.gov/ss/. See **APPENDIX: RECEIVING STREAM LOW-FLOW VALUES**.

MIXING CONSIDERATIONS TABLE:

MIXING ZONE (CFS) [10 CSR 20-7.031(5)(A)4.B.(II)(a)]			ZONE OF INITIAL DILUTION (CFS) [10 CSR 20-7.031(5)(A)4.B.(II)(b)]		
1Q10	7Q10	30Q10	1Q10	7Q10	30Q10
0.875	1.055	1.3475	0.0875	0.1055	N/A

Receiving Water Body's Water Quality

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

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

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

✓ This facility discharges to a stream with an EPA approved TMDL. The TMDL for the James River was approved on May 7, 2001. The pollutant of concern in the TMDL is nutrients. The effluent limits in this permit meet the assumptions and requirements of the TMDL.

✓ 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.

CHANGES TO EFFLUENT LIMITATIONS TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit / Frequency	Sampling Frequency	Reporting Frequency	Sample Type ***
Oil & Grease	mg/L	1, 3	*		*	15/10	1/quarter	quarterly	G
Total Kjeldahl Nitrogen	mg/L	1	*		*	**	1/week	monthly	C
Nitrite + Nitrate	mg/L	1	*		*	**	1/week	monthly	C
PARAMETER	Unit	Basis for Limits	Monthly Average		Monthly Total	Previous Permit Limit/ Frequency	Sampling Frequency	Reporting Frequency	Sample Type ***
Nitrogen, Total	mg/L	8	*			1/quarter	1/week	monthly	M
Nitrogen, Total	lbs.	8			*	**	1/week	monthly	M
PARAMETER	Unit	Basis for Limits	Annual Average Goal		Annual Total	Previous Permit Limit/ Frequency	Sampling Frequency	Reporting Frequency	Sample Type ***
Nitrogen, Total (Interim)	mg/L	8	*			**	1/year	1/year	M
Nitrogen, Total (Final)	mg/L	8	10			**	1/year	1/year	M
Nitrogen, Total (Interim)	lbs.	8			*	**	1/year	1/year	M
Annual Nitrogen Credit Point Source (Final)	lbs.	8			*	**	1/year	1/year	D
Annual Nitrogen Credit Nonpoint Source (Final)	lbs.	8			*	**	1/year	1/year	D
Nitrogen 12-month Total after Credit Adjustment (Final)	lbs.	8			121,764	**	1/year	1/year	M

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

*** - C = 24-hour composite
G = Grab
D = Documented
M = Measured/calculated

Basis for Limitations Codes:

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

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

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

- **Biochemical Oxygen Demand (BOD_5)**. Operating permit retains 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average from the previous permit. Effluent limits were established in accordance with 10 CSR 20-7.015(8) for discharges to All Other Waters.

- **Total Suspended Solids (TSS)**. Operating permit retains 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average from the previous permit. Effluent limits were established in accordance with 10 CSR 20-7.015(8) for discharges to All Other Waters.

- ***Escherichia coli (E. coli)***. Monthly average of 126 per 100 mL as a geometric mean and Weekly Average of 630 per 100 mL as a geometric mean during the recreational season (April 1 – October 31), for discharges within two miles upstream of segments or lakes with Whole Body Contact Recreation (A) designated use of the receiving stream, as per 10 CSR 20-7.015(9)(B). An effluent limit for both monthly average and weekly average is required by 40 CFR 122.45(d). The Geometric Mean is calculated by multiplying all of the data points and then taking the nth root of this product, where n = # of samples collected. For example: Five *E. coli* samples were collected with results of 1, 4, 6, 10, and 5 (#/100mL). Geometric Mean = 5^{th} root of (1)(4)(6)(10)(5) = 5^{th} root of 1,200 = 4.1 #/100mL.

- **Total Ammonia Nitrogen**. Operating permit retains 4.5 mg/L as a Daily Maximum and 1.4 mg/L as a Monthly Average for the months of April through September, and permit retains 9.5 mg/L as a Daily Maximum and 2.9 mg/L as a Monthly Average for the months of October through March. The effluent limits of the previous permit were compared to the Department's current method for derivation of ammonia limits, see table below. The limits from the Department's current ammonia derivation method were determined to be less stringent than the previous permit. As such, the current derivation limits would not align with the need to

make Total Nitrogen reductions, therefore the previous permit limits are retained to ensure the goals of the James River TMDL are met and to be protective of the receiving stream.

Month	Previous permit MDL	Calculated MDL	Previous permit AML	Calculated AML
January	9.5	12.3	2.9	3.8
February	9.5	10.3	2.9	3.3
March	9.5	12.3	2.9	3.8
April	4.5	12.3	1.4	3.3
May	4.5	12.3	1.4	2.7
June	4.5	12.3	1.4	2.1
July	4.5	12.3	1.4	1.8
August	4.5	10.3	1.4	1.6
September	4.5	12.3	1.4	2.1
October	9.5	12.3	2.9	3.0
November	9.5	12.3	2.9	3.8
December	9.5	12.3	2.9	3.8

The green cells are most protective.

The Department's current method for derivation of ammonia: 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	8.1	7.8	3.1	12.1
February	9.3	7.9	2.7	10.1
March	13.0	7.8	3.1	12.1
April	16.7	7.8	2.7	12.1
May	20.0	7.8	2.2	12.1
June	24.0	7.8	1.7	12.1
July	26.6	7.8	1.5	12.1
August	26.5	7.9	1.3	10.1
September	23.5	7.8	1.8	12.1
October	18.0	7.8	2.5	12.1
November	14.0	7.8	3.1	12.1
December	10.0	7.8	3.1	12.1

* Ecoregion data (Ozark Highlands)

January
Chronic WLA: Ce = ((6.2 + 1.3475)3.1 – (1.3475 * 0.01)) / 6.2
Ce = 3.8

Acute WLA: Ce = ((6.2 + 0.0875)12.1 – (0.0875 * 0.01)) / 6.2
Ce = 12.3

AML = WLAc = 3.8 mg/L
MDL = WLAa = 12.3 mg/L

February
Chronic WLA: Ce = ((6.2 + 1.3475)2.7 – (1.3475 * 0.01)) / 6.2
Ce = 3.3

Acute WLA: Ce = ((6.2 + 0.0875)10.1 – (0.0875 * 0.01)) / 6.2
Ce = 10.3

AML = WLAc = 3.3 mg/L
MDL = WLAa = 10.3 mg/L

March
Chronic WLA: Ce = ((6.2 + 1.3475)3.1 – (1.3475 * 0.01)) / 6.2
Ce = 3.8

Acute WLA: Ce = ((6.2 + 0.0875)12.1 – (0.0875 * 0.01)) / 6.2
Ce = 12.3

AML = WLAc = 3.8 mg/L
MDL = WLAa = 12.3 mg/L

April
Chronic WLA: Ce = ((6.2 + 1.3475)2.7 – (1.3475 * 0.01)) / 6.2
Ce = 3.3

Acute WLA: Ce = ((6.2 + 0.0875)12.1 – (0.0875 * 0.01)) / 6.2
Ce = 12.3

AML = WLAc = 3.3 mg/L
MDL = WLAa = 12.3 mg/L

May
Chronic WLA: Ce = ((6.2 + 1.3475)2.2 – (1.3475 * 0.01)) / 6.2
Ce = 2.7

Acute WLA: Ce = ((6.2 + 0.0875)12.1 – (0.0875 * 0.01)) / 6.2
Ce = 12.3

AML = WLAc = 2.7 mg/L
MDL = WLAa = 12.3 mg/L

June
Chronic WLA: Ce = ((6.2 + 1.3475)1.7 – (1.3475 * 0.01)) / 6.2
Ce = 2.1

Acute WLA: Ce = ((6.2 + 0.0875)12.1 – (0.0875 * 0.01)) / 6.2
Ce = 12.3

AML = WLAc = 2.1 mg/L
MDL = WLAa = 12.3 mg/L

July
Chronic WLA: Ce = ((6.2 + 1.3475)1.5 – (1.3475 * 0.01)) / 6.2
Ce = 1.8

Acute WLA: Ce = ((6.2 + 0.0875)12.1 – (0.0875 * 0.01)) / 6.2
Ce = 12.3

AML = WLAc = 1.8 mg/L
MDL = WLAa = 12.3 mg/L

August
Chronic WLA: Ce = ((6.2 + 1.3475)1.3 – (1.3475 * 0.01)) / 6.2
Ce = 1.6

Acute WLA: Ce = ((6.2 + 0.0875)10.1 – (0.0875 * 0.01)) / 6.2
Ce = 10.3

AML = WLAc = 1.6 mg/L
MDL = WLAa = 10.3 mg/L

September
Chronic WLA: Ce = ((6.2 + 1.3475)1.8 – (1.3475 * 0.01)) / 6.2
Ce = 2.1

Acute WLA: Ce = ((6.2 + 0.0875)12.1 – (0.0875 * 0.01)) / 6.2
Ce = 12.3

AML = WLAc = 2.1 mg/L
MDL = WLAa = 12.3 mg/L

October
Chronic WLA: Ce = ((6.2 + 1.3475)2.5 – (1.3475 * 0.01)) / 6.2
Ce = 3

Acute WLA: Ce = ((6.2 + 0.0875)12.1 – (0.0875 * 0.01)) / 6.2
Ce = 12.3

AML = WLAc = 3 mg/L
MDL = WLAa = 12.3 mg/L

November
Chronic WLA: Ce = ((6.2 + 1.3475)3.1 – (1.3475 * 0.01)) / 6.2
Ce = 3.8

Acute WLA: Ce = ((6.2 + 0.0875)12.1 – (0.0875 * 0.01)) / 6.2
Ce = 12.3

AML = WLAc = 3.8 mg/L
MDL = WLAa = 12.3 mg/L

December
Chronic WLA: Ce = ((6.2 + 1.3475)3.1 – (1.3475 * 0.01)) / 6.2
Ce = 3.8

Acute WLA: Ce = ((6.2 + 0.0875)12.1 – (0.0875 * 0.01)) / 6.2
Ce = 12.3

AML = WLAc = 3.8 mg/L
MDL = WLAa = 12.3 mg/L

- **Oil & Grease**. During the drafting of this permit, the permit writer reviewed DMR data submitted by the permittee. Additionally, no evidence of an excursion of the water quality standard 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 the water quality standard. As a result, monitoring requirements have been included in this permit to determine if the discharge has the reasonable potential to cause or contribute to an excursion of the water quality standard. Data will be reviewed at renewal to reassess this determination.

- **pH**. 6.0-9.0 SU. The permit writer has made a reasonable potential determination based on the assimilative capacity of the receiving stream that the discharge will not cause or contribute to the excursion of the water quality standard for pH instream. Therefore, effluent limitations as required by 10 CSR 20-7.015 are substituted for the pH water quality criteria of 6.5-9.0 SU.

- **Biochemical Oxygen Demand (BOD_5) Percent Removal**. In accordance with 40 CFR Part 133, removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to BOD_5 and TSS for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for BOD_5.

- **Total Suspended Solids (TSS) Percent Removal**. In accordance with 40 CFR Part 133, removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to BOD_5 and TSS for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for TSS.

- **Total Phosphorus**.

  ✓ To Table Rock Lake and Lake Taneycomo, 0.5 mg/L per 10 CSR 20-7.015 (3).

- **Aluminum, Total Recoverable**. Monitoring requirement only. This facility uses chemicals for phosphorous removal that may contain aluminum. 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 Aluminum, please see **Appendix – RPA Results.** This determination will be reassessed at the time of renewal.

- **Total Nitrogen (Table A-1)**. Effluent monitoring for Total Nitrogen is required per 10 CSR 20-6.010(8)(B).

- **Total Nitrogen (Table A-2)**. The NPDES regulations at 40 CFR 122.45(d) require that all permit limits be expressed, unless impracticable, as both average monthly limits and maximum daily limits for all dischargers other than publicly owned treatment works (POTWs), and as average weekly limits and average monthly limits for POTWs.

  In the March 3, 2004 EPA Memorandum with the subject of; Annual Permit Limits for Nitrogen and Phosphorus for Permits Designed to Protect Chesapeake Bay and its tidal tributaries from Excess Nutrient Loading under the National Pollutant Discharge Elimination System, the Office of Wastewater Management cautioned that the steady-state statistical procedures described in EPA's Technical Support Document for Water Quality-based Toxics Control (TSD) were not applicable or appropriate for developing nutrient limits for the main stem of Chesapeake Bay and its tribal tributaries. The memo stated that developing permit limits for nutrients affecting Chesapeake Bay and its tidal tributaries is different from setting limits for toxic pollutants because the exposure period of concern for nutrients is longer than one month, and can be up to a few years, and the average exposure rather than the maximum exposure is of concern. The statistical derivation procedure described in the TSD for acute and chronic aquatic life protection is not applicable to exposure periods more than 30 days (see TSD page 105). The Office of Wastewater Management concluded that due to the characteristics of nutrient loading and its effects on the water quality in Chesapeake Bay and its tidal tributaries and because the derivation of appropriate daily, weekly or monthly limits is not possible for the reasons described above, that it is therefore "impracticable" to express permit effluent limitations as daily maximum, weekly average, or monthly average effluent limitations. Therefore the Department has determined that the WLA provided in the TMDL will be applied as an Average Monthly Limit (AML) in concentration and also as a Maximum Daily Load (MDL) in lbs. Due to the long term effects of nutrients on streams, an Annual Total Limit (ATL), an Annual Average Goal (AAG), and a Monthly Average and Monthly Total monitoring only requirements applied. These values is consistent with the assumptions and requirements of the TMDL.

  Total Nitrogen Annual Average Goal: The TN goal listed in the permit is not to be considered as an effluent limit for this permit, it is incorporated to further encourage reductions in the watershed. Nutrient credits cannot be purchased for meeting goals, however they can be purchased for meeting a permitted limit.

  AAG = WLA = **10 mg/L**
  ATL = MDL x 365 days
  Concentration to Mass formula: Mass (lbs./day) = concentration (mg/L) x Flow (MGD) x Conversion Factor
  MDL = 10 mg/L x 4.0 MGD x 8.34 = 333.6 lbs./day
  ATL = 333.6 lbs./day x 365 days = **121,764 lbs.**

  Annual Nitrogen Point Source Credits: Permittees may purchase available credits from other permittees located within the designated trading zone to meet the mass-based TN and/or TP limits within their permit. Permittees may also sell available credits to other permittees located within the designated trading zone for the other permittees to meet the mass-based TN and/or TP limits within their permit. TN credits can only be used to meet mass-based TN limits.

Sampling Frequency Justification: The Department has determined that previously established sampling and reporting frequency is sufficient to characterize the facility's effluent and be protective of water quality, except for Total Nitrogen. Weekly sampling is required for Ammonia, Total Kjeldahl Nitrogen, Nitrate + Nitrite, and Total Nitrogen to ensure that adequate data is collected to ensure that the discharge is protective of the TMDL limits. Weekly sampling is required for *E. coli*, per 10 CSR 20-7.015(9)(D)7.A.

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

PERMITTED FEATURE INF – INFLUENT MONITORING
The monitoring requirements established in the below Monitoring Requirements Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including the monitoring requirements listed in this table.

CHANGES TO INFLUENT MONITORING:

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

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

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

Influent Parameters

- **Biochemical Oxygen Demand (BOD_5) and Total Suspended Solids (TSS)**. An influent sample is required to determine the removal efficiency. In accordance with 40 CFR Part 133, removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to BOD_5 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 as monthly per 10 CSR 20-7.015(9)(D)8. The sampling and reporting frequency for influent BOD_5 has been established to match the required sampling frequency of this parameters in the effluent. The sampling and reporting frequency for influent TSS has been established to match the required sampling frequency of this parameter in 10 CSR 20-9.010(5)(B)2.

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

OUTFALL #001 – GENERAL CRITERIA CONSIDERATIONS:
In accordance with 40 CFR 122.44(d)(1), effluent limitations shall be placed into the permit for those pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. The rule further states that pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above a narrative criterion within an applicable State water quality standard, the permit shall contain a numeric effluent limitation to protect that narrative criterion. In order to comply with this regulation, the permit writer will complete reasonable potential determinations on whether the discharge will violate any of the general criteria listed in 10 CSR 20-7.031(4). These specific requirements are listed below followed by derivation and discussion (the lettering matches that of the rule itself, under 10 CSR 20-7.031(4)). It should also be noted that Section 644.076.1, RSMo as well as Section D – Administrative Requirements of Standard Conditions Part I of this permit states that it shall be unlawful for any person to cause or

permit any discharge of water contaminants from any water contaminant or point source located in Missouri that is in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law or any standard, rule or regulation promulgated by the commission.

(A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses. The discharge from this facility is made up of treated domestic wastewater. Based upon review of the Report of Compliance Inspection for the inspection conducted on January 11 and 13, 2022., 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 tertiary treatment technology and is currently in compliance with the secondary treatment technology based effluent limits established in 40 CFR 133 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 III – Rationale and Derivation of Effluent Limitations & Permit Conditions

ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:

✓ 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)].

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.

  - **Oil and Grease**. The permit writer conducted a reasonable potential determination using new DMR data. The previous permit had final effluent limits of 15 mg/L as a daily maximum and 10 mg/L as a monthly average. During the drafting of this permit, the permit writer reviewed DMR data submitted by the permittee. Additionally, no evidence of an

excursion of the water quality standard 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 the water quality standard. Therefore, the permit writer has made a determination that the discharge does not have the reasonable potential to cause or contribute to an excursion of the standard and has removed the final effluent limits from this permit and added monitoring only requirements. This backsliding is justified as there is information available which was not available at the time of the previous permit issuance (new DMR data). This new information justifies the application of a less stringent effluent limitation at the time of permit issuance. Also, the removal of the effluent limit and addition of a monitoring only requirement also meets the requirements of the safety clause, as the revision will not result in a violation of a water quality standard.

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

- **Acute Whole Effluent Toxicity (WET) test**. The previous permit included requirements to conduct an Acute WET test once /per year. The permit writer conducted a reasonable potential determination for all anticipated pollutants and established numeric effluent limitations where reasonable potential exists. Also, the facility has passed previous Acute WET tests. The permit writer determined the facility does not have reasonable potential to exceed narrative water quality standards for acute toxicity at this time and the Acute WET testing requirements have been removed from this permit. This backsliding is justified as there is information available which was not available at the time of the previous permit issuance (previous passing WET tests). This new information justifies the removal of the test at the time of permit issuance. Also, the removal of the test also meets the requirements of the safety clause, as the removal will not result in a violation of a water quality standard.

- **Chronic Whole Effluent Toxicity (WET) test**. The previous permit included requirements to conduct a Chronic WET test once during the permit cycle. The permit writer conducted a reasonable potential determination for all anticipated pollutants and established numeric effluent limitations where reasonable potential exists. Also, the facility has passed a previous Chronic WET test. The permit writer determined the facility does not have reasonable potential to exceed narrative water quality standards for chronic toxicity at this time and the Chronic WET testing requirements have been removed from this permit. This backsliding is justified as there is information available which was not available at the time of the previous permit issuance (previous passing WET tests). This new information justifies the removal of the test at the time of permit issuance. Also, the removal of the test also meets the requirements of the safety clause, as the removal will not result in a violation of a water quality standard.

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

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

- The previous permit indicated "There Shall Be No Discharge of Floating Solids or Visible Foam in Other Than Trace Amounts" under each table. The statement was not evaluated against actual site conditions therefore, this general criteria was re-assessed. It was determined that this facility does not discharge solids or foam in amounts which would indicate reasonable potential, therefore the statement was removed. Each general criteria was assessed for this facility.

ANTIDEGRADATION:

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

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 when a higher level authority is available by submitting information as part of the application to the Department for review and approval, provided it does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the Department.

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

- ✓ Permittee is authorized to land apply biosolids in accordance with Standard Conditions III. If other methods to remove and dispose (landfill, haul to another permitted treatment facility, etc.) of sludge/biosolids are needed and that method is not listed in the current permit, the permittee must modify the operating permit to add any biosolids/sludge disposal method to the facility description of the operating permit. For time sensitive situations, the permittee may contact the Department to see about approval for a one-time removal and disposal of sludge/biosolids that are not identified in the facility description of the operating permit.

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

Facility Performance History: The facility is not currently under Water Protection Program enforcement action. This facility was last inspected on January 11 and 13, 2022. The conditions of the facility at the time of inspection were found to be satisfactory.

CONTINUING AUTHORITY:

Each application for an operating permit shall identify the person, as that term is defined in section 644.016(15), RSMo, that is the owner of, operator of, or area-wide management authority for a water contaminant source, point source, wastewater treatment facility, or sewer collection system. This person shall be designated as the continuing authority and shall sign the application. By doing so, the person designated as the continuing authority acknowledges responsibility for compliance with all permit conditions.

10 CSR 20-6.010(2) establishes preferential levels for continuing authorities: Levels 1 through 5 (with Level 1 as the highest level), and generally requires permits to be issued to a higher preference continuing authority if available. A Level 3, 4, or 5 applicant may constitute a continuing authority by showing that Level 1 and Level 2 authorities are not available; do not have jurisdiction; are forbidden by state statute or local ordinance from providing service to the person; or that the Level 3, 4, or 5 applicant has met one of the requirements listed in paragraphs (2)(C)1.–7. of 10 CSR 20-6.010(2). The seven options in paragraphs (2)(C)1.–7. for a lower-level authority to demonstrate that it is the valid continuing authority are:

1. A waiver from the existing higher authority declining the offer to accept management of the additional wastewater or stormwater;
2. A written statement or a demonstration of non-response from the higher authority;
3. A to-scale map showing all parts of the legal boundary of the facility's property are beyond 2000 feet from the collection (sewer) system operated by the higher preference authority;
4. A proposed connection or adoption charge by the higher authority that would equal or exceed what is economically feasible for the applicant, which may be in the range of one hundred twenty percent (120%) of the applicant's cost for constructing or operating a wastewater treatment system;
5. A proposed service fee on the users of the system by the higher authority that is above what is affordable for existing homeowners in that area;
6. Terms for connection or adoption by the higher authority that would require more than two (2) years to achieve full sewer service; or
7. A demonstration that the terms for connection or adoption by the higher authority are not viable or feasible to homeowners in the area.

Permit applicants that are Levels 3, 4, and 5 must, as part of their application, identify their method of compliance with this regulation. The following are the methods to comply.

- o No higher level authorities are available to the facility;

- o No higher level authorities have jurisdiction;

- Higher level authorities are forbidden by state statute or local ordinance from providing service to the person;

- The existing higher level authority is available to the facility, however the facility has proposed the use of a lower preference continuing authority and has submitted one of the following as part of their application provided it does not conflict with any area-wide management plan approved under section 208 of the Clean Water Act or by the Missouri Clean Water Commission. (See Fact Sheet Appendix - Continuing Authority for more information on these options):
  - A waiver from the existing higher authority;
  - A written statement or a demonstration of non-response from the higher authority;
  - A to-scale map showing all parts of the legal boundary of the facility's property are beyond 2000 feet from the collection (sewer) system operated by the higher preference authority;
  - Documentation that the proposed connection or adoption charge by the higher authority would equal or exceed what is economically feasible for the applicant, which may be in the range of one hundred twenty percent (120%) of the applicant's cost for constructing or operating a wastewater treatment system;
  - Documentation that the proposed service fee on the users of the system by the higher authority is above what is affordable for existing homeowners in that area;
  - Documentation that the terms for connection or adoption by the higher authority would require more than two (2) years to achieve full sewer service;
  - A demonstration that the terms for connection or adoption by the higher authority are not viable or feasible to homeowners in the area;

✓ The continuing authority listed on the application is a municipality and therefore a Level 3 Authority. There is no approved Clean Water Act Section 208 plan in Christian County. The applicant has shown that:

- A higher level authority is not available to the facility;

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 can be provided upon request to the Department.

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: https://dnr.mo.gov/document-search/electronic-discharge-monitoring-report-waiver-request-form-mo-780-2692. 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 discharges into a lake watershed (Table Rock Lake) where numeric lake nutrient criteria are applicable, per 10 CSR 20-7.031(5)(N), and has a design flow greater than 0.1 MGD. The Department issued a memorandum on December 11, 2020 regarding facilities excluded from Table Rock Lake reasonable potential analysis which states, "All minor domestic wastewater treatment facilities located in subwatersheds that are not directly adjacent to Table Rock Lake were found to contribute minimal nutrients compared to nonpoint sources. These facilities do not have reasonable potential to cause or contribute to water quality impairments in Table Rock Lake". Nutrient monitoring is retained as per 10 CSR 20-7.015(9)(D)8. In accordance with 10 CSR 7.015(3), a Total Phosphorus limit of 0.5 mg/L is required and the James River TMDL has established nutrient limits.

OPERATOR CERTIFICATION REQUIREMENTS:

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 with population equivalents greater than 200 and are owned or operated by or for municipalities, public sewer districts, counties, public water supply districts, private sewer companies regulated by the Public Service Commission and state or federal agencies.

- ✓ This facility is required to have a certified operator as it has a population equivalent greater than 200 and is owned or operated by or for a municipality, public sewer district, county, public water supply district, private sewer company regulated by the PSC, state or federal agency.

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

Operator's Name: Justin K. Farris (Kirk)
Certification Number: 14184
Certification Level: WW-A

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

OPERATIONAL CONTROL TESTING:

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 calculated 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.
  - o 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)
Temperature – Mixed Liquor (sample contact and reaeration basins for contact stabilization)	Daily (M-F)

PRETREATMENT PROGRAM:

- ✓ The permittee, at this time, is not required to have a Pretreatment Program or does not have an approved pretreatment program.

REASONABLE POTENTIAL (RP):

Federal regulation [40 CFR Part 122.44(d)(1)(i)] and State Regulation [10 CSR 20-7.015(9)(A)2] requires effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above narrative or numeric water quality standard.

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

A reasonable potential analysis (RPA) is a numeric RP decision calculated using effluent data provided by the facility for parameters that have a numeric Water Quality Standard (WQS).

Reasonable potential determinations (RPD) are based on physical conditions of the site as provided in Sections 3.1.2, 3.1.3, and 3.2 of the TSD using best professional judgement. An RPD consists of evaluating visual observations for compliance with narrative criteria, non-numeric information, or small amounts of numerical data (such as 3 data points supplied in the application). Narrative criteria with RP typically translate to a numeric WQS, so a parameter's establishment being based on narrative criteria does not necessarily make the decision an RPD vs RP—how the data is collected does, however. When insufficient data is received to make a determination on RP based on numeric effluent data, the RPD decisions are based on best professional judgment considering the sources of influent wastewater, type of treatment, and historical overall management of the site.

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

- ✓ A RPD was made for Oil & Grease, that a potential to violate water quality standards does not exist. Please see Derivation and Discussion of Limits.

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

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

SANITARY SEWER OVERFLOWS (SSO) AND INFLOW AND INFILTRATION (I&I):
Sanitary Sewer Overflows (SSOs) are defined as untreated sewage releases and are considered bypassing under state regulation [10 CSR 20-2.010(12)] and should not be confused with the federal definition of bypass. SSOs result from a variety of causes including blockages, line breaks, and sewer defects that can either allow wastewater to backup within the collection system during dry weather conditions or allow excess stormwater and groundwater to enter and overload the collection system during wet weather conditions. SSOs can also result from lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs include overflows out of manholes, cleanouts, broken pipes, and other into waters of the state and onto city streets, sidewalks, and other terrestrial locations.

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

Missouri RSMo §644.026.1.(13) mandates that the Department issue permits for discharges of water contaminants into the waters of this state, and also for the operation of sewer systems. Such permit conditions shall ensure compliance with all requirements as established by sections 644.006 to 644.141. Standard Conditions Part I, referenced in the permit, contains provisions requiring proper operation and maintenance of all facilities and systems of treatment and control. Missouri RSMo §644.026.1.(15) instructs the Department to require proper maintenance and operation of treatment facilities and sewer systems and proper disposal of residual waste from all such facilities. To ensure that public health and the environment are protected, any noncompliance which may endanger public health or the environment must be reported to the Department within 24 hours of the time the permittee becomes aware of the noncompliance. Standard Conditions Part I, referenced in the permit, contains the reporting requirements for the permittee when bypasses and upsets occur. The permit also contains requirements for permittees to develop and implement a program for maintenance and repair of the collection system. The permit requires that the permittee submit an annual report to the Department for the previous 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 https://dnr.mo.gov/document-search/capacity-management-operations-maintenance-plan-editable-template. For additional information regarding the Departments' CMOM Model, see the CMOM Plan Model Guidance document at https://dnr.mo.gov/print/document-search/pub2574. 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)]. The facility has been given a schedule of compliance to meet final effluent limits for Total Nitrogen. The twelve (12) year schedule of compliance allowed for this facility should provide adequate time to evaluate operations, obtain an engineering report, hold a bond election, obtain a construction permit and implement upgrades required to meet effluent limits. Due to the low economic burden on this community of the cost of compliance and associated difficulty in raising the necessary funding, the schedule has been established at 12 years in accordance with the Department's "Schedule of Compliance, Policy for Staff Drafting Operating Permits". Please see the Cost Analysis for Compliance attached as an appendix to the permit for further detail on how the socio-economic status of the community has impacted this SOC.

The following suggested milestones can be used by the permittee as a timeline toward compliance with new permit requirements.

Suggested Milestones during the 12 Year Schedule of Compliance

Year	Milestone(s)
1	**Hire engineer and conduct rate survey, submit application for Engineering Report Grant for I&I evaluations**
2	**Implement rate survey recommendations, optimization, I&I work**
3	**Optimization, I&I work**
4	**Optimization, I&I work. Annual report shall detail the permittee's compliance approach to meet final limits (i.e. installation of technology, purchase TN credits, or hybrid including installation of technology and purchase of TN credits)**
5	**Submit renewal application, hold bond election, I&I work**
6	**Submit funding application, submit facility plan/Antidegradation, develop construction permit application, I&I work**
7	**Submit construction permit application, operating permit modification application, technical plans and specifications and summary of design**
8	**Construction permit application review, start construction**
9	**Construction**
10	**Construction, submit renewal application**
11	**Construction**
12	**Construction complete, submit Statement of Work Complete, meet limits**

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

✓ The permittee does not have a Department approved Sewer Extension Authority Supervised Program.

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

In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators,* (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in June 2015], BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure.

Additionally in accordance with the Stormwater Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of stormwater discharges. The purpose of a SWPPP is to comply with all applicable stormwater regulations by creating an adaptive management plan to control and mitigate stream pollution from stormwater runoff. Developing a SWPPP provides opportunities to employ appropriate BMPs to minimize the risk of pollutants being discharged during storm events. The following paragraph outlines the general steps the permittee should take to determine which BMPs will work to achieve the benchmark values or limits in the permit. This section is not intended to be all encompassing or restrict the use of any physical BMP or operational and maintenance procedure assisting in pollution control. Additional steps or revisions to the SWPPP may be required to meet the requirements of the permit.

Areas which should be included in the SWPPP are identified in 40 CFR 122.26(b)(14). Once the potential sources of stormwater pollution have been identified, a plan should be formulated to best control the amount of pollutant being released and discharged by each activity or source. This should include, but is not limited to, minimizing exposure to stormwater, good housekeeping measures, proper facility and equipment maintenance, spill prevention and response, vehicle traffic control, and proper materials handling. Once a plan has been developed the facility will employ the control measures determined to be adequate to achieve the benchmark values discussed above. The facility will conduct monitoring and inspections of the BMPs to ensure they are working properly and re-evaluate any BMP not achieving compliance with permitting requirements. For example, if sample results from an outfall show values of TSS above the benchmark value, the BMP being employed is deficient in controlling stormwater pollution. Corrective action should be taken to repair, improve, or replace the failing BMP. This internal evaluation is required at least once per month but should be continued more frequently if BMPs continue to fail. If failures do occur, continue this trial and error process until appropriate BMPs have been established.

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

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: https://dnr.mo.gov/forms-applications.

✓ 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 (https://dnr.mo.gov/document-search/form-b2-application-operating-permit-facilities-receive-primarily-domestic-waste-have-design-flow-more-100000-gallons-day-mo-780-1805) 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/document-search/no-exposure-certification-exclusion-npdes-stormwater-permitting-under-missouri-clean-water-law-mo-780-2828) to the Department's Water Protection Program, Operating Permits Section. Upon receipt 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:

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

WHOLE EFFLUENT TOXICITY (WET) TEST:

✓ At this time, the permittee is not required to conduct WET test for this facility. The previous permit included requirements to conduct a Chronic WET test once during the permit cycle and Acute WET tests once per year. The permit writer conducted a reasonable potential determination for all anticipated pollutants and established numeric effluent limitations where reasonable potential exists. Also, the facility has passed a previous Chronic WET test and the previous Acute WET tests. The permit writer determined the facility does not have reasonable potential to exceed narrative water quality standards for chronic or acute toxicity at this time and the Chronic and Acute WET testing requirements have been removed from this permit.

40 CFR 122.41(M) - BYPASSES:

✓ This facility does not anticipate bypassing.

Part IV – 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 Nixa

Annual Median Household Income (MHI)	Estimated Monthly User Rate	Residential Indicator (User Rate as a Percent of MHI)	Financial Capability Indicator	Financial Burden	Schedule of Compliance Length
$71,567	$43.74	0.7%	2.375	Low Burden	12 years
Pollution Control Option Selected for Analysis: BNR system with UV disinfection and additional sampling					
Estimated Present Worth: $33,112,541					

Part V – Administrative Requirements

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

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

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

PERMIT SYNCHRONIZATION:
The Department of Natural Resources is currently undergoing a synchronization process for operating permits. Permits are normally issued on a five-year term, but to achieve synchronization many permits will need to be issued for less than the full five years allowed by regulation. The intent is that all permits within a watershed will move through the Watershed Based Management (WBM) cycle together will all expire in the same fiscal year. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the Department to explore a watershed based permitting effort at some point in the future. Renewal applications must continue to be submitted within 180 days of expiration, however, in instances where effluent data from the previous renewal is less than 4 years old, that data may be re-submitted to meet the requirements of the renewal application. If the permit provides a schedule of compliance for meeting new water quality based effluent limits beyond the expiration date of the permit, the time remaining in the schedule of compliance will be allotted in the renewed permit. With permit synchronization, this permit will expire in the 4th Quarter of calendar year 2028.

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 September 1, 2023 to October 2, 2023. No responses received.

DATE OF FACT SHEET: OCTOBER 3, 2023

COMPLETED BY:

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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.)	4
Design Flow (avg. day) or peak month's flow (avg. day) whichever is larger	1 pt. / MGD or major fraction thereof. (Max 10 pts.)	4
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, lake or reservoir area supporting whole body contact recreation	3	
Direct reuse or recycle of effluent	6	
Land Application/Irrigation		
Drip Irrigation	3	
Land application/irrigation	5	
Overland flow	4	
Variation in Raw Wastes (highest level only)		
Variations do not exceed those normally or typically expected	0	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	
Preliminary Treatment		
STEP systems (operated by the permittee)	3	
Screening and/or comminution	3	3
Grit removal	3	3
Plant pumping of main flow	3	3
Flow equalization	5	5
Primary Treatment		
Primary clarifiers	5	
Chemical addition (except chlorine, enzymes)	4	
Secondary Treatment		
Trickling filter and other fixed film media with or without secondary clarifiers	10	
Activated sludge (including aeration, oxidation ditches, sequencing batch reactors, membrane bioreactors, and contact stabilization)	15	15
Stabilization ponds without aeration	5	
Aerated lagoon	8	
Advanced Lagoon Treatment – Aerobic cells, anaerobic cells, covers, or fixed film	10	
Biological, physical, or chemical	12	12
Carbon regeneration	4	
Total from page **ONE (1)**	----	49

APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Solids Handling		
Sludge Holding	5	5
Anaerobic digestion	10	
Aerobic digestion	6	
Evaporative sludge drying	2	
Mechanical dewatering	8	8
Solids reduction (incineration, wet oxidation)	12	
Land application	6	6
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	7
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	
Total from page **TWO (2)**	----	30
Total from page **ONE (1)**	---	49
Grand Total	---	79

☒ - 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 – Summer (mg/L)	12.1	4.30	1.5	3.59	30.00	1.9/0.1	0.74	2.30	YES
Ammonia as N – Winter (mg/L)	12.1	6.00	2.9	5.00	29.00	2.8/0.2	0.67	2.17	YES
Aluminum, TR (µg/L)	750.00	358.85	n/a	311.81	59	230/37.6	0.56	1.59	No

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

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

APPENDIX – Non-Detect Example Calculations:

Example: Permittee has four samples for Pollutant X which has a method minimum level of 5 mg/L and is to report a Daily Maximum and Monthly Average.

Week 1 = 11.4 mg/L
Week 2 = Non-Detect or <5.0 mg/L
Week 3 = 7.1 mg/L
Week 4 = Non-Detect or <5.0 mg/L

For this example, use subpart (h) - For reporting an average based on a mix of detected and non-detected values (not including *E. coli*), assign a value of "0" for all non-detects for that reporting period and report the average of all the results.

11.4 + 0 + 7.1 + 0 = 18.5 ÷ 4 (number of samples) = 4.63 mg/L.

The Permittee reports a Monthly Average of 4.63 mg/L and a Daily maximum of 11.4 mg/L (Note the < symbol was dropped in the answers).

Example: Permittee has five samples for Pollutant Y that has a method minimum level of 9 µg/L and is to report a Daily Maximum and Monthly Average.

Day 1 = Non-Detect or <9.0 µg/L
Day 2 = Non-Detect or <9.0 µg/L
Day 3 = Non-Detect or <9.0 µg/L
Day 4 = Non-Detect or <9.0 µg/L
Day 5 = Non-Detect or <9.0 µg/L

For this example, use subpart (g) - For reporting an average based on all non-detected values, remove the "<" sign from the values, average the values, and then add the "<" symbol back to the resulting average.

(9 +9 +9 +9 +9) ÷ 5 (number of samples) = <9 µg/L.

The Permittee reports a Monthly Average of <9.0 µg/L (retain the 'less than' symbol) and a Daily Maximum of <9.0 µg/L.

Example: Permittee has four samples for Pollutant Z where the first two tests were conducted using a method with a method minimum level of 4 µg/L and the remaining two tests were conducted using a different method that has a method minimum level of <6 µg/L and is to report a Monthly Average and a Weekly Average.

Week 1 = Non-Detect or <4.0 µg/L
Week 2 = Non-Detect or <4.0 µg/L
Week 3 = Non-Detect or <6.0 µg/L
Week 4 = Non-Detect or <6.0 µg/L

For this example, use subpart (g) - For reporting an average based on all non-detected values, remove the "<" sign from the values, average the values, and then add the "<" symbol back to the resulting average.

(4 + 4 + 6 + 6) ÷ 4 (number of samples) = <5 µg/L. (Monthly)

The facility reports a Monthly Average of <5.0 µg/L and a Weekly Average of <6.0 µg/L.

APPENDIX – Non-Detect Example Calculations (Continued):

Example: Permittee has five samples for Pollutant Z where the first two tests were conducted using a method with a method minimum level of 4 µg/L and the remaining three tests were conducted using a different method that has a method minimum level of <6 µg/L and is to report a Monthly Average and a Weekly Average.

Week 1 = Non-Detect or <4.0 µg/L
Week 2 = Non-Detect or <4.0 µg/L
Week 2 = Non-Detect or <6.0 µg/L
Week 3 = Non-Detect or <6.0 µg/L
Week 4 = Non-Detect or <6.0 µg/L

For this example, use subpart (g) - For reporting an average based on all non-detected values, remove the "<" sign from the values, average the values, and then add the "<" symbol back to the resulting average.

(4 + 4 + 6 + 6 + 6) ÷ 5 (number of samples) = <5.2 µg/L. (Monthly)
(4 + 6) ÷ 2 (number of samples) = <5 µg/L. (Week 2)

The facility reports a Monthly Average of <5.2 µg/L and a Weekly Average of <6.0 µg/L (report highest Weekly Average value)

Example: Permittee has four samples for Pollutant Z where the tests were conducted using a method with a method minimum level of 10 µg/L and is to report a Monthly Average and Daily Maximum. The permit lists that Pollutant Z has a Department determined Minimum Quantification Level (ML) of 130 µg/L.

Week 1 = 12 µg/L
Week 2 = 52 µg/L
Week 3 = Non-Detect or <10 µg/L
Week 4 = 133 µg/L

For this example, use subpart (h) - For reporting an average based on a mix of detected and non-detected values (not including *E. coli*), assign a value of "0" for all non-detects for that reporting period and report the average of all the results.

For this example, (12 + 52 + 0 + 133) ÷ 4 (number of samples) = 197 ÷ 4 = 49.3 µg/L.

The facility reports a Monthly Average of 49.3 µg/L and a Daily Maximum of 133 µg/L.

Example: Permittee has five samples for *E. coli* which has a method minimum level of 1 #/100mL and is to report a Weekly Average (seven (7) day geometric mean) and a Monthly Average (thirty (30) day geometric mean).

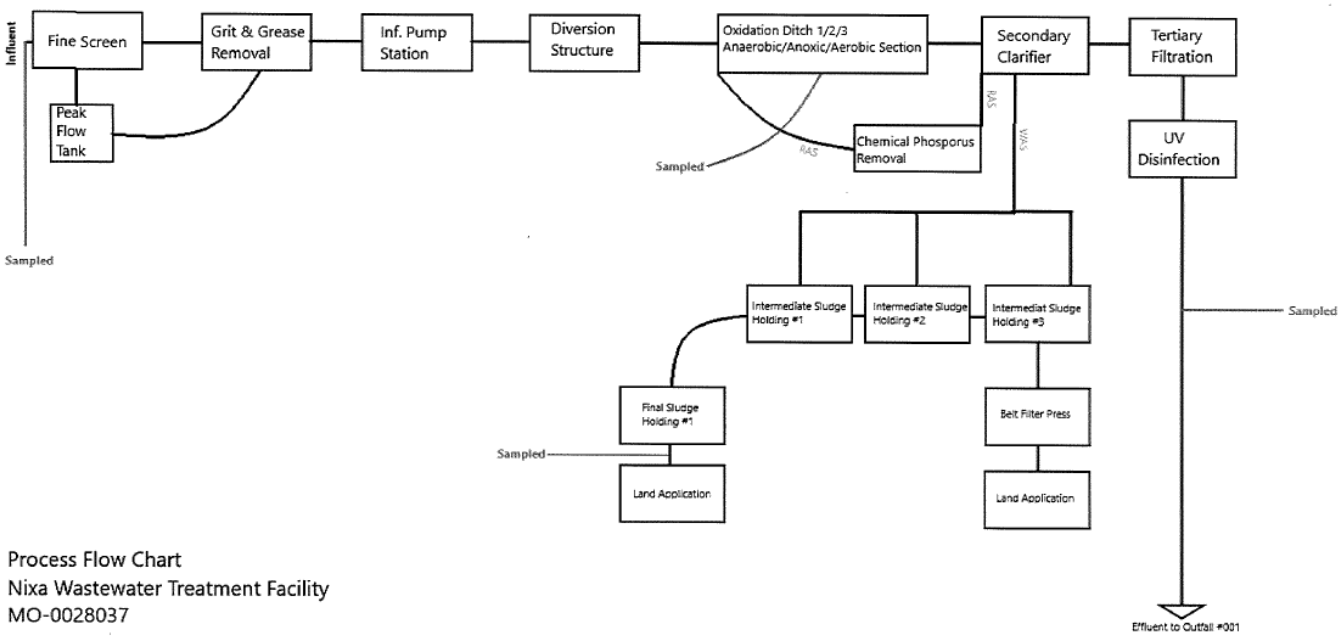
Week 1 = 102 #/100mL
Week 2 (Monday) = 400 #/100mL
Week 2 (Friday) = Non-Detect or <1 #/100mL
Week 3 = 15 #/100mL
Week 4 = Non-Detect or <1 #/100mL

For this example, use subpart (i) - When E. coli is not detected above the method minimum level, the permittee must report the data qualifier signifying less than detection limit for that parameter (e.g., <1 #/100mL, if the method minimum level is 1 #/100mL). For reporting a geometric mean based on a mix of detected and non-detected values, use one-half of the detection limit (instead of zero) for non-detects when calculating geometric means. The Geometric Mean is calculated by multiplying all of the data points and then taking the nth root of this product, where n = # of samples collected.

The Monthly Average (30 day Geometric Mean) = 5th root of (102)(400)(0.5)(15)(0.5) = 5th root of 153,000 = 10.9 #/100mL.
The 7 day Geometric Mean = 2nd root of (400)(0.5) = 2nd root of 200 = 14.1 #/100mL. (Week 2)

The Permittee reports a Monthly Average (30 day Geometric Mean) of 10.9 #/100mL and a Weekly Average (7 day geometric mean) of 102 #/100mL (report highest Weekly Average value)

APPENDIX – PROCESS FLOW CHART:



Process Flow Chart
Nixa Wastewater Treatment Facility
MO-0028037

APPENDIX B - JAMES RIVER WATERSHED NUTRIENT PERMITTING FRAMEWORK - WATERSHED PERMITTEES (≥ 0.100 MGD) AND TN WASTELOAD ALLOCATIONS:

Permit No.	Permittee	Facility	Design Flow MGD	James River TMDL TN Limitation mg/L	12-Month Mass Load lbs/year
MO0102318	City of Clever	Clever WWTF	0.210	10.0	6,392.61
MO0040835	City of Crane	Crane WWTF	0.300	10.0	9,132.30
MO0099813	City of Fordland	Fordland Municipal WWTF	0.100	10.0	3,044.10
MO0106151	City of Fremont Hills	Fremont Hills WWTF	0.176	10.0	5,357.62
MO0028037	City of Nixa	Nixa WWTF	4.000	10.0	121,764.00
MO0099163	City of Ozark	Ozark WWTF	2.100	10.0	63,926.10
MO0133671	City of Ozark	Elk Valley WWTF	1.000	10.0	30,441.00
MO0102679	City of Rogersville	Rogersville WWTF	0.960	10.0	29,223.36
MO0022985	City of Seymour	Seymour WWTF	0.378	10.0	11,506.70
MO0104027	City of Sparta	Sparta WWTF	0.200	10.0	6,088.20
MO0049522	City of Springfield	Springfield Southwest WWTF	64.000	10.0	1,948,224.00
MO0131172	City of Nixa	Tuscany Hills Subdivision WWTF	0.120	10.0	3,652.92

12-Month Total Nitrogen Mass Load = Nitrogen Concentration (mg/L) for Monitoring Period * Total Design Flow for Monitoring Period (MGD) * 8.34 * 365 days

APPENDIX – COST ANALYSIS FOR COMPLIANCE:

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

Nixa WWTP, Permit Renewal
City of Nixa
Missouri State Operating Permit #MO-0028037

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 that the permittee will upgrade their facility, or how the permittee will comply with new permit requirements. The results of this analysis are used to determine an adequate compliance schedule for the permit that may mitigate the financial burden of new permit requirements.

New Permit Requirements
The permit requires compliance with new effluent limitations for Total Nitrogen, which may require the design, construction, and operation of a different treatment technology. The cost assumptions in this analysis anticipate replacement of the existing treatment facility. For this analysis, the Department has selected a mechanical system that could be the most practical solution to meet the new requirements for the community.

The permit for Outfall #001 requires compliance with new weekly monitoring requirements for Total Kjeldahl Nitrogen and Nitrate + Nitrite. The permit for Permitted Feature INF requires compliance with new monthly monitoring requirements for Ammonia, Total Kjeldahl Nitrogen, Nitrate + Nitrite, and Total Phosphorus.

Flow and Connections
The size of the facility evaluated for upgrades was chosen based on the permitted design flow. If significant population growth is expected in the community, or if a significant portion of the flow is due to inflow and infiltration, then the flows and resulting estimated costs used in a facility plan prepared by a consulting engineer may differ. The number of connections was reported by the permittee on the Financial Questionnaire.

Flow Evaluated: 4.0 million gallons per day	
Connection Type	**Number**
Residential	8,947
Commercial	482
Industrial	0
Total	**9,429**

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 Department has relied heavily on readily available data to complete this analysis. 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".

The Department estimates the cost for reconstruction of a treatment plant using a software program from Hydromantis[1] titled CapdetWorks. CapdetWorks is a preliminary design and costing software program for wastewater treatment plants utilizing national indices, such as the Marshall and Swift Index and Engineering News Records Cost Index, to price the development of capital, operating, maintenance, material, and energy costs for various treatment technologies. The program works from national indices; therefore, estimated costs will vary from actual costs, as each community is unique in its budget commitments and treatment design. Because the methods used to derive the analysis estimate costs that tend to be greater than actual costs associated with an upgrade, it reflects a conservative estimate anticipated for a community. The overestimation of costs is due to the fact that it is unknown by the Department what existing equipment and structures will be reused in the upgraded facility before an engineer completes a facility design. For questions associated with CapdetWorks, please contact the Department's Engineering Section at (573) 751-6621.

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 Nixa	
Current Monthly User Rates per 5,000 gallons*	$33.95
Municipal Bond Rating (if applicable)	Aa2
Bonding Capacity**	$53,312,041
Median Household Income (MHI) [2]	$71,567
Current Annual Operating Costs (excludes depreciation)	$1,785,870
Current Outstanding Debt for the Facility	$760,000
Amount within the Current User Rate Used toward Payments on Outstanding Debt Related to the Current Wastewater Infrastructure	$3.93

* User Rates were reported by the permittee on the Financial Questionnaire.
** General Obligation Bond capacity allowed by constitution: Cities = up to 20% of taxable tangible property; Sewer districts or villages = up to 5% of taxable tangible property

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

The cost estimates located within this document are for the construction of a BNR system with UV disinfection that is the most practical to facilitate compliance with new permit requirements.

Cost Estimate Assumptions:
- Total Present Worth includes a five percent interest rate to construct and perform annual operation and maintenance of the new treatment plant over the term of the loan, which is 20 years for the mechanical plant option.
- Capital Cost includes design, construction, inspection, and contingency costs from CapdetWorks.
- Operation and maintenance (O&M) includes operations, maintenance, materials, chemical, and electrical costs for the facility on an annual basis. It includes items that are expected to be replaced during operations, such as pumps and is estimated between 15% and 45% of the user rate.
- Estimated user costs per 5,000 gallons per month are calculated using equations that account for debt retirement and annualized operation and maintenance costs over the life of the treatment facility. Estimated user costs are not added to the community's current user rate because they estimate total replacement of the facility.

The following table outlines 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	$26 x 12	$312
Total Kjeldahl Nitrogen - Influent	Monthly	$35 x 12	$420
Nitrate + Nitrite - Influent	Monthly	$44 x 12	$528
Ammonia - Influent	Monthly	$22 x 12	$264
Total Kjeldahl Nitrogen – Effluent	Weekly	$35 x 52	$1,820
Nitrate + Nitrite - Effluent	Weekly	$44 x 52	$2,288
Total Estimated Annual Cost of New Sampling and Permit Requirements			$5,632

β – previous permit required monthly frequency

Mechanical Plant Pollution Control Option Cost Estimates:
For the mechanical plant option, the Department has estimated costs for a BNR treatment system with UV disinfection.

Sludge handling and sludge treatment are included in the capital, operations, maintenance, and present worth cost estimations. New sampling costs are also included in the following cost estimations.

Criterion 2B Table. Estimated Costs for Mechanical Plant Pollution Control Option		
(1)	Estimated Total Present Worth	$33,112,541
	Estimated Capital Cost	$22,800,000
	Estimated Annual Cost of Operation and Maintenance	$827,505
	Estimated Monthly Cost Per User	$38.12
	Estimated Monthly Cost of New Sampling and Permit Requirements Per User	$0.05
	Estimated Monthly Cost Per User for Tuscany Hills WWTP	$1.64
(2)	Current Monthly Debt Retirement Amount Per User	$3.93
(3)	Total Monthly User Cost*	$43.74
	Total Monthly User Cost as a Percent of MHI [4]	0.7%

* Estimated Monthly Costs + Estimated Monthly Costs of New Sampling and Permit Requirements + Debt Retirement Amount + Estimated Monthly Cost for Tuscany Hills WWTP

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

An investment in wastewater treatment will provide several social, environmental, and economic benefits. 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 Limits: 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 phosphorus 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 effluent limits for nitrogen and phosphorus have been added to the permit to protect 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.

TMDL Limits: Effluent limits have been added or revised in the permit to protect the health of the receiving stream. These limits have been established based on the approved total maximum daily load (TMDL) for the receiving stream. The TMDL is the calculation of the maximum amount of a specific pollutant that a water body can absorb and still meet water quality standards. Missouri's water quality standards establish pollutant limits to protect drinking water supply, fishing, swimming, aquatic life and other designated uses. When waterbodies fail to meet the water quality standards, they are considered impaired waters. The federal Clean Water Act requires states to develop TMDLs for all waters on the 303(d) List of Impaired Waters. The calculated TMDL is allocated among the various pollutant sources in the watershed and becomes the goal to restore water quality. Each TMDL document includes allocations of the acceptable load for all pollutant sources. The portion of the load distributed to point sources (e.g., sewage treatment plants) is the wasteload allocation (WLA). Point source discharges are controlled by including water quality-based effluent limits (WQBEL) in permits issued to point source entities. WQBELs are calculated based on the WLAs in the TMDLs.

(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 $760,000. The community reported that each user pays $33.95 monthly, of which, $3.93 is used toward payments on the current outstanding debt.

As shown in Criterion 2, the projected user rate plus the amount of the current user rate used toward payments on outstanding debt plus the new sampling costs plus the projected user rate for the Tuscany Hills WWTP upgrade is $43.74 for the mechanical treatment option.

(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.

- A schedule of compliance will be provided based on the results of this cost analysis. The schedule of compliance is provided to ensure that the entity has time to reasonably plan for compliance with the new permit requirements. The time provided ensures the entity has time to hire an engineer, develop facility plans, hold community meetings, seek an appropriate funding source, and construct the facility. If it is determined by the permittee that a longer schedule of compliance is necessary due to financial reasons, please contact the Department and request modification of the compliance schedule.
- An integrated plan may be an appropriate option if the community needs to meet other environmental obligations as well as the new requirements within this permit. The integrated plan needs to be well thought out with specific timeframes built into the management plan in which the municipality can reasonably commit. The plan should be designed to allow the municipality to meet Clean Water Act obligations by maximizing infrastructure improvement dollars through the appropriate sequencing of work. For further information on how to develop an integrated plan, please see the Department publication, "Missouri Integrated Planning Framework," at https://dnr.mo.gov/document-search/missouri-integrated-planning-framework-pub2684/pub2684.
- If the permittee can demonstrate that the proposed pollution controls result in substantial and widespread economic and social impact, they may use Factor 6 of the Use Attainability Analysis (UAA) 40 CFR 131.10(g)(6) in the form of a variance. This process is completed by determining the treatment type with the highest attainable effluent quality that would not result in a socio-economic hardship. For more information on variance requests, please visit the Department's water quality standards webpage at https://dnr.mo.gov/water/what-were-doing/water-planning/quality-standards-impaired-waters-total-maximum-daily-loads/standards/variances.

(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 permittee may apply for State Revolving Fund (SRF) financial support in order to help fund a capital improvements plan. Other loans and grants also exist for which the facility may be eligible. More information can be found on the Department's FAC website at https://dnr.mo.gov/water/business-industry-other-entities/financial-opportunities/financial-assistance-center/wastewater.

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 [2, 4-8] for the City of Nixa

No.	Administrative Unit	Nixa City	Missouri State
1	Population (2021)	22,925	6,141,534
2	Percent Change in Population (2000-2021)	89.1%	9.8%
3	2021 Median Household Income (in 2022 Dollars)	$71,567	$65,928
4	Percent Change in Median Household Income (2000-2021)	8.2%	-1.1%
5	Median Age (2021)	34.8	38.8
6	Change in Median Age in Years (2000-2021)	2.9	2.7
7	Unemployment Rate (2021)	4.0%	4.5%
8	Percent of Population Below Poverty Level (2021)	7.4%	12.8%
9	Percent of Household Received Food Stamps (2021)	7.2%	10.1%
10	(Primary) County Where the Community Is Located	Christian County	

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

The community did not report any other investments relating to environmental improvements.

(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 following table characterizes the community's overall financial capability to raise the necessary funds to meet the new permit requirements.

Criterion 7A Table. Financial Capability Indicator

Indicators	Strong (3 points)	Mid-Range (2 points)	Weak (1 point)	Score
Bond Rating Indicator	Above BBB or Baa	BBB or Baa	Below BBB or Baa	3
Overall Net Debt as a % of Full Market Property Value	Below 2%	2% - 5%	Above 5%	3
Unemployment Rate (2021)	Beyond 1% below Missouri average of 4.5%	± 1% of Missouri average of 4.5%	Beyond 1% above Missouri average of 4.5%	2
2021 Median Household Income (in 2021 Dollars)	Beyond 25% above Missouri MHI ($65,928)	± 25% of Missouri MHI ($65,928)	Beyond 25% below Missouri MHI ($65,928)	2
Percent of Population Below Poverty Level (2021)	Beyond 10% below Missouri average of 12.8%	± 10% of Missouri average of 12.8%	Beyond 10% above Missouri average of 12.8%	2
Percent of Household Received Food Stamps (2021)	Beyond 5% below Missouri average of 10.1%	± 5% of Missouri average of 10.1%	Beyond 5% above Missouri average of 10.1%	2
Property Tax Revenues as a % of Full Market Property Value	Below 2%	2% - 4%	Above 4%	3
Property Tax Collection Rate	Above 98%	94% - 98%	Below 94%	2
Total Average Score (Financial Capability Indicator)	--	--	--	2.375

The **Financial Capability Indicator** and the **Residential Indicator** are considered jointly in the Financial Capability Matrix to determine the financial burden that could occur from compliance with the new requirements of the permit.

- Financial Capability Indicator (from Criterion 7): 2.375
- Mechanical Plant Residential Indicator (from Criterion 2): 0.7%

Criterion 7B Table. Financial Capability Matrix

Financial Capability Indicator	Residential Indicator (User Rate as a % of MHI)		
	Low (Below 1%)	Mid-Range (1.0% to 2.0%)	High (Above 2.0%)
Weak (Below 1.5)	Medium Burden	High Burden	High Burden
Mid-Range (1.5 – 2.5)	Low Burden	Medium Burden	High Burden
Strong (Above 2.5)	Low Burden	Medium Burden	High Burden

- Resulting Financial Burden for Mechanical Plant: Low Burden

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

The community did not report any other relevant local economic conditions.

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 upgrade the facility and construct new control technologies and 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. The Department finds that a BNR treatment system with UV disinfection is the most practical and affordable option for the City of Nixa. The construction and operation of a BNR treatment system with UV disinfection will ensure that the individuals within the community will not be required to make unreasonable sacrifices in their essential lifestyle or spending patterns or undergo hardships in order to make the projected monthly payments for sewer connections.

In accordance with 40 CFR 122.47(a)(1) and 10 CSR 20-7.031(11), compliance must occur as soon as possible; therefore, based on this analysis, the permit holder has received an **twelve (12)** year schedule of compliance for the design and construction of a BNR treatment system with UV disinfection. The following suggested milestones can be used by the permittee as a timeline toward compliance with new permit requirements. Once the permit holder's engineer has completed facility design with actual costs associated with permit compliance, it may be necessary for the permit holder to request additional time within the schedule of compliance. The Department is committed to review all requests for additional time in the schedule of compliance where adequate justification is provided.

Suggested Milestones during the 12 Year Schedule of Compliance

Year	Milestone(s)
1	**Hire engineer and conduct rate survey, submit application for Engineering Report Grant for I&I evaluations**
2	**Implement rate survey recommendations, optimization, I&I work**
3	**Optimization, I&I work**
4	**Optimization, I&I work. Annual report shall detail the permittee's compliance approach to meet final limits (i.e. installation of technology, purchase TN credits, or hybrid including installation of technology and purchase of TN credits)**
5	**Submit renewal application, hold bond election, I&I work**
6	**Submit funding application, submit facility plan/Antidegradation, develop construction permit application, I&I work**
7	**Submit construction permit application, operating permit modification application, technical plans and specifications and summary of design**
8	**Construction permit application review, start construction**
9	**Construction**
10	**Construction, submit renewal application**
11	**Construction**
12	**Construction complete, submit Statement of Work Complete, meet limits**

The Department is committed to reassessing the cost analysis for compliance at renewal to determine if the initial schedule of compliance will accommodate the socioeconomic data and financial capability of the community at that time. Because each community is unique, the Department wants to make sure that each community has the opportunity to consider all options and tailor solutions to best meet their needs. The Department understands the economic challenges associated with achieving compliance, and is committed to using all available tools to make an accurate and practical finding of affordability for Missouri communities. If the community is interested in the funding options available to them, please contact the Financial Assistance Center for more information. https://dnr.mo.gov/water/business-industry-other-entities/financial-opportunities/financial-assistance-center/wastewater.

This determination is based on readily available data and may overestimate the financial impact on the community. The community's facility plan that is submitted as a part of the construction permit process includes a discussion of community details, what the community can afford, existing obligations, future growth potential, an evaluation of options available to the community with cost information, and a discussion on no-discharge alternatives. The cost information provided through the facility plan process, which is developed by the community and their engineer, is more comprehensive of the community's individual factors in relation to selected treatment technology and costing information.

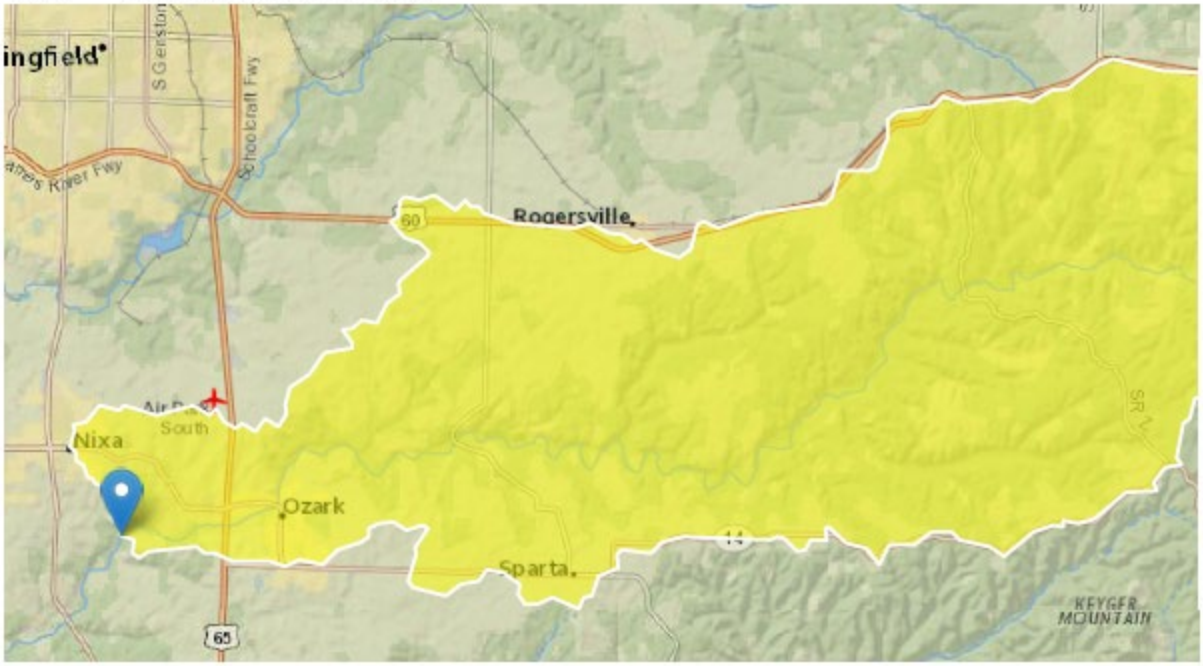
References

1. http://www.hydromantis.com/
2. (A) 2021 MHI in 2021 Dollar: United States Census Bureau. 2017-2021 American Community Survey 5-Year Estimates, Table B19013: Median Household Income in the Past 12 Months (in 2021 Inflation-Adjusted Dollars). https://data.census.gov/cedsci/table?q=B19013&tid=ACSDT5Y2021.B19013.
(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/content/dam/Census/library/publications/2003/dec/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/content/dam/Census/library/publications/2003/dec/phc-2-1-pt1.pdf.
(C) 2022 CPI, 2021 CPI and 1999 CPI: U.S. Department of Labor Bureau of Labor Statistics (2022) Consumer Price Index - All Urban Consumers, U.S. City Average. All Items. 1982-84=100 (unadjusted) - CUUR0000SAO. https://data.bls.gov/cgi-bin/surveymost?bls.
(D) 2021 MHI in 2022 Dollar = 2021 MHI in 2021 Dollar x 2022 CPI /2021 CPI; 2000 MHI in 2021 Dollar = 2000 MHI in 1999 Dollar x 2022 CPI /1999 CPI.
(E) Percent Change in Median Household Income (2000-2021) = (2021 MHI in 2022 Dollar - 2000 MHI in 2022 Dollar) / (2000 MHI in 2022 Dollar).
3. ($43.74/($71,567/12))100% = 0.7% (mechanical + sampling + debt + Tuscany Hills WWTP costs)
4. (A) Total Population in 2021: United States Census Bureau. 2017-2021 American Community Survey 5-Year Estimates, Table B01003: Total Population - Universe: Total Population. https://data.census.gov/cedsci/table?q=B01003&tid=ACSDT5Y2021.B01003.
(B) 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/content/dam/Census/library/publications/2003/dec/phc-2-1-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. https://www2.census.gov/library/publications/2003/dec/phc-2-1-pt2.pdf.
(C) Percent Change in Population (2000-2021) = (Total Population in 2021 - Total Population in 2000) / (Total Population in 2000).
5. Median Age in 2021: United States Census Bureau. 2017-2021 American Community Survey 5-Year Estimates, Table B01002: Median Age by Sex - Universe: Total population. https://data.census.gov/cedsci/table?q=B01002&tid=ACSDT5Y2021.B01002.
(B) 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/content/dam/Census/library/publications/2003/dec/phc-2-1-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. https://www2.census.gov/library/publications/2003/dec/phc-2-1-pt2.pdf.
(C) Change in Median Age in Years (2000-2021) = (Median Age in 2021 - Median Age in 2000).
6. United States Census Bureau. 2017-2021 American Community Survey 5-Year Estimates, S2301: Employment Status for the Population 16 Years and Over - Universe: Population 16 years and Over. https://data.census.gov/cedsci/table?q=unemployment&tid=ACSST5Y2021.S2301.
7. United States Census Bureau. 2017-2021 American Community Survey 5-Year Estimates, Table S1701: Poverty Status in the Past 12 Months. https://data.census.gov/cedsci/table?q=S1701&tid=ACSST5Y2021.S1701.
8. United States Census Bureau. 2017-2021 American Community Survey 5-Year Estimates, Table S2201: Food Stamps/Supplemental Nutrition Assistance Program (SNAP) - Universe: Households. https://data.census.gov/cedsci/table?q=S2201&tid=ACSST5Y2021.S2201.

APPENDIX: RECEIVING STREAM LOW-FLOW VALUE:

StreamStats Report

Region ID: MO
Workspace ID: MO20230406190049525000
Clicked Point (Latitude, Longitude): 37.01444, -93.27318
Time: 2023-04-06 14:01:15 -0500



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	219	square miles
STREAM_VARG	Streamflow variability index as defined in WRIR 02-4068, computed from regional grid	0.56	dimensionless

Low-Flow Statistics

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

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	219	square miles	0.21	7380
STREAM_VARG	Streamflow Variability Index from Grid	0.56	dimensionless	0.273	0.926

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

Statistic	Value	Unit
1 Day 10 Year Low Flow	3.5	ft^3/s
2 Day 10 Year Low Flow	3.84	ft^3/s
3 Day 10 Year Low Flow	3.93	ft^3/s
7 Day 10 Year Low Flow	4.22	ft^3/s
10 Day 10 Year Low Flow	4.44	ft^3/s
30 Day 10 Year Low Flow	5.39	ft^3/s
60 Day 10 Year Low Flow	6.97	ft^3/s

Low-Flow Statistics Citations

Southard, R.E.,2013, Computed statistics at streamgages, and methods for estimating low-flow frequency statistics and development of regional regression equations for estimating low-flow frequency statistics at ungaged locations in Missouri: U.S. Geological Survey Scientific Investigations Report 2013–5090, 28 p. (http://pubs.usgs.gov/sir/2013/5090/)

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

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

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

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

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

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

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

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

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

Section B – Reporting Requirements

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

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

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

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

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

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

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

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

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

Section C – Bypass/Upset Requirements

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

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

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

Section D – Administrative Requirements

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

1. Definitions

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

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

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

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

2. Identification of Industrial Discharges

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

3. Application Information

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

4. Notice to the Department

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

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

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

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

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

PART III – BIOSOLIDS AND SLUDGE FROM DOMESTIC TREATMENT FACILITIES

SECTION A – GENERAL REQUIREMENTS

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

SECTION B – DEFINITIONS

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

SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES

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

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

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

SECTION E – INCINERATION OF SLUDGE

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

SECTION F – SURFACE DISPOSAL SITES AND BIOSOLIDS AND SLUDGE LAGOONS

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

SECTION G – LAND APPLICATION OF BIOSOLIDS

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

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

TABLE 1

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

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

TABLE 2

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

e. Annual pollutant loading rate.

Table 3

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

f. Cumulative pollutant loading rates.

Table 4

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

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

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

i. PAN can be determined as follows:

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

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

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

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

d. Buffer zones are as follows:

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

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

iii. 150 feet of dwellings or public use areas;

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

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

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

e. Slope limitation for application sites are as follows:

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

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

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

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

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

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

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

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

iii. Other best management practices approved by the Department.

SECTION H – SEPTAGE

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

SECTION I– CLOSURE REQUIREMENTS

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

surface water drainage without creating erosion.

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

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

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

SECTION J – MONITORING FREQUENCY

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

TABLE 5

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

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

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

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

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

SECTION K – RECORD KEEPING AND REPORTING REQUIREMENTS

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

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

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

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

RECEIVED
MAR 06 2020
Water Protection Program

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

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

FACILITY NAME	
Nixa Wastewater Treatment Facility	
PERMIT NO.	COUNTY
MO-0028037	Christian

APPLICATION OVERVIEW

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

BASIC APPLICATION INFORMATION

A. Basic application information for all applicants. All applicants must complete Part A.

B. Additional application information for all applicants. All applicants must complete Part B.

C. Certification. All applicants must complete Part C.

SUPPLEMENTAL APPLICATION INFORMATION

D. Expanded Effluent Testing Data. A treatment works that discharges effluent to surface water of the United States and meets one or more of the following criteria must complete *Part D - Expanded Effluent Testing Data*:

1. Has a design flow rate greater than or equal to 1 million gallons per day.
2. Is required to have or currently has a pretreatment program.
3. Is otherwise required by the permitting authority to provide the information.

E. Toxicity Testing Data. A treatment works that meets one or more of the following criteria must complete *Part E - Toxicity Testing Data*:

1. Has a design flow rate greater than or equal to 1 million gallons per day.
2. Is required to have or currently has a pretreatment program.
3. Is otherwise required by the permitting authority to provide the information.

F. Industrial User Discharges and Resource Conservation and Recovery Act / Comprehensive Environmental Response, Compensation and Liability Act Wastes. A treatment works that accepts process wastewater from any significant industrial users, also known as SIUs, or receives a Resource Conservation and Recovery Act or CERCLA wastes must complete *Part F - Industrial User Discharges and Resource Conservation and Recovery Act /CERCLA Wastes.*

SIUs are defined as:

1. All Categorical Industrial Users, or CIUs, subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations 403.6 and 40 Code of Federal Regulations 403.6 and 40 CFR Chapter 1, Subchapter N.
2. Any other industrial user that meets one or more of the following:
   - i. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions).
   - ii. Contributes a process waste stream that makes up five percent or more of the average dry weather hydraulic or organic capacity of the treatment plant.
   - iii. Is designated as an SIU by the control authority.
   - iv. Is otherwise required by the permitting authority to provide the information.

G. Combined Sewer Systems. A treatment works that has a combined sewer system must complete *Part G - Combined Sewer Systems.*

ALL APPLICANTS MUST COMPLETE PARTS A, B and C

34559

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

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

FOR AGENCY USE ONLY	
CHECK NUMBER	
DATE RECEIVED	FEE SUBMITTED
3-6-20	0
JET PAY CONFIRMATION NUMBER	

PART A – BASIC APPLICATION INFORMATION

1. THIS APPLICATION IS FOR:

☐ An operating permit for a new or unpermitted facility. Construction Permit # _____
(Include completed Antidegradation Review or request to conduct an Antidegradation Review, see instructions)

☑ An operating permit renewal: Permit #MO- 0028037 Expiration Date September 30 2020

☐ An operating permit modification: Permit #MO-_____ Reason: _____

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

2. FACILITY

NAME		TELEPHONE NUMBER WITH AREA CODE	
Nixa Wastewater Treatment Facility		417-725-7117	
ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE
972 S. Old Riverdale Rd	Nixa	MO	65714

2.1 **LEGAL DESCRIPTION** (Facility Site): Sec. 30 , T 27N , R 21W — COUNTY: Christian

2.2 UTM Coordinates Easting (X): 475696 Northing (Y): 4096506
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

2.3 Name of receiving stream: Finely Creek

2.4 Number of Outfalls: 1 wastewater outfalls: 1 stormwater outfalls: 0 instream monitoring sites: 1

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

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
City of Nixa	Jyoungblood@Nixa.com	417-725-7117	
ADDRESS	CITY	STATE	ZIP CODE
PO Box 395	Nixa	MO	65714

3.1 Request review of draft permit prior to Public Notice? ☑ YES ☐ NO

3.2 Are you a Publically Owned Treatment Works (POTW)? ☑ YES ☐ NO
If yes, is the Financial Questionnaire attached? ☑ YES ☐ NO See: https://dnr.mo.gov/forms/780-2511-f.pdf

3.3 Are you a Privately Owned Treatment Facility? ☑ YES ☐ NO

3.4 Are you a Privately Owned Treatment Facility regulated by the Public Service Commission (PSC)? ☐ YES ☑ NO

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

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
City of Nixa	Jyoungblood@Nixa.com	417-725-7117	
ADDRESS	CITY	STATE	ZIP CODE
PO Box 395	Nixa	MO	65714

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

5. OPERATOR

NAME	TITLE	CERTIFICATE NUMBER (IF APPLICABLE)
Joshua B Youngblood	WW Treatment Superintendent	12016
EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
JYoungblood@Nixa.com	417-725-7117	

6. FACILITY CONTACT

NAME	TITLE		
Joshua B. Youngblood	WW Treatment Superintendent		
EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE		
Jyoungblood@nixa.com	417-725-7117		
ADDRESS	CITY	STATE	ZIP CODE
PO Box 395	Nixa	MO	65714

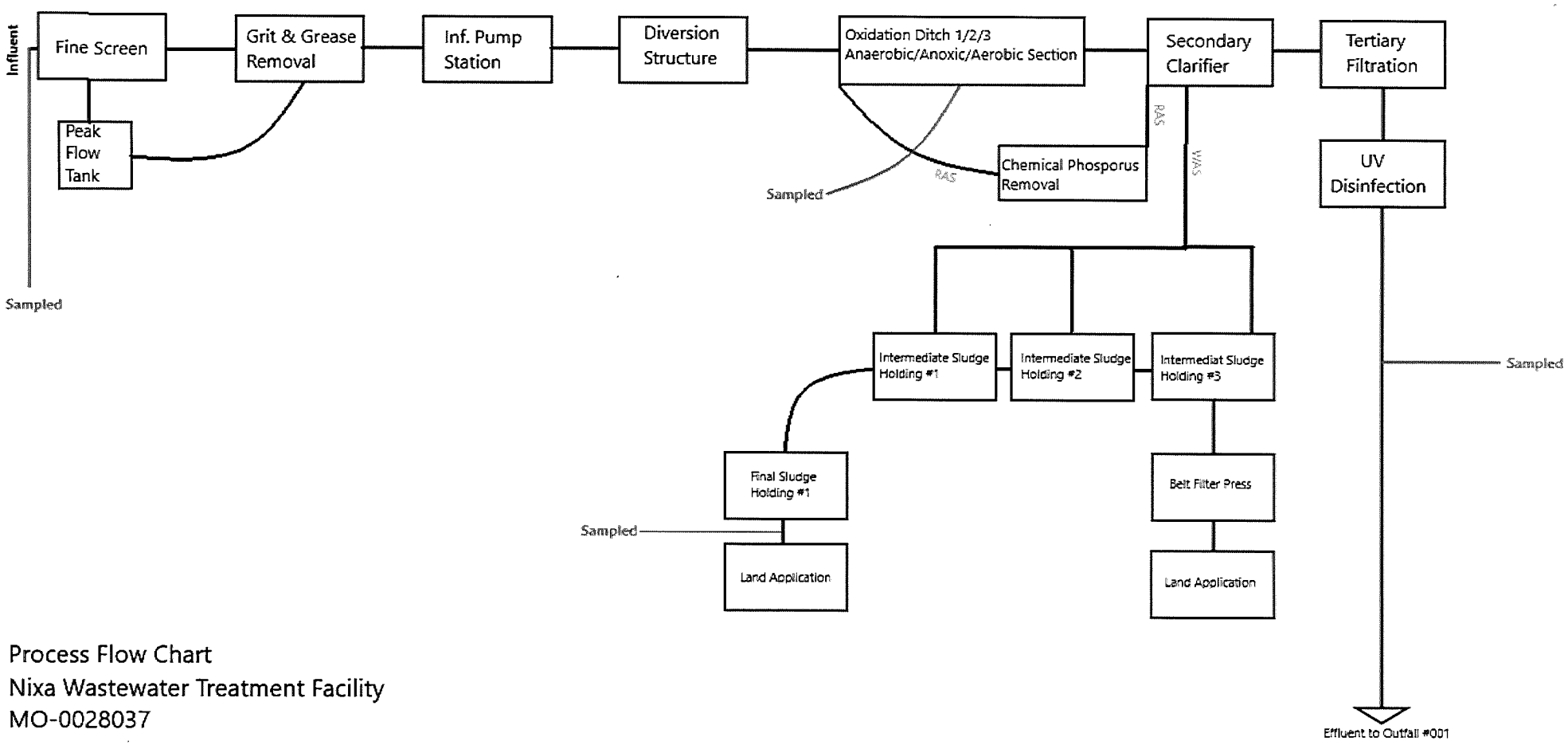
FACILITY NAME	PERMIT NO.	OUTFALL NO.
Nixa Wastewater Treatment Facility	MO- 0028037	001

PART A – BASIC APPLICATION INFORMATION

7. FACILITY INFORMATION

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

See Attached



Process Flow Chart
Nixa Wastewater Treatment Facility
MO-0028037

Nixa Wastewater Treatment Facility

Permit #MO-0028037

Influent enters the facility from two directions. One pipe from the West and another from the North. Influent flows into the facility thru a Kuster Multi-rake bar screen were rags and trash are removed and sent to the landfill. The water continues to the grit and grease chamber where the liquid is aerated causing the grit to sink to the bottom and then removed via a pump. The grit is then classified out and sent to the landfill. Grease is removed from the top and sent to the landfill as well.

The liquid continues into the Influent pump station where it is pumped to the Diversion Structure. The Diversion Structure diverts the flow to the Anaerobic sections of either Oxidation Ditch 1,2, or 3. Hydraulically the liquid flows from the Anaerobic section to the Anoxic Section, then on to the Oxidation Section.

From the Oxidation Section the liquid hydraulically flows into the Clarifier where the solids are separated out. The clarified water flows from the Clarifier to the Tertiary filter then from the filters to the UV disinfection system and then to the outfall. Aluminum Sulfate is added to the solids after the T-valve solids return.

The solids are either returned to the ditch through the Return Activated Sludge pumps or wasted as Waste Activated Sludge to the Intermediate Sludge Holding Tanks (1,2,3). Once in the Intermediate Sludge Holding Tanks the sludge is cycled through aeration periods and settling periods to draw supernatant in order to thicken the sludge for land application. The Waste Activated Sludge is then transferred into the Final Sludge Holding tank for further stabilization before land application.

Sludge is also stored in Intermediate Sludge Holding tank #3 to feed the Belt Filter Press for use in making compost.

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Nixa Wastewater Treatment Facility	MO- 0028037	001

PART A – BASIC APPLICATION INFORMATION

7. FACILITY INFORMATION (continued)

7.2 **Map.** Attach to this application an aerial or topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information. A map can be obtained by visiting the following website: https://modnr.maps.arcgis.com/apps/webappviewer/index.html?id=1d81212e0854478ca0dae87c33c8c5ce

a. The area surrounding the treatment plant, including all unit processes.
b. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.
c. The actual point of discharge.
d. Wells, springs, other surface water bodies and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.
e. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.
f. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored, or disposed.

7.3	Facility SIC Code: 4952	Discharge SIC Code: 4952

7.4 Number of people presently connected or population equivalent (P.E.): _____ Design P.E. 40,000

7.5 Connections to the facility:

Number of units presently connected: 8508

Residential: 8048 Commericial: 460 Industrial 0

7.6	Design Flow 4 MGD	Actual Flow 1.5 MGD

7.7 Will discharge be continuous through the year? Yes ☑ No ☐
Discharge will occur during the following months: 12 Months
How many days of the week will discharge occur? 365 Days

7.8 Is industrial wastewater discharged to the facility? Yes ☐ No ☑
If yes, describe the number and types of industries that discharge to your facility. Attach sheets as necessary

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

7.9	Does the facility accept or process leachate from landfills?:	Yes ☐	No ☑
7.10	Is wastewater land applied? **If yes**, please attach Form I See: https://dnr.mo.gov/forms/780-1686-f.pdf	Yes ☐	No ☑
7.11	Does the facility discharge to a losing stream or sinkhole?	Yes ☐	No ☑
7.12	Has a wasteload allocation study been completed for this facility?	Yes ☐	No ☑

8. LABORATORY CONTROL INFORMATION

LABORATORY WORK CONDUCTED BY PLANT PERSONNEL

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


Nixa WWTF
MO-0028037
Nixa
Well
Property Boundary
WWTF Boundary
Nixa WWTF
Nixa WWTF Outfall 001
Google Earth
N


Sludge Disposal Sites
Nixa WWTF
Nixa WWTF Outfall 001
Rosedale Rd
Google Earth
5000 ft
N


Sludge Disposal Sites
141
A3
Google Earth
N


Nixa WWTF Outfall 001
Sludge Disposal Sites
Google Earth
2000 ft
N


Sludge Disposal Sites
Nixa WWTF
Nixa WWTF Outfall 001
Rosedale Rd
Multnogo Rd
Google Earth
5000 ft
N


Sludge Disposal Sites
Google Earth
4000 ft
N


Sludge Disposal Sites
Missouri M
U
Google Earth
©2020 Google
N
3000 ft

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Nixa Wastewater Treatment Facility	MO- 0028037	001

PART A – BASIC APPLICATION INFORMATION

9. SLUDGE HANDLING, USE AND DISPOSAL

9.1 Is the sludge a hazardous waste as defined by 10 CSR 25? Yes ☐ No ☑

9.2 Sludge production (Including sludge received from others): Design Dry Tons/Year 1317 Actual Dry Tons/Year ~300

9.3 Sludge storage provided: 15709 Cubic feet; 45 Days of storage; 1.25 Average percent solids of sludge;

☐ No sludge storage is provided. ☐ Sludge is stored in lagoon.

9.4 Type of storage:

☐ Holding Tank ☐ Building
☐ Basin ☐ Lagoon
☐ Concrete Pad ☑ Other (Describe) Holding Tank with Aeration

9.5 Sludge Treatment:

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

9.6 Sludge use or disposal:

☑ Land Application ☐ Contract Hauler ☐ Hauled to Another Treatment Facility ☐ Solid Waste Landfill
☐ Surface Disposal (Sludge Disposal Lagoon, Sludge Held For More Than Two Years) ☐ Incineration
☑ Other (Attach Explanation Sheet) Class A Biosolids-Compost

9.7 Person responsible for hauling sludge to disposal facility:
☑ By Applicant ☐ By Others (complete below)

NAME	EMAIL ADDRESS
City of Nixa	Jyoungblood@Nixa.com

ADDRESS	CITY	STATE	ZIP CODE
PO Box 395	Nixa	MO	65714

CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO.
Joshua B. Youngblood	417-725-7117	MO- 0028037

9.8 Sludge use or disposal facility:
☑ By Applicant ☐ By Others (Complete below)

NAME	EMAIL ADDRESS
City of Nixa	Jyoungblood@Nixa.com

ADDRESS	CITY	STATE	ZIP CODE
PO Box 395	Nixa	MO	65714

CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO.
Joshua B. Youngblood	417-725-7117	MO- 0028037

9.9 Does the sludge or biosolids disposal comply with Federal Sludge Regulation 40 CFR 503?
☑ Yes ☐ No (Explain)

END OF PART A

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Nixa Wastewater Treatment Facility	MO- 0028037	001

PART B – ADDITIONAL APPLICATION INFORMATION

10. COLLECTION SYSTEM

10.1 Are there any municipal satellite collection systems connected to this facility? ☐ Yes ☑ No

If yes, please list all connected to this facility, contact phone number and length of each collection system

FACILITY	CONTACT PHONE NUMBER	LENGTH OF SYSTEM (FEET OR MILES)

10.2 Length of sanitary sewer collection system in miles (If available, include totals from satellite collection systems) 134 miles

10.3 Does significant infiltration occur in the collection system? ☑ Yes ☐ No

If yes, briefly explain any steps underway or planned to minimize inflow and infiltration:

Annual budget of over $200,000 to reduce I/I through closed circuit TV inspection of mains to look for defects, visual inspection of manholes to look for missing lids and displaced frames and covers, and cured in place lining of mains and service line connections in collection system where needed.

11. BYPASSING

Does any bypassing occur anywhere in the collection system or at the treatment facility? Yes ☐ No ☑

If yes, explain:

12. OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)

Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of the contractor?

Yes ☐ No ☑

If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)

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

13. SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION

Provide information about any uncompleted implementation schedule or uncompleted plans for improvements that will affect the wastewater treatment, effluent quality, or design capacity of the treatment works. If the treatment works has several different implementation schedules or is planning several improvements, submit separate responses for each.

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Nixa Wastewater Treatment Facility	MO- 0028037	001

PART B – ADDITIONAL APPLICATION INFORMATION

14. EFFLUENT TESTING DATA

Applicants must provide effluent testing data for the following parameters. Provide the indicated effluent data **for each outfall through which effluent is discharged**. Do not include information of combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least **three samples** and must be no more than four and one-half years apart. See 40 CFR 136.3 for sufficiently sensitive methods: https://www.ecfr.gov/cgi-bin/text-idx?SID=2d29852e2dcdf91badc043bd5fc3d4df&mc=true&node=se40.25.136_13&rgn=div8

Outfall Number

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	7.2	S.U.		S.U.	251
pH (Maximum)	7.8	S.U.		S.U.	251
Flow Rate	4.624	MGD	1.561	MGD	365

*For pH report a minimum and a maximum daily value

POLLUTANT		MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
		Conc.	Units	Conc.	Units	Number of Samples		
Conventional and Nonconventional Compounds								
BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD_5	5	mg/L	2.3	mg/L	52	SM4500-C 22nd ed	2.0 mg/l
	$CBOD_5$		mg/L		mg/L			
E. COLI		3.1	#/100 mL	0.89	#/100 mL	33	SM9223B-QT	<1.0 mg/l
TOTAL SUSPENDED SOLIDS (TSS)		1	mg/L	1	mg/L	52	SM2504 D 20th ed	2.0 mg/l
TOTAL PHOSPHORUS		0.37	mg/L	0.21	mg/L	12	SM4500-P B/E	0.05 mg/l
TOTAL KJELDAHL NITROGEN		1.3	mg/L	0.85	mg/L	4	EPA 351.4	0.05 mg/l
NITRITES + NITRATES		7.6	mg/L	5.25	mg/L	4	SM4500-NO3	0.5 mg/l
AMMONIA AS N		0.33	mg/L	1.3	mg/L	4	SM4500-NH3 B	0.30 mg/l
CHLORINE* (TOTAL RESIDUAL, TRC)			mg/L		mg/L			
DISSOLVED OXYGEN		8.66	mg/L	7.25	mg/L	247	SM4500-OH 23rd	1.0 mg/l
OIL and GREASE		<7.1	mg/L	5.9	mg/L	4	EPA 1664 B	5.5
OTHER: _____			mg/L		mg/L			

*Report only if facility chlorinates

END OF PART B

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Nixa Wastewater Treatment Facility	MO- 0028037	001

PART C – CERTIFICATION

15. ELECTRONIC DISCHARGE MONITORING REPORT (eDMR) SUBMISSION SYSTEM

Per 40 CFR Part 127 National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, reporting of effluent limits and monitoring shall be submitted by the permittee via an electronic system to ensure timely, complete, accurate, and nationally-consistent set of data. **One of the following must be checked in order for this application to be considered complete.** Please visit https://dnr.mo.gov/forms/780-2204-f.pdf to access the eDMR application.

☐ - You have completed and submitted with this permit application the required documentation to participate in the eDMR system.

☑ - You have previously submitted the required documentation to participate in the eDMR system and/or you are currently using the eDMR system.

☐ - You have submitted a written request for a waiver from electronic reporting. See instructions for further information regarding waivers.

16. JETPAY

Permit fees may be payed online by credit card or eCheck through a system called JetPay. Use the URL provided to access JetPay and make an online payment.

New Site Specific Permit: https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/591/
Construction Permits: https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/592/
Modification Fee: https://magic.collectorsolutions.com/magic-ui/payments/mo-natural-resources/596/

17. 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 submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

PRINTED NAME	OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL)
Doug Colvin	Director of Public Works

SIGNATURE

TELEPHONE NUMBER WITH AREA CODE

417-725-2353

DATE SIGNED

03·02·2020

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

Send Completed Form to:

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

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

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

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

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

RECEIVED
MAR 06 2020
Water Protection Program

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

FINANCIAL QUESTIONNAIRE

NOTE ►	FINANCIAL INFORMATION THAT IS NOT PROVIDED THROUGH THIS FORM WILL BE OBTAINED BY THE DEPARTMENT FROM READILY AVAILABLE SOURCES.

1. GENERAL INFORMATION

FACILITY NAME	PERMIT NUMBER
Nixa Wastewater Treatment Facility	#MO- 0028037
CITY	**COUNTY**
Nixa	Christian

2. GENERAL FINANCIAL INFORMATION (ALL FACILITIES)

2.1 Number of connections to the facility: Residential 8048 Commercial 460 Industrial 34

2.2 Current sewer user rate (Based on a 5,000 gallon per month usage):	$31.35
2.3 Current annual operating costs for the facility (excludes depreciation):	$1,785,870.00
2.4 Bond rating (if applicable):	Aa2
2.5 Bonding capacity:	$53,312,041.00
2.6 Current outstanding debt relating to wastewater collection and treatment:	$2,548,00
2.7 Amount within the current user rate used toward payments on outstanding debt related to the current wastewater infrastructure:	12%

2.8 Attach any relevant financial statements.

3. FINANCIAL INFORMATION REQUIRED FROM MUNICIPALITIES

3.1 Municipality's Full Market Property Value:	$1,296,378,210.00
3.2 Municipality's Overall Net Debt:	$5,312,500.00
3.3 Municipality's Property Tax Revenues (levied) [A]:	$864,414.00
3.4 Municipality's Property Tax Revenues (collected) [B]:	$835,774.00
3.5 Municipality's Property Tax Collection Rate ([B]/[A]):	96.7%

4. FINANCIAL INFORMATION REQUIRED FROM SEWER DISTRICTS

4.1 Total connections to the sewer district: Residential _____ Commercial _____ Industrial _____

4.2 When facilities require upgrades, how are the costs divided? Will the homes connected to the upgraded facility bear the costs? Will the costs be divided across the sewer district?

5. ADDITIONAL CONSIDERATIONS (ALL FACILITIES)

5.1 Provide a list of major infrastructure or other investments in environmental projects. Include project timing and costs and indicate any possible overlap or complications (attach sheets as necessary):

5.2 Provide a list of any other relevant local community economic conditions that may impact the ability to afford new permit requirements (attach sheets as necessary):

6. CERTIFICATION

FINANCIAL CONTACT	OFFICIAL TITLE
Donna Swatzell	Director of Finance
EMAIL ADDRESS	**TELEPHONE NUMBER WITH AREA CODE**
Dswatzell@Nixa.com	417-725-3785

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

OWNER OR AUTHORIZED REPRESENTATIVE	OFFICIAL TITLE
Donna Swatzell	Director of Finance
SIGNATURE Donna Swatzell	**DATE SIGNED** 2/24/2020

INSTRUCTIONS FOR COMPLETING THE FINANCIAL QUESTIONNAIRE

The Financial Questionnaire it to be completed by municipalities, sewer districts, and water supply districts when filing for renewal of their Missouri State Operating Permit. The Financial Questionnaire is to be submitted as an attachment to *FORM B: APPLICATION FOR OPERATING PERMIT FOR FACILITIES THAT RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW LESS THAN OR EQUAL TO 100,000 GALLONS PER DAY* and *FORM B2: APPLICATION FOR OPERATING PERMIT FOR FACILITIES THAT RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY*.

1. GENERAL INFORMATION – Provide the name by which the facility is locally known, the Missouri State Operating Permit number, and the city and county where the facility is located.
2. GENERAL FINANCIAL INFORMATION (ALL FACILITIES) – Municipalities, sewer districts, and water supply districts are to complete.

2.1 Self-explanatory.
2.2 Provide the rate that a household would be charged for sewer service if they use 5,000 gallons per month.
2.3 Provide the cost to operate and maintain the wastewater facility annually.
2.4 Bond ratings can be found here: https://emma.msrb.org/IssuerHomePage/HomepagesForC6?cusip6=795169.
2.5 General obligation bond capacity allowed by constitution: Cities = up to 20% of taxable tangible property; Sewer districts = up to 5% of taxable tangible property.
2.6 Provide the amount of debt owed on wastewater collection and treatment. Debt information is typically available from your community's annual financial statements
2.7 Provide the amount of a user's monthly sewer bill that is used toward debt owed on wastewater collection and treatment. This may be a percentage or dollar amount.
2.8 Self-explanatory.

3. FINANCIAL INFORMATION REQUIRED FROM MUNICIPALITIES – Municipalities are to complete.

3.1 Full Market Property Value is typically available through your community or state assessor's office.
3.2 Debt information is typically available from your community's annual financial statements.
3.3 Property tax revenues are typically available from your community's annual financial statements. Property tax rates for Missouri communities can be found in the annual auditor's report: https://app.auditor.mo.gov/AuditReports/AudRpt2.aspx?id=31.
3.4 Property Taxes Levied = (Real Property Assessed Value) * (Property Tax Rate). This information is typically available through your community or state assessor's office and your community's annual financial statements. Property tax rates for Missouri communities can be found in the annual auditor's report: https://app.auditor.mo.gov/AuditReports/AudRpt2.aspx?id=31.
3.5 Property tax collection rate = (Property Tax Revenues) ÷ (Property Taxes Levied).

4. FINANCIAL INFORMATION REQUIRED FROM SEWER DISTRICTS – Sewer Districts and Water Supply Districts are to complete.

4.1-4.2 Self-explanatory.

5. ADDITIONAL CONSIDERATIONS (ALL FACILITIES) – Municipalities, sewer districts, and water supply districts are to complete.

5.1-5.2 Self-explanatory.

6. CERTIFICATION – Provide the name and contact information for the individual who can respond to financial information requests for your community. This form must be signed by your community's "owner" or "authorized representative". The owner for a municipality is either the principal executive officer or ranking elected official.

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Nixa Wastewater Treatment Facility	MO- 0028037	001

PART D – EXPANDED EFFLUENT TESTING DATA

18. EXPANDED EFFLUENT TESTING DATA

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

If the treatment works has a design flow greater than or equal to 1 MGD or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information **for each outfall through which effluent is discharged**. Do not include information of combined sewer overflows in this section. All information reported must be based on data collected and analyzed using sufficiently sensitive methods found in 40 CFR Part 136. See 40 CFR 136.3 for sufficiently sensitive methods: https://www.ecfr.gov/cgi-bin/text-idx?SID=2d29852e2dcdf91badc043bd5fc3d4df&mc=true&node=se40.25.136_13&rgn=div8. In addition, all data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least **three pollutant scans** and must be no more than four and one-half years prior to the date of the permit application submittal. In the blank rows provided at the end of this list, include any additional data for pollutants not specifically listed in this form. Information may be written in the blanks below or provided as attached documents containing the laboratory test results.

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS AND HARDNESS											
ALUMINUM											
ANTIMONY											
ARSENIC											
BERYLLIUM											
CADMIUM											
CHROMIUM III											
CHROMIUM VI											
COPPER											
IRON											
LEAD											
MERCURY											
NICKEL											
SELENIUM											
SILVER											
THALLIUM											
ZINC											
CYANIDE											
TOTAL PHENOLIC COMPOUNDS											
HARDNESS (as $CaCO_3$)											
VOLATILE ORGANIC COMPOUNDS											
ACROLEIN											
ACRYLONITRILE											
BENZENE											
BROMOFORM											
CARBON TETRACHLORIDE											

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Nixa Wastewater Treatment Facility	MO- 0028037	001

PART D – EXPANDED EFFLUENT TESTING DATA

18. EXPANDED EFFLUENT TESTING DATA

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
CHLOROBENZENE											
CHLORODIBROMO-METHANE											
CHLOROETHANE											
2-CHLORO-ETHYLVINYL ETHER											
CHLOROFORM											
DICHLOROBROMO-METHANE											
1,1-DICHLORO-ETHANE											
1,2-DICHLORO-ETHANE											
TRANS-1,2-DICHLOROETHYLENE											
1,1-DICHLORO-ETHYLENE											
1,2-DICHLORO-PROPANE											
1,3-DICHLORO-PROPYLENE											
ETHYLBENZENE											
METHYL BROMIDE											
METHYL CHLORIDE											
METHYLENE CHLORIDE											
1,1,2,2-TETRA-CHLOROETHANE											
TETRACHLORO-ETHANE											
TOLUENE											
1,1,1-TRICHLORO-ETHANE											
1,1,2-TRICHLORO-ETHANE											
TRICHLOROETHYLENE											
VINYL CHLORIDE											
ACID-EXTRACTABLE COMPOUNDS											
P-CHLORO-M-CRESOL											
2-CHLOROPHENOL											
2,4-DICHLOROPHENOL											
2,4-DIMETHYLPHENOL											
4,6-DINITRO-O-CRESOL											
2,4-DINITROPHENOL											
2-NITROPHENOL											
4-NITROPHENOL											

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Nixa Wastewater Treatment Facility	MO- 0028037	001

PART D – EXPANDED EFFLUENT TESTING DATA

18. EXPANDED EFFLUENT TESTING DATA

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

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

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Nixa Wastewater Treatment Facility	MO- 0028037	001

PART D – EXPANDED EFFLUENT TESTING DATA

18. EXPANDED EFFLUENT TESTING DATA

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
2,4-DINITRO-TOLUENE											
2,6-DINITRO-TOLUENE											
1,2-DIPHENYL-HYDRAZINE											
FLUORANTHENE											
FLUORENE											
HEXACHLOROBENZENE											
HEXACHLOROBUTADIENE											
HEXACHLOROCYCLO-PENTADIENE											
HEXACHLOROETHANE											
INDENO (1,2,3-CD) PYRENE											
ISOPHORONE											
NAPHTHALENE											
NITROBENZENE											
N-NITROSODI-PROPYLAMINE											
N-NITROSODI-METHYLAMINE											
N-NITROSODI-PHENYLAMINE											
PHENANTHRENE											
PYRENE											
1,2,4-TRICHLOROBENZENE											
Use this space (or a separate sheet) to provide information on other pollutants not specifically listed in this form.											

END OF PART D

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

Expanded Effluent Testing Data
2018

PDC Laboratories, Inc.

PROFESSIONAL • DEPENDABLE • COMMITTED

April 30, 2018

Josh Youngblood
Nixa, City of
PO Box 395
Nixa, MO 65714

Dear Josh Youngblood:

Please find enclosed the analytical results for the sample(s) the laboratory received on **4/18/18 1:20 pm** and logged in under work order **8043368**. All testing is performed according to our current TNI certifications unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories, Inc.

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

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

Sincerely,

Chad Cooper
Laboratory Supervisor
(417) 864-8924
ccooper@pdclab.com

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 8043368-01
Name: Effluent Composite
Matrix: Waste Water - Composite

Sampled: 04/18/18 10:30
Received: 04/18/18 13:20
PO #: 02943

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
General Chemistry - SPMO							
Hexavalent chromium	< 0.0050	mg/L		04/19/18 10:19	04/19/18 10:19	RRG	SM 3500-Cr D*
Trivalent chromium	< 0.0050	mg/L		04/23/18 11:18	04/25/18 18:04	RRG	calculation
Total Metals - PIA							
Aluminum	< 0.050	mg/L		04/23/18 11:18	04/25/18 18:04	TJJ	EPA 200.7
Antimony	< 0.0030	mg/L		04/23/18 11:18	04/25/18 08:08	JMW	EPA 200.8
Arsenic	< 0.0010	mg/L		04/23/18 11:18	04/24/18 11:48	JMW	EPA 200.8
Beryllium	< 0.0010	mg/L		04/23/18 11:18	04/24/18 11:48	JMW	EPA 200.8
Cadmium	< 0.0010	mg/L		04/23/18 11:18	04/24/18 11:48	JMW	EPA 200.8
Calcium	52	mg/L		04/23/18 11:18	04/25/18 18:02	TJJ	EPA 200.7
Chromium	< 0.0040	mg/L		04/23/18 11:18	04/24/18 11:48	JMW	EPA 200.8
Chromium	< 0.0040	mg/L		04/23/18 11:18	04/25/18 18:04	TJJ	EPA 200.7
Copper	0.0036	mg/L		04/23/18 11:18	04/24/18 11:48	JMW	EPA 200.8
Iron	< 0.010	mg/L		04/23/18 11:18	04/25/18 18:04	TJJ	EPA 200.7
Lead	< 0.0010	mg/L		04/23/18 11:18	04/24/18 11:48	JMW	EPA 200.8
Magnesium	20	mg/L		04/23/18 11:18	04/25/18 18:02	TJJ	EPA 200.7
Mercury	< 0.00020	mg/L		04/25/18 11:08	04/25/18 13:49	TAT	EPA 245.1
Nickel	< 0.0050	mg/L		04/23/18 11:18	04/24/18 11:48	JMW	EPA 200.8
Selenium	< 0.0010	mg/L		04/23/18 11:18	04/24/18 11:48	JMW	EPA 200.8
Silver	< 0.0050	mg/L		04/23/18 11:18	04/24/18 11:48	JMW	EPA 200.8
Thallium	< 0.0010	mg/L		04/23/18 11:18	04/24/18 11:48	JMW	EPA 200.8
Total Hardness as CaCO3	210	mg/L		04/23/18 11:18	04/25/18 18:02	TJJ	SM 2340B
Zinc	0.059	mg/L		04/23/18 11:18	04/24/18 11:48	JMW	EPA 200.8

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 8043368-02
Name: Effluent Grab
Matrix: Waste Water - Grab

Sampled: 04/18/18 11:34
Received: 04/18/18 13:20
PO #: 02943

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
General Chemistry - PIA							
Cyanide	< 0.0050	mg/L		04/25/18 12:56	04/25/18 12:56	ALS	EPA 335.4
Phenolics	< 0.0050	mg/L		04/27/18 09:10	04/27/18 09:10	ALS	EPA 420.4
Semivolatile Organics - PIA							
1,2,4-Trichlorobenzene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
1,2-Dichlorobenzene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
1,2-Diphenylhydrazine	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625*
1,3-Dichlorobenzene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
1,4-Dichlorobenzene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
2,4,6-Trichlorophenol	< 20	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
2,4-Dichlorophenol	< 5.0	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
2,4-Dimethylphenol	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
2,4-Dinitrophenol	< 20	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
2,4-Dinitrotoluene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
2,6-Dinitrotoluene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
2-Chloronaphthalene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
2-Chlorophenol	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
2-Nitrophenol	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
3,3'-Dichlorobenzidine	< 20	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625*
4,6-Dinitro-2-methylphenol	< 50	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
4-Bromophenyl phenyl ether	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
4-Chloro-3-methylphenol	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
4-Chlorophenylphenyl ether	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
4-Nitrophenol	< 20	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Acenaphthene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Acenaphthylene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Anthracene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Benzidine	< 80	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Benzo(a)anthracene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Benzo(a)pyrene	< 5.0	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Benzo(b)fluoranthene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Benzo(g,h,i)perylene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Benzo(k)fluoranthene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Bis(2-chloroethoxy) methane	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Bis(2-chloroethyl) ether	< 5.0	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Bis(2-ethylhexyl) phthalate	< 4.0	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Butyl benzyl phthalate	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Chrysene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Dibenzo(a,h)anthracene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Diethyl phthalate	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Dimethyl phthalate	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 8043368-02
Name: Effluent Grab
Matrix: Waste Water - Grab

Sampled: 04/18/18 11:34
Received: 04/18/18 13:20
PO #: 02943

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Di-n-butyl phthalate	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Fluoranthene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Fluorene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Hexachlorobenzene	< 5.0	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Hexachlorocyclopentadiene	< 20	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Hexachloroethane	< 5.0	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Indeno(1,2,3-cd)pyrene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Isophorone	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Naphthalene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Nitrobenzene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
N-Nitrosodimethylamine	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
N-Nitrosodi-n-propylamine	< 5.0	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
N-Nitrosodiphenylamine	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Pentachlorophenol	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Phenanthrene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Phenol	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Pyrene	< 10	ug/L		04/23/18 09:45	04/25/18 18:46	PSB	EPA 625
Volatile Organics - PIA							
1,1,1-Trichloroethane	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
1,1,2,2-Tetrachloroethane	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
1,1,2-Trichloroethane	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
1,1-Dichloroethane	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
1,1-Dichloroethene	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
1,2-Dichloroethane	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
1,2-Dichloropropane	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
2-Chloroethylvinyl ether	< 5.0	ug/L		04/23/18 12:54	04/23/18 15:46	JJI	EPA 624
Acrolein	< 50	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
Acrylonitrile	< 10	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
Benzene	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
Bromodichloromethane	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
Bromoform	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
Bromomethane	< 10	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
Carbon tetrachloride	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
Chlorobenzene	< 5.0	ug/L	Q1	04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
Chloroethane	< 10	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
Chloroform	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
Chloromethane	< 10	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
cis-1,3-Dichloropropene	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
Dibromochloromethane	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
Ethylbenzene	< 5.0	ug/L	Q1	04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
Methylene chloride	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
Tetrachloroethene	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 8043368-02
Name: Effluent Grab
Matrix: Waste Water - Grab

Sampled: 04/18/18 11:34
Received: 04/18/18 13:20
PO #: 02943

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
Toluene	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
trans-1,2-Dichloroethene	< 20	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
Trichloroethene	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624
Vinyl chloride	< 5.0	ug/L		04/23/18 08:10	04/23/18 13:31	MAB	EPA 624

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

NOTES

Specific method revisions used for analysis are available upon request.

Certifications

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

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

SPMO - Springfield, MO
USEPA DMR-QA Program

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

* Not a TNI accredited analyte

Qualifiers

Q1 Matrix Spike failed % Recovery

Certified by: Chad Cooper, Laboratory Supervisor

Expanded Effluent Testing Data
2019

PDC Laboratories, Inc.

PROFESSIONAL • DEPENDABLE • COMMITTED

November 07, 2019

Stuart Venable
Nixa, City of
PO Box 395
Nixa, MO 65714

RE: Permit Renewal

Dear Stuart Venable:

Please find enclosed the analytical results for the **2** sample(s) the laboratory received on **10/22/19 2:12 pm** and logged in under work order **9104498**. All testing is performed according to our current TNI accreditations unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories, Inc.

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

PDC Laboratories, Inc. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Director of Client Services, Lisa Grant, with any feedback you have about your experience with our laboratory at 309-683-1764 or lgrant@pdclab.com.

Sincerely,

Chad Cooper
Laboratory Supervisor
(417) 864-8924
ccooper@pdclab.com

ANALYTICAL RESULTS

Sample: 9104498-01
Name: Effluent Composite
Matrix: Waste Water - Composite

Sampled: 10/22/19 10:17
Received: 10/22/19 14:12

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - SPMO									
Hexavalent chromium	< 0.0050	mg/L		10/23/19 10:16	1	0.0050	10/23/19 10:16	CIH	SM 3500-Cr D[4]
Trivalent chromium	< 0.0050	mg/L		10/28/19 10:19	1	0.0050	10/29/19 12:26	CIH	calculation
Total Metals - PIA									
Aluminum	< 0.10	mg/L		10/28/19 10:19	1	0.10	10/29/19 12:26	ZSA	EPA 200.7
Mercury	< 0.00020	mg/L		10/28/19 10:28	1	0.00020	10/29/19 07:57	TAT	EPA 245.1
Antimony	< 0.0030	mg/L		10/28/19 10:19	5	0.0030	10/30/19 12:07	JMW	EPA 200.8
Arsenic	< 0.0010	mg/L		10/28/19 10:19	5	0.0010	10/30/19 12:07	JMW	EPA 200.8
Beryllium	< 0.0010	mg/L		10/28/19 10:19	5	0.0010	10/31/19 09:26	JMW	EPA 200.8
Total Hardness as CaCO3	190	mg/L		10/28/19 10:19	1	0.66	10/29/19 12:25	ZSA	SM 2340B
Cadmium	< 0.0010	mg/L		10/28/19 10:19	5	0.0010	10/30/19 12:07	JMW	EPA 200.8
Calcium	44	mg/L		10/28/19 10:19	1	0.10	10/29/19 12:25	ZSA	EPA 200.7
Chromium	< 0.0040	mg/L		10/28/19 10:19	5	0.0040	10/30/19 12:07	JMW	EPA 200.8
Chromium	< 0.0050	mg/L		10/28/19 10:19	1	0.0050	10/29/19 12:26	ZSA	EPA 200.7
Copper	< 0.0030	mg/L		10/28/19 10:19	5	0.0030	10/30/19 12:07	JMW	EPA 200.8
Iron	< 0.010	mg/L		10/28/19 10:19	1	0.010	10/29/19 12:26	ZSA	EPA 200.7
Lead	< 0.0010	mg/L		10/28/19 10:19	5	0.0010	10/30/19 12:07	JMW	EPA 200.8
Magnesium	19	mg/L		10/28/19 10:19	1	0.10	10/29/19 12:25	ZSA	EPA 200.7
Nickel	< 0.0050	mg/L		10/28/19 10:19	5	0.0050	10/30/19 12:07	JMW	EPA 200.8
Selenium	< 0.0010	mg/L		10/28/19 10:19	5	0.0010	10/30/19 12:07	JMW	EPA 200.8
Silver	< 0.0050	mg/L		10/28/19 10:19	5	0.0050	10/30/19 12:07	JMW	EPA 200.8
Thallium	< 0.0010	mg/L		10/28/19 10:19	5	0.0010	10/30/19 12:07	JMW	EPA 200.8
Zinc	0.063	mg/L		10/28/19 10:19	5	0.0060	10/30/19 12:07	JMW	EPA 200.8

ANALYTICAL RESULTS

Sample: 9104498-02
Name: Effluent Grab
Matrix: Waste Water - Grab

Sampled: 10/22/19 12:51
Received: 10/22/19 14:12

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Cyanide	< 0.0050	mg/L		11/05/19 06:47	1	0.0050	11/05/19 16:08	PMN	EPA 335.4
Phenolics	< 0.0050	mg/L		10/31/19 08:28	1	0.0050	10/31/19 11:52	PMN	EPA 420.4
Volatile Organics - PIA									
1,1,1-Trichloroethane	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
1,1,2,2-Tetrachloroethane	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
1,1,2-Trichloroethane	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
1,1-Dichloroethane	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
1,1-Dichloroethene	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
1,2-Dichloroethane	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
1,2-Dichloropropane	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
Acrolein	< 50	ug/L		11/01/19 08:31	1	50	11/01/19 18:53	JMB	EPA 624
Acrylonitrile	< 10	ug/L		11/01/19 08:31	1	10	11/01/19 18:53	JMB	EPA 624
Benzene	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
Bromodichloromethane	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
Bromoform	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
Bromomethane	< 10	ug/L		11/01/19 08:31	1	10	11/01/19 18:53	JMB	EPA 624
Carbon tetrachloride	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
cis-1,3-Dichloropropene	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
Chlorobenzene	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
Chloroethane	< 10	ug/L		11/01/19 08:31	1	10	11/01/19 18:53	JMB	EPA 624
Chloroform	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
Chloromethane	< 10	ug/L		11/01/19 08:31	1	10	11/01/19 18:53	JMB	EPA 624
Dibromochloromethane	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
trans-1,2-Dichloroethene	< 20	ug/L		11/01/19 08:31	1	20	11/01/19 18:53	JMB	EPA 624
Ethylbenzene	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
Methylene chloride	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
Tetrachloroethene	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
Toluene	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
Trichloroethene	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624
Vinyl chloride	< 5.0	ug/L		11/01/19 08:31	1	5.0	11/01/19 18:53	JMB	EPA 624

NOTES

Specifications regarding method revisions and method modifications used for analysis are available upon request. Please contact your project manager.

* Not a TNI accredited analyte

Certifications

CHI - McHenry, IL - 4314 W Crystal Lake Road A, McHenry, IL 60050
TNI Accreditation for Drinking Water, Wastewater, Fields of Testing through IL EPA Lab No. 100279
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL - 2231 W Altorfer Drive, Peoria, IL 61615
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPIL - Springfield, IL - 1210 Capitol Airport Drive, Springfield, IL 62707
TNI Accreditation through IL EPA Lab No. 100323

SPMO - Springfield, MO - 1805 W Sunset Street, Springfield, MO 65807
USEPA DMR-QA Program

STL - St. Louis, MO - 3278 N Highway 67, Florissant, MO 63033
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
TNI Accreditation for Wastewater, Hazardous, and Solid Waste Analysis through IL EPA No. 200080
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Missouri Department of Natural Resources
Microbiological Laboratory Service for Drinking Water

Karra McCarty

Certified by: Karra McCarty For Chad Cooper, Laboratory Supervisor

Expanded effluent Testing Data cont.
2019

PDC Laboratories, Inc.

PROFESSIONAL • DEPENDABLE • COMMITTED

November 12, 2019

Stuart Venable
Nixa, City of
PO Box 395
Nixa, MO 65714

RE: Permit Renewal

Dear Stuart Venable:

Please find enclosed the analytical results for the **1** sample(s) the laboratory received on **11/5/19 10:20 am** and logged in under work order **9110365**. All testing is performed according to our current TNI accreditations unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories, Inc.

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

PDC Laboratories, Inc. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Director of Client Services, Lisa Grant, with any feedback you have about your experience with our laboratory at 309-683-1764 or lgrant@pdclab.com.

Sincerely,

Chad Cooper
Laboratory Supervisor
(417) 864-8924
ccooper@pdclab.com

ANALYTICAL RESULTS

Sample: 9110365-01
Name: Effluent Grab
Matrix: Waste Water - Grab

Sampled: 11/05/19 09:16
Received: 11/05/19 10:20

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Semivolatile Organics - PIA									
N-Nitrosodimethylamine	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Phenol	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Bis(2-chloroethyl) ether	< 5.0	ug/L		11/08/19 13:07	1	5.0	11/11/19 16:32	CRS	EPA 625
2-Chlorophenol	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
1,3-Dichlorobenzene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
1,4-Dichlorobenzene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
1,2-Dichlorobenzene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
N-Nitrosodi-n-propylamine	< 5.0	ug/L		11/08/19 13:07	1	5.0	11/11/19 16:32	CRS	EPA 625
Hexachloroethane	< 5.0	ug/L		11/08/19 13:07	1	5.0	11/11/19 16:32	CRS	EPA 625
Nitrobenzene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Isophorone	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
2-Nitrophenol	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
2,4-Dimethylphenol	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Bis(2-chloroethoxy) methane	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
2,4-Dichlorophenol	< 5.0	ug/L		11/08/19 13:07	1	5.0	11/11/19 16:32	CRS	EPA 625
1,2,4-Trichlorobenzene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Naphthalene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
4-Chloro-3-methylphenol	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Hexachlorocyclopentadiene	< 20	ug/L		11/08/19 13:07	1	20	11/11/19 16:32	CRS	EPA 625
2,4,6-Trichlorophenol	< 20	ug/L		11/08/19 13:07	1	20	11/11/19 16:32	CRS	EPA 625
2-Chloronaphthalene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Dimethyl phthalate	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
2,6-Dinitrotoluene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Acenaphthylene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Acenaphthene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
2,4-Dinitrophenol	< 20	ug/L		11/08/19 13:07	1	20	11/11/19 16:32	CRS	EPA 625
4-Nitrophenol	< 20	ug/L		11/08/19 13:07	1	20	11/11/19 16:32	CRS	EPA 625
2,4-Dinitrotoluene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Diethyl phthalate	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Fluorene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
4-Chlorophenylphenyl ether	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
4,6-Dinitro-2-methylphenol	< 50	ug/L		11/08/19 13:07	1	50	11/11/19 16:32	CRS	EPA 625

ANALYTICAL RESULTS

Sample: 9110365-01
Name: Effluent Grab
Matrix: Waste Water - Grab

Sampled: 11/05/19 09:16
Received: 11/05/19 10:20

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
N-Nitrosodiphenylamine	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
1,2-Diphenylhydrazine	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625*
4-Bromophenyl phenyl ether	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Hexachlorobenzene	< 5.0	ug/L		11/08/19 13:07	1	5.0	11/11/19 16:32	CRS	EPA 625
Pentachlorophenol	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Phenanthrene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Anthracene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Di-n-butyl phthalate	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Fluoranthene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Benzidine	< 80	ug/L		11/08/19 13:07	1	80	11/11/19 16:32	CRS	EPA 625
Pyrene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Butyl benzyl phthalate	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Benzo(a)anthracene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
3,3'-Dichlorobenzidine	< 20	ug/L		11/08/19 13:07	1	20	11/11/19 16:32	CRS	EPA 625*
Chrysene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Bis(2-ethylhexyl) phthalate	< 4.0	ug/L		11/08/19 13:07	1	4.0	11/11/19 16:32	CRS	EPA 625
Benzo(b)fluoranthene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Benzo(k)fluoranthene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Benzo(a)pyrene	< 5.0	ug/L		11/08/19 13:07	1	5.0	11/11/19 16:32	CRS	EPA 625
Indeno(1,2,3-cd)pyrene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Dibenzo(a,h)anthracene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Benzo(g,h,i)perylene	< 10	ug/L		11/08/19 13:07	1	10	11/11/19 16:32	CRS	EPA 625
Volatile Organics - PIA									
2-Chloroethylvinyl ether	< 5.0	ug/L		11/07/19 08:23	1	5.0	11/07/19 11:15	JJI	EPA 624

NOTES

Specifications regarding method revisions and method modifications used for analysis are available upon request. Please contact your project manager.

* Not a TNI accredited analyte

Certifications

CHI - McHenry, IL - 4314 W Crystal Lake Road A, McHenry, IL 60050
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Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17556

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SPMO - Springfield, MO - 1805 W Sunset Street, Springfield, MO 65807
USEPA DMR-QA Program

STL - St. Louis, MO - 3278 N Highway 67, Florissant, MO 63033
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TNI Accreditation for Wastewater, Hazardous, and Solid Waste Analysis through IL EPA No. 200080
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Missouri Department of Natural Resources
Microbiological Laboratory Service for Drinking Water

Karra McCarty

Certified by: Karra McCarty For Chad Cooper, Laboratory Supervisor

Expanded Effluent Testing Data
2020

PDC Laboratories, Inc.

PROFESSIONAL • DEPENDABLE • COMMITTED

January 21, 2020

Stuart Venable
Nixa, City of
PO Box 395
Nixa, MO 65714

RE: Permit Renewal

Dear Stuart Venable:

Please find enclosed the analytical results for the **2** sample(s) the laboratory received on **1/7/20 10:28 am** and logged in under work order **0010609**. All testing is performed according to our current TNI accreditations unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories, Inc.

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

PDC Laboratories, Inc. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Director of Client Services, Lisa Grant, with any feedback you have about your experience with our laboratory at 309-683-1764 or lgrant@pdclab.com.

Sincerely,

Chad Cooper
Laboratory Supervisor
(417) 864-8924
ccooper@pdclab.com

ANALYTICAL RESULTS

Sample: 0010609-01
Name: Effluent Composite
Matrix: Waste Water - Composite

Sampled: 01/07/20 08:03
Received: 01/07/20 10:28

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Trivalent chromium	< 0.0050	mg/L		01/09/20 11:17	1	0.0050	01/13/20 15:54	CIH	calculation
General Chemistry - SPMO									
Hexavalent chromium	< 0.0050	mg/L		01/07/20 13:07	1	0.0050	01/07/20 13:07	CIH	SM 3500-Cr D*
Total Metals - PIA									
Aluminum	< 0.10	mg/L		01/09/20 11:17	1	0.10	01/13/20 15:54	ZSA	EPA 200.7 REV 4.4
Mercury	< 0.00020	mg/L		01/17/20 10:59	1	0.00020	01/17/20 14:15	SJW	EPA 245.1 REV3
Antimony	< 0.0030	mg/L		01/09/20 11:17	5	0.0030	01/14/20 11:08	JMW	EPA 200.8 REV 5.4
Arsenic	< 0.00020	mg/L		01/09/20 11:17	1	0.00020	01/10/20 12:29	KMC	EPA 200.8 REV 5.4
Beryllium	< 0.00020	mg/L		01/09/20 11:17	1	0.00020	01/10/20 12:29	KMC	EPA 200.8 REV 5.4
Total Hardness as CaCO3	210	mg/L		01/09/20 11:17	1	0.66	01/13/20 15:53	ZSA	SM 2340B
Cadmium	< 0.00020	mg/L		01/09/20 11:17	1	0.00020	01/10/20 12:29	KMC	EPA 200.8 REV 5.4
Calcium	50	mg/L		01/09/20 11:17	1	0.10	01/13/20 15:53	ZSA	EPA 200.7 REV 4.4
Chromium	< 0.0050	mg/L		01/09/20 11:17	1	0.0050	01/13/20 15:54	ZSA	EPA 200.7 REV 4.4
Chromium	< 0.00080	mg/L		01/09/20 11:17	1	0.00080	01/10/20 12:29	KMC	EPA 200.8 REV 5.4
Copper	0.0018	mg/L		01/09/20 11:17	1	0.00060	01/10/20 12:29	KMC	EPA 200.8 REV 5.4
Iron	0.016	mg/L		01/09/20 11:17	1	0.010	01/13/20 15:54	ZSA	EPA 200.7 REV 4.4
Lead	0.00021	mg/L		01/09/20 11:17	1	0.00020	01/10/20 12:29	KMC	EPA 200.8 REV 5.4
Magnesium	21	mg/L		01/09/20 11:17	1	0.10	01/13/20 15:53	ZSA	EPA 200.7 REV 4.4
Nickel	< 0.0010	mg/L		01/09/20 11:17	1	0.0010	01/10/20 12:29	KMC	EPA 200.8 REV 5.4
Selenium	0.00030	mg/L		01/09/20 11:17	1	0.00020	01/10/20 12:29	KMC	EPA 200.8 REV 5.4
Silver	< 0.0010	mg/L		01/09/20 11:17	1	0.0010	01/10/20 12:29	KMC	EPA 200.8 REV 5.4
Thallium	< 0.00020	mg/L		01/09/20 11:17	1	0.00020	01/10/20 12:29	KMC	EPA 200.8 REV 5.4
Zinc	0.056	mg/L		01/09/20 11:17	1	0.0030	01/10/20 12:29	KMC	EPA 200.8 REV 5.4

ANALYTICAL RESULTS

Sample: 0010609-02
Name: Effluent Grab
Matrix: Waste Water - Grab

Sampled: 01/07/20 09:17
Received: 01/07/20 10:28

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Cyanide	< 0.0050	mg/L		01/14/20 07:32	1	0.0050	01/14/20 14:31	PMN	EPA 335.4 REV1
Phenolics	< 0.0050	mg/L		01/15/20 10:20	1	0.0050	01/16/20 08:51	PMN	EPA 420.4 REV1
Semivolatile Organics - PIA									
N-Nitrosodimethylamine	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Phenol	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Bis(2-chloroethyl) ether	< 5.0	ug/L		01/09/20 08:29	1	5.0	01/09/20 20:41	KAF	EPA 625
2-Chlorophenol	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
1,3-Dichlorobenzene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
1,4-Dichlorobenzene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
1,2-Dichlorobenzene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
N-Nitrosodi-n-propylamine	< 5.0	ug/L		01/09/20 08:29	1	5.0	01/09/20 20:41	KAF	EPA 625
Hexachloroethane	< 5.0	ug/L		01/09/20 08:29	1	5.0	01/09/20 20:41	KAF	EPA 625
Nitrobenzene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Isophorone	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
2-Nitrophenol	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
2,4-Dimethylphenol	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Bis(2-chloroethoxy) methane	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
2,4-Dichlorophenol	< 5.0	ug/L		01/09/20 08:29	1	5.0	01/09/20 20:41	KAF	EPA 625
1,2,4-Trichlorobenzene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Naphthalene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
4-Chloro-3-methylphenol	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Hexachlorocyclopentadiene	< 20	ug/L		01/09/20 08:29	1	20	01/09/20 20:41	KAF	EPA 625
2,4,6-Trichlorophenol	< 20	ug/L		01/09/20 08:29	1	20	01/09/20 20:41	KAF	EPA 625
2-Chloronaphthalene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Dimethyl phthalate	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
2,6-Dinitrotoluene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Acenaphthylene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Acenaphthene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
2,4-Dinitrophenol	< 20	ug/L		01/09/20 08:29	1	20	01/09/20 20:41	KAF	EPA 625
4-Nitrophenol	< 20	ug/L		01/09/20 08:29	1	20	01/09/20 20:41	KAF	EPA 625
2,4-Dinitrotoluene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Diethyl phthalate	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Fluorene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
4-Chlorophenylphenyl ether	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625

ANALYTICAL RESULTS

Sample: 0010609-02
Name: Effluent Grab
Matrix: Waste Water - Grab

Sampled: 01/07/20 09:17
Received: 01/07/20 10:28

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
4,6-Dinitro-2-methylphenol	< 50	ug/L		01/09/20 08:29	1	50	01/09/20 20:41	KAF	EPA 625
N-Nitrosodiphenylamine	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
1,2-Diphenylhydrazine	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625*
4-Bromophenyl phenyl ether	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Hexachlorobenzene	< 5.0	ug/L		01/09/20 08:29	1	5.0	01/09/20 20:41	KAF	EPA 625
Pentachlorophenol	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Phenanthrene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Anthracene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Di-n-butyl phthalate	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Fluoranthene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Benzidine	< 80	ug/L		01/09/20 08:29	1	80	01/09/20 20:41	KAF	EPA 625
Pyrene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Butyl benzyl phthalate	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Benzo(a)anthracene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
3,3'-Dichlorobenzidine	< 20	ug/L		01/09/20 08:29	1	20	01/09/20 20:41	KAF	EPA 625*
Chrysene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Bis(2-ethylhexyl) phthalate	< 4.0	ug/L		01/09/20 08:29	1	4.0	01/09/20 20:41	KAF	EPA 625
Benzo(b)fluoranthene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Benzo(k)fluoranthene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Benzo(a)pyrene	< 5.0	ug/L		01/09/20 08:29	1	5.0	01/09/20 20:41	KAF	EPA 625
Indeno(1,2,3-cd)pyrene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Dibenzo(a,h)anthracene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Benzo(g,h,i)perylene	< 10	ug/L		01/09/20 08:29	1	10	01/09/20 20:41	KAF	EPA 625
Volatile Organics - PIA									
1,1,1-Trichloroethane	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
1,1,2,2-Tetrachloroethane	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
1,1,2-Trichloroethane	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
1,1-Dichloroethane	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
1,1-Dichloroethene	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
1,2-Dichloroethane	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
1,2-Dichloropropane	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
2-Chloroethylvinyl ether	< 5.0	ug/L		01/10/20 10:21	1	5.0	01/10/20 15:17	AEIH/JJI	EPA 624
Acrolein	< 50	ug/L		01/09/20 11:16	1	50	01/09/20 19:39	AEIH/JJI	EPA 624
Acrylonitrile	< 10	ug/L		01/09/20 11:16	1	10	01/09/20 19:39	AEIH/JJI	EPA 624
Benzene	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
Bromodichloromethane	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624

ANALYTICAL RESULTS

Sample: 0010609-02
Name: Effluent Grab
Matrix: Waste Water - Grab

Sampled: 01/07/20 09:17
Received: 01/07/20 10:28

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
Bromoform	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
Bromomethane	< 10	ug/L		01/09/20 11:16	1	10	01/09/20 19:39	AEIH/JJI	EPA 624
Carbon tetrachloride	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
cis-1,3-Dichloropropene	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
Chlorobenzene	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
Chloroethane	< 10	ug/L		01/09/20 11:16	1	10	01/09/20 19:39	AEIH/JJI	EPA 624
Chloroform	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
Chloromethane	< 10	ug/L		01/09/20 11:16	1	10	01/09/20 19:39	AEIH/JJI	EPA 624
Dibromochloromethane	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
trans-1,2-Dichloroethene	< 20	ug/L		01/09/20 11:16	1	20	01/09/20 19:39	AEIH/JJI	EPA 624
Ethylbenzene	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
Methylene chloride	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
Tetrachloroethene	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
Toluene	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
Trichloroethene	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624
Vinyl chloride	< 5.0	ug/L		01/09/20 11:16	1	5.0	01/09/20 19:39	AEIH/JJI	EPA 624

NOTES

Specifications regarding method revisions and method modifications used for analysis are available upon request. Please contact your project manager.

* Not a TNI accredited analyte

Certifications

CHI - McHenry, IL - 4314 W Crystal Lake Road A, McHenry, IL 60050
TNI Accreditation for Drinking Water, Wastewater, Fields of Testing through IL EPA Lab No. 100279
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL - 2231 W Altorfer Drive, Peoria, IL 61615
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Wastes Fields of Testing through IL EPA Lab No. 100230
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPIL - Springfield, IL - 1210 Capitol Airport Drive, Springfield, IL 62707
TNI Accreditation through IL EPA Lab No. 100323

SPMO - Springfield, MO - 1805 W Sunset Street, Springfield, MO 65807
USEPA DMR-QA Program

STL - St. Louis, MO - 3278 N Highway 67, Florissant, MO 63033
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
TNI Accreditation for Wastewater, Hazardous, and Solid Waste Analysis through IL EPA No. 200080
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Missouri Department of Natural Resources
Microbiological Laboratory Service for Drinking Water

Karra McCarty

Certified by: Karra McCarty For Chad Cooper, Laboratory Supervisor

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Nixa Wastewater Treatment Facility	MO- 0028037	001

PART E – TOXICITY TESTING DATA

19. TOXICITY TESTING DATA

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

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

A. POTWs with a design flow rate greater than or equal to 1 million gallons per day
B. POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403)
C. POTWs required by the permitting authority to submit data for these parameters

- At a minimum, these results must include quarterly testing for a 12-month period within the past one year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute or chronic toxicity, depending on the range of receiving water dilution. Do not include information about combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.
- If EPA methods were not used, report the reason for using alternative methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E. If no biomonitoring data is required, do not complete Part E. Refer to the application overview for directions on which other sections of the form to complete.

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years: 1 chronic 3 acute

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

	Most Recent	2ND Most Recent	3RD Most Recent
A. Test Information			
Test Method Number			
Final Report Number			
Outfall Number			
Dates Sample Collected			
Date Test Started			
Duration			
B. Toxicity Test Methods Followed			
Manual Title			
Edition Number and Year of Publication			
Page Number(s)			
C. Sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used			
24-Hour Composite			
Grab			
D. Indicate where the sample was taken in relation to disinfection (Check all that apply for each)			
Before Disinfection	☐	☐	☐
After Disinfection	☑	☑	☑
After Dechlorination	☐	☐	☐
E. Describe the point in the treatment process at which the sample was collected			
Sample Was Collected:	Effluent Parshall Flume	Effluent Parshall Flume	Effluent Parshall Flume
F. Indicate whether the test was intended to assess chronic toxicity, acute toxicity, or both			
Chronic Toxicity	☐	☐	☑
Acute Toxicity	☑	☑	☐
G. Provide the type of test performed			
Static	☐	☐	☐
Static-renewal	☐	☐	☐
Flow-through	☐	☐	☐
H. Source of dilution water. If laboratory water, specify type; if receiving water, specify source			
Laboratory Water	☐	☐	☐
Receiving Water	☑	☑	☑

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Nixa Wastewater Treatment Facility	MO- 0028037	001

PART E – TOXICITY TESTING DATA

19. TOXICITY TESTING DATA (continued)

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

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

If yes, describe:

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

Date Submitted (MM/DD/YYYY)

Summary of Results (See Instructions)

END OF PART E

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

WET Acute 2017

Environmental Analysis South, Inc.
4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
Nixa Wastewater Treatment Plant
OUTFALL 001 (24 hour composite) AEC = 100%
MO-0028037
EAS LOG# 2103517
March 22, 2017 through March 24, 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%	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 Value	<1.00	<1.00
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% by the Graphical Method
NOAEC = 100% using Steel's Many-One Rank Test
TUa<1.00

Ceriodaphnia dubia 48 hour WET results: LC 50 > 100% by the Graphical Method
NOAEC = 100% using Steel's Many-One Rank Test
TUa<1.00

Approved by _____
Sara C. Shields, Chemist

Environmental Analysis South, Inc.
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REPORT OF ACUTE TOXICITY TESTING
Nixa Wastewater Treatment Plant
OUTFALL 001 (24 hour composite) AEC = 100%
MO-0028037
EAS LOG# 2103517
March 22, 2017 through March 24, 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
Nixa Wastewater Treatment Plant
OUTFALL 001 (24 hour composite) AEC = 100%
MO-0028037
EAS LOG# 2103517
March 22, 2017 through March 24, 2017

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on March 8, 2017 using KCL Lot #41713. Following are the results:

2.2.1. ***P. promelas*** - 48 hr. Acute Test – LC_{50} = 1.120 g/l 95%CI (0.797-1.443g/l)
EAS %CV = 14.4%
National Warning Limits (75^{th} percentile) = 19%CV
National Control Limits (90^{th} percentile) = 33%CV

2.2.2. ***C. dubia*** - 48 hr. Acute Test – LC_{50} = 0.434 g/l 95%CI (0.324-0.678g/l)
EAS %CV = 17.7%
National Warning Limits (75^{th} percentile) = 29%CV
National Control Limits (90^{th} 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:	Nixa Wastewater Treatment Plant, Outfall 001, 24 hr composite
NPDES NUMBER:	MO-0028037
TYPE OF METHOD:	multiple dilution, 48 hrs, PP &CD, AEC=100%, Tua report
DATE & TIME OF COLLECTION:	03/20/17 1200 hrs - 03/21/17 1130 hrs by Joshua B Youngblood
DATE & TIME OF SUBMISSION:	03/22/17 0855 hrs by Fed Ex

Upstream: Finley Creek
Collected: 03/21/17 0815 hrs by JBY

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC
LOG NUMBER / ID NUMBER						2103517	2103517A	RC4177
pH - SU	03/22/17	0915 hrs	SCS	SB114 (8.8-9.2)	8.88	7.90	7.70	8.30
TEMPERATURE °C RECEIVED	03/22/17	0915 hrs	SCS	EAS 106		2	2	21
SPECIFIC CONDUCTANCE umhos	03/22/17	0915 hrs	SCS	ERA243-506 (308-346)	324	634	352	244
HARDNESS - ppm	03/23/17	1135 hrs	SCS	ERA249-507 (132-155)	150	179	168	66.4
CHLORINE - ppm	03/22/17	0915 hrs	SCS	tap water	+	<0.04	<0.04	<0.04
DISSOLVED OXYGEN - ppm	03/22/17	0915 hrs	SCS	cal@840		10.4	8.4	8.8
TOTAL ALKALINITY - ppm	03/23/17	1200 hrs	SCS	P236-506 (48.8-57.8)	51.6	168	147	70.4
INITIAL AMMONIA - ppm	03/26/17	1730 hrs	JPC	EAS 2963 (8-12)	10.9	<0.05	<0.05	<0.05
TOTAL DISSOLVED SOLIDS -ppm								

0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	03/22/17	1100 hrs	SCS	SB114 (8.8-9.2)	8.88	8.16	7.87	7.75	7.74	7.76	7.80	7.81	
TEMPERATURE °C	03/22/17	1100 hrs	SCS	EAS 106		24.8	24.6	24.4	24.0	24.9	24.6	24.3	
SPECIFIC CONDUCTANCE umhos	03/22/17	1100 hrs	SCS	ERA243-506 (308-346)	324	234	341	717	536	444	387	372	
DISSOLVED OXYGEN - ppm	03/22/17	1100 hrs	SCS	cal@840		8.7	8.7	10.2	9.5	9.3	9.0	9.0	

24 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	03/23/17	1100 hrs	SCS	SB114 (8.8-9.2)	8.89	7.94	8.01	8.36	8.33	8.30	8.26	8.15	
TEMPERATURE °C	03/23/17	1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	03/23/17	1100 hrs	SCS	ERA229-506 (308-346)	323	274	361	718	544	446	397	379	
DISSOLVED OXYGEN - ppm	03/23/17	1100 hrs	SCS	cal@840		7.8	7.5	7.2	7.4	7.4	7.4	7.4	
48 HOUR OBSERVATIONS - PP	**DATE**	**TIME**	**ANALYST**	**QC LOT**	**QC EXP VALUE**	**RC**	**UC**	**100%**	**50%**	**25%**	**12.5%**	**6.25%**	**X %AEC**
pH - SU	03/24/17	1100 hrs	SCS	SB114 (8.8-9.2)	8.93	8.48	8.47	8.47	8.46	8.50	8.45	8.44	
TEMPERATURE °C	03/24/17	1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	03/24/17	1100 hrs	SCS	ERA243-506 (308-346)	326	281	367	723	576	464	400	376	
DISSOLVED OXYGEN - ppm	03/24/17	1100 hrs	SCS	cal@840		8.0	7.5	7.5	7.6	7.6	7.4	7.4	
FINAL AMMONIA - ppm				DMRQA33 (10.0-16.8)									

24 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	03/23/17	1100 hrs	SCS	SB114 (8.8-9.2)	8.89	8.29	8.20	8.33	8.26	8.27	8.24	8.20	
TEMPERATURE °C	03/23/17	1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	03/23/17	1100 hrs	SCS	ERA243-506 (308-346)	323	248	353	720	538	447	400	381	
DISSOLVED OXYGEN - ppm	03/23/17	1100 hrs	SCS	cal@840		8.7	9.3	9.2	9.2	9.3	9.3	9.3	
48 HOUR OBSERVATIONS - CD	**DATE**	**TIME**	**ANALYST**	**QC LOT**	**QC EXP VALUE**	**RC**	**UC**	**100%**	**50%**	**25%**	**12.5%**	**6.25%**	**X %AEC**
pH - SU	03/24/17	1100 hrs	SCS	SB114 (8.8-9.2)	8.93	8.34	8.41	8.41	8.54	8.34	8.33	8.36	
TEMPERATURE °C	03/24/17	1100 hrs	SCS	EAS 106		25.0	25.0	25.0	25.0	25.0	25.0	25.0	
SPECIFIC CONDUCTANCE umhos	03/24/17	1100 hrs	SCS	ERA243-506 (308-346)	326	256	353	709	535	446	399	381	
DISSOLVED OXYGEN - ppm	03/24/17	1100 hrs	SCS	cal@840		8.4	8.4	8.4	8.5	8.6	8.5	8.7	
FINAL AMMONIA - ppm				DMRQA33 (10.0-16.8)									

Approved by: [signature]

Date: 3/27/17

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

Nixa Wastewater Treatment Plant, Outfall 001, 24 hr composite **EAS LOG# 2103517**

Date Test Began:	March 22, 2017	**Time Test Began:**	1100 hrs	**Analyst 1:**	DFW
Date Test Finished:	March 24, 2017	**Time Test Finished:**	1100 hrs	**Analyst 2:**	KJR
				Analyst 3:	SCS

P. promelas (PP) **AGE:** 7 **days** **HATCH NUMBER:** 128 c-k

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

Ceriodaphnia dubia (CD) **AGE:** <24 **hours** **HATCH NUMBER:** 3452 c-k

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

Approved by:  Date: 3/27/17

WET Acute 2018

PDC Laboratories, Inc.

PROFESSIONAL • DEPENDABLE • COMMITTED

April 03, 2018

Josh Youngblood
Nixa, City of
PO Box 395
Nixa, MO 65714

Dear Josh Youngblood:

Please find enclosed the analytical results for the sample(s) the laboratory received on **3/20/18 12:48 pm** and logged in under work order **8033360**. All testing is performed according to our current TNI certifications unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories, Inc.

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

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

Sincerely,

Chad Cooper
Laboratory Supervisor
(417) 864-8924
ccooper@pdclab.com

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample: 8033360-01
Name: Effluent Composite
Matrix: Water - Composite

Sampled: 03/20/18 11:50
Received: 03/20/18 12:48

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
General Chemistry - SPMO							
Chlorine - Total Residual	< 0.10	mg/L	H	03/21/18 13:46	03/21/18 13:46	RRG	SM 4500-Cl G*
Conductivity	710	umhos/cm		03/20/18 14:42	03/20/18 14:42	KMR	SM 2510B
Dissolved Oxygen	8.8	mg/L	H	03/20/18 14:42	03/20/18 14:42	KMR	SM 4500-O G*
pH	7.7	pH Units	H	03/20/18 14:42	03/20/18 14:42	KMR	SM 4500-H B - SW 9040*
General Chemistry - STL							
Alkalinity - total as CaCO3	180	mg/L		03/27/18 09:15	03/27/18 09:15	EEL	SM 2320B*
Nutrients - SPMO							
Ammonia-N	0.16	mg/L		03/23/18 14:46	03/23/18 14:46	RRG	EPA 350.1 - QC 10-107-06-1-I & J*
WETT - SPMO							
Ceriodaphnia Dubia TUa	< 1.0	units		03/20/18 15:25	03/20/18 15:25	KMR	EPA 2002.0*
Pimephales Promelas TUa	< 1.0	units		03/20/18 15:25	03/20/18 15:25	KMR	EPA 2002.0*

Sample: 8033360-02
Name: Upstream Grab
Matrix: Waste Water - Grab

Sampled: 03/20/18 09:55
Received: 03/20/18 12:48

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method
General Chemistry - SPMO							
Chlorine - Total Residual	< 0.10	mg/L	H	03/21/18 13:46	03/21/18 13:46	RRG	SM 4500-Cl G*
Conductivity	340	umhos/cm		03/20/18 14:42	03/20/18 14:42	KMR	SM 2510B
Dissolved Oxygen	8.8	mg/L	H	03/20/18 14:42	03/20/18 14:42	KMR	SM 4500-O G*
pH	7.7	pH Units	H	03/20/18 14:42	03/20/18 14:42	KMR	SM 4500-H B - SW 9040*
Nutrients - SPMO							
Ammonia-N	< 0.10	mg/L		03/23/18 14:46	03/23/18 14:46	RRG	EPA 350.1 - QC 10-107-06-1-I & J*

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

NOTES

Specific method revisions used for analysis are available upon request.

Memos

Report of Acute Toxicity Testing

Reference Toxicity Test:
PDC Laboratories, INC. conducts a monthly reference toxicant test to demonstrate and obtain consistent, precise results for permit compliance purposes. This demonstration is to ensure satisfactory laboratory performance. The most recent reference test results are as follows:

Date Initiated: March 6, 2018
Date Concluded: March 8, 2018

Reference Toxicant: Potassium Chloride (KCl)
Lot Number: 46345704
Expiration: N/A
Standards ID: SPMO1-22B

Moderately Hard Synthetic Water: 2-6AC2
Prepared: February 28, 2018
Expiration: March 14, 2018
Analyst: KMR

Pimephales promelas: 48 hour Acute Test - LC50 = 816.2 mg/L
SPMO %CV = 10.44 %
National Limits (75th Percentile) = 17.9% CV
National Control Limit (90th Percentile) = 33% CV
Ceriodaphnia dubia: 48 hour Acute Test - LC50 = 736.8 mg/L
SPMO %CV = 23.24 %
National Limits (75th Percentile) = 29%CV
National Control Limit (90th Percentile) = 34%CV

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

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

Certifications

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

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

SPMO - Springfield, MO
USEPA DMR-QA Program

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

* Not a TNI accredited analyte

Qualifiers

H Test performed after the expiration of the appropriate regulatory/advisory maximum allowable hold time.

Certified by: Chad Cooper, Laboratory Supervisor

PDC Laboratories Inc, SPMO — EPA Test Methods: 2002.0 & 2000.0

Routine Chemistries

Client Permit #: MO-0028037

Sample #: 8033360 — PP Hatch: 031018A — MHSF: 2-6CCI

Client: Nixa — CD Hatch: 032018ICB — Board/Shelf: 004/4

Calibration data

pH	Initial	Date	Time	Analyst	48 hour	Date	Time	Analyst	DO (mg/L)	Date	Time	Analyst	Pressure (mmHg)	% Sat
4.00	4.01	3.20.18	1402	KMR	4.01	3.22.18	0942	RRG	Initial	3.20.18	1409	KMR	727	100%
7.00	7.00				7.00				1 Hour	3.20.18	1625	KMR	727	100%
10.00	10.02				10.02				24 Hour	3.21.18	1435	KMR	734	100%
Curve	98.4%				98.2%				48 Hour	3.22.18	1657	KMR	734	100%

Initial/Received

Cup #	2	11	14	12	4	5	1	13				
Concentration	MHSF	6.25%	12.5%	25%	50%	Effluent	*Upstream	EFF-DUP	Date	Time	Batch	Analyst
pH (EPA 150.1)	7.76	7.79	7.76	7.76	7.74	7.68	7.68	7.66	3.20.18	1442	B805447	KMR
DO mg/L (SM 5010)	7.98	8.42	8.56	8.53	8.52	8.77	8.77	8.84	3.20.18	1442	B805447	KMR
Conductivity (µMohs) (SM 2510B)	MHSF 347			Effluent 714 (704)			*Upstream 345		Date 3.20.18	Time 1442	Batch B805447	Analyst KMR

	Method	Effluent	Upstream*	Date	Time	Batch	Analyst
Chlorine (mg/L)	4500Cl-G	0.02	0.01	3.21.18	1346	B805456	RRG

0 Hour

	Fathead Minow	Cerodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	22.9	21.9	3.20.18	1525	KMR

1 Hour

Test	MHSF	Effluent	Upstream *	Date	Time	Analyst
DO (mg/L)	7.94	8.32	8.49	3.20.18	1628	KMR
	Fathead Minow		Cerodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	23.1		23.4	3.20.18	1627	KMR

24 Hour

Test	MHSF	6.25%	12.5%	25%	50%	Effluent	*Upstream	Date	Time	Analyst
DO (mg/L)	7.15	7.14	7.04	7.05	7.05	6.89	7.41	3.21.18	1441	KMR
	Fathead Minow				Cerodaphnia Dubia				Time	Analyst
Temperature (°C)	25.2				24.7			3.21.18	1439	KMR

48 Hour

Test	MHSF	6.25%	12.5%	25%	50%	Effluent	*Upstream	Date	Time	Analyst
pH	7.76	8.25	8.26	8.26	8.29	8.25	8.27	3.22.18	1607	KMR
DO (mg/L)	7.35	7.35	7.29	7.28	7.19	6.97	7.38	3.22.18	1601	KMR

	Fathead Minow	Cerodaphnia Dubia	Date	Time	Analyst
Temperature (°C)	~~22~~ 24.9	24.7	3.22.18	1600	KMR
	MHSF	Effluent	*Upstream	Date	Time	Analyst

	MHSF	Effluent	*Upstream	Date	Time	Analyst
Conductivity (µMohs)	337	654 (679)	323	3.22.18	1611	KMR

Comments: "H" qualifier added to pH, DO and Chlorine analytes due to sample hold time

* Upstream only performed if supplied by the client

Analyst Signature: Krista Rice — Date: 3.23.18

Read and Understood By: [signature] — Date: 3-26-18

PDC Laboratories Inc, SPMO.

EPA Test Methods: 2002.0 & 2000.0

Multiple Dilution WET Test

Client Permit #: MO-0026037

Sample # 8033360 PP Hatch 031618A MHSF 2-6CC1

Client Nixa CD Hatch 032018CB Board/Shelf 004/4

Cup	Conc.	Initial	24 hour	48 hour
P1	0	10	10	10
P2	lab	10	10	10
P3	50	10	10	10
P4	50	10	10	10
P5	100	10	10	10
P6	25	10	10	10
P7	12.5	10	10	10
P8	0	10	10	10
P9	lab	10	10	10
P10	6.25	10	10	10
P11	6.25	10	10	10
P12	25	10	10	10
P13 *	100	10	10	10
P14 *	12.5	10	10	10
C1	lab	5	5	5
C2	12.5	5	5	5
C3	0	5	5	5
C4	12.5	5	5	5
	6.25	5	5	5
C6	100	5	5	5
C7	50	5	5	4
C8	25	5	5	5
C9	0	5	5	5
C10	25	5	5	5
C11	12.5	5	5	5
C12	12.5	5	5	5
C13	50	5	5	5
C14	50	5	5	5
C15	100	5	5	5
C16	lab	5	5	5
C17	100	5	5	5
C18	100	5	5	5
C19	25	5	5	5
C20	25	5	5	5
C21	6.25	5	5	5
C22	lab	5	5	5
C23	50	5	5	4
C24	6.25	5	5	5
C25 *	0	5	5	5
C26 *	6.25	5	5	5
*	0	5	5	5
C28 *	lab	5	5	5

* These cups only used when upstream samples are provided.

Set Times

Start Date/Time:	3-20-18 @ 1525		
	Date	Time	Analyst
0 Hour	3-20-18	1525	KMR
24 Hour	3-21-18	1445	KMR
48 Hour	3-22-18	1613	KMR
End Date/Time:	3-22-18 / 1623		

Results

Pimephales promelas

48 Hour Result		Date	Analyst
LC 50	>100	3-23-18	KMR
TU_a	<1	3-23-18	KMR
P-Value	—	—	—

Ceriodaphnia Dubia

48 Hour Result		Date	Analyst
LC 50	>100	3-23-18	KMR
TU_a	<1	3-23-18	KMR
P-Value	—	—	—

		Date	Analyst
Filtered (Y / N):	N	3-20-18	KMR
Light Check:	N/A	3-20-18	KMR
PP Fry Age:	10 days	3-20-18	KMR
CD Neonates Age:	<24 hrs	3-20-18	KMR

Comments: PP fry were set in 200 ml of conc. w/in a 250 ml cup. CD were set in 15 ml of conc. w/in a 30 ml cup.

Analyst Signature: Kinta Rice

Date: 3-23-18

Read and Understood By: [signature]

Date: 3-26-18

Logbook: 2 Report #: 8

WET Cronic 2019

PDC Laboratories, Inc.

PROFESSIONAL • DEPENDABLE • COMMITTED

May 20, 2019

Josh Youngblood
Nixa, City of
PO Box 395
Nixa, MO 65714

RE: WETT Multiple

Dear Josh Youngblood:

Please find enclosed the analytical results for the sample(s) the laboratory received on **4/15/19 8:41 am** and logged in under work order **9043405.** All testing is performed according to our current TNI accreditations unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories, Inc.

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

PDC Laboratories, Inc. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Director of Client Services, Lisa Grant with any feedback you have about your experience with our laboratory.

Sincerely,

Chad Cooper
Laboratory Supervisor
(417) 864-8924
ccooper@pdclab.com

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

ANALYTICAL RESULTS

Sample:
Name:

Sampled:
Received:

Reg ID:

PO #:

Parameter	Result	Unit	Qualifier	Prepared	Analyzed	Analyst	Method

PDC Laboratories, Inc.
1805 West Sunset Street
Springfield, MO 65807
(417) 864-8924

NOTES

Specific method revisions used for analysis are available upon request.

Certifications

CHI - McHenry, IL
TNI Accreditation for Drinking Water, Wastewater, Fields of Testing through IL EPA Lab No. 100279
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Hazardous/Solid Waste Certifications: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPIL - Springfield, IL
TNI Accreditation for Drinking Water, Wastewater, Hazardous and Solid Waste Fields of Testing through IL EPA Lab No. 100323

SPMO - Springfield, MO
USEPA DMR-QA Program

STL - St. Louis, MO
TNI Accreditation for Wastewater, Hazardous and Solid Wastes Fields of Testing through KS Lab No. E-10389
TNI Accreditation for Wastewater, Hazardous, and Solid Waste Analysis through IL EPA No. 200080
Illinois Department of Public Health Bacteriological Analysis in Drinking Water Approved Laboratory Registry No. 171050
Missouri Department of Natural Resources
Microbiological Laboratory Service for Drinking Water

* Not a TNI accredited analyte

Certified by: Chad Cooper, Laboratory Supervisor

Pace Analytical®
www.pacelabs.com

REFERENCE #60299927

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Phone: 913.599.5665
Fax: 913.599.1759

April 25, 2019

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

Re: Lab Project Number: 60299927
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
Tim.Harrell@pacelabs.com
Technical Director

Pace Analytical®
www.pacelabs.com

REFERENCE #60299927

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Phone: 913.599.5665
Fax: 913.599.1759

CHRONIC TOXICITY TEST FOR
City of Nixa

PERMIT # MO-0028037

PERFORMED ON:

Pimephales promelas

and

Ceriodaphnia dubia

PREPARED FOR:

PDC Laboratories, Inc.
1805 W. Sunset
Springfield, MO 65807
417-864-8924

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

April 25, 2019

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
Phone: 913.599.5665
Fax: 913.599.1759

SUMMARY

A Chronic Whole Effluent Toxicity Test using the 7-day chronic fathead minnows (Pimephales promelas), static renewal larval survival and growth test, and three brood 7-day chronic Cladoceran (Ceriodaphnia dubia), static renewal survival and reproduction test, was conducted on effluent discharge water collected at CITY OF NIXA effluent discharge from April 15, 2019 to April 19, 2019. All the test methods followed are as listed in EPA 821-R-02-013, "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. Significant reduction in reproduction was observed in the 100% effluent concentrations. The Toxic Units is <1. The IC25 is >100. The NOEC for growth in effluent was determined to be 100%.

The chronic toxicity exhibited by the fathead minnows and the Ceriodaphnia treated by the effluent sampled from April 15 to April 19 from CITY OF NIXA effluent discharge, is acceptable as described in EPA 821-R-02-013.

Pace Analytical Services, Inc.
9608 Loiret Blvd.
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INTRODUCTION

Pace Analytical was contracted to perform this chronic toxicity test on effluent from CITY OF NIXA 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 NIXA personnel collected sampling of the effluent. A sample of the effluent was delivered to Pace by commercial carrier on 4-16-19. Subsequent samples followed by delivery on 4-18-19 and on 4-20-19. All samples were stored at ≤ 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 Pimephales and Ceriodaphnia tests were initiated on 4-16-19 and carried out until 4-23-19. 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 Ceriodaphnia 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

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TABLE 1

Permittee: CITY OF NIXA Effluent discharge.

Date Sampled No. 1: 4-15-19 7:07

No. 2: 4-17-19 7:40

No. 3: 4-19-19 7:55

Test Initiated: 11:40 Date: 4-15-19

Dilution Water used: Upstream

FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL
(Pimephales promelas)

DATA TABLE FOR GROWTH OF FATHEAD MINNOWS

Effluent Concentration (%)	Average Dry Weight in Milligrams in Replicate Chambers A	B	C	D	Mean Dry Weight (mg)	CV% *
Upstream 0%	0.502	0.538	0.576	0.548	0.541	5.65
Dilution 1 6.25%	0.534	0.420	0.485	0.504	0.486	9.93
Dilution 2 12.5%	0.443	0.589	0.403	0.476	0.478	16.73
Dilution 3 25%	0.493	0.424	0.543	0.567	0.519	8.31
Dilution 4 50%	0.428	0.451	0.511	0.549	0.485	11.41
Dilution 5 100%	0.569	0.557	0.522	0.573	0.555	4.18

* Coefficient of Variation = Standard Deviation X 100 / Mean

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Permittee: City of Nixa Effluent discharge.

FATHEAD MINNOW SURVIVAL

Conc. %	Percent Survival in Replicate Chambers				Mean Percent Survival			CV %
	A	B	C	D	24hr	48hr	7 day	
Upstream 0%	100	100	100	100	100	100	100	0.00
Dilution 1 6.25%	100	90	100	100	100	100	97.5	5.94
Dilution 2 12.5%	100	100	90	100	100	100	97.5	5.94
Dilution 3 25%	100	100	100	100	100	100	100	0.00
Dilution 4 50%	90	100	100	100	100	100	97.5	5.94
Dilution 5 100%	100	100	100	100	100	100	100	0.00

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Permittee: City of Nixa Effluent discharge.

CERIODAPHNIA SURVIVAL AND REPRODUCTION

DATA TABLE FOR CERIODAPHNIA YOUNG PRODUCTION

Replicate	Upstream 0%	Dilution 1 6.25%	Dilution 2 12.5%	Dilution 3 25%	Dilution 4 50%	Dilution 5 100%
1	23	25	23	20	28	27
2	27	24	24	26	24	19
3	28	24	24	21	26	21
4	25	23	29	23	24	28
5	23	26	29	23	23	23
6	23	26	20	26	20	26
7	21	30	25	25	26	23
8	24	23	23	27	21	28
9	19	27	21	24	16	20
10	24	23	17	21	27	26
Mean	23.7	25.1	23.5	23.6	23.5	24.1
SD	2.627	2.234	3.719	2.413	3.659	3.348
CV %	11.08	8.90	15.83	10.22	15.57	13.89

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Permittee: City of Nixa Effluent discharge.

CERIODAPHNIA MEAN PERCENT SURVIVAL

	Percent Effluent (%)					
Time Elapsed	Upstream 0%	Dilution 1 6.25%	Dilution 2 12.5%	Dilution 3 25%	Dilution 4 50%	Dilution 5 100%
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

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	30 ml
7. Test solution volume	25 ml

TABLE 2 (CONT.)

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8. Renewal of test concentrations	Daily
9. Age of test organism	< 24 hours
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 Nixa Effluent discharge.

ANALYSTS: Pace Analytical Services, Inc.
Timothy Harrell
Mike Bollin

SAMPLE NO. 1 COLLECTED: DATE: 4-15-19

SAMPLE NO. 2 COLLECTED: DATE: 4-17-19

SAMPLE NO. 3 COLLECTED: DATE: 4-19-19

TABLE 2 (SECTION 2)
INITIAL WATER QUALITY
EFFLUENT CONCENTRATION

	Upstream	100%
PH	8.32	8.26
D.O.	8.60	8.50
Temp	25.0	25.0
Alk	148	170
Hard	174	212
Cond	374	740
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

Effluent Concentration (%)	PH	D.O. (mg/l)	Temperature (C)
0% Upstream	8.36	7.30	24.9
6.25% Effluent	8.36	7.30	24.9
12.5% Effluent	8.34	7.20	24.9
25% Effluent	8.33	7.10	24.9
50% Effluent	8.31	7.00	24.9
100% Effluent	8.30	6.90	24.9

48-Hour Water Quality Measurements

Effluent Concentration (%)	PH	D.O. (mg/l)	Temperature (C)
0% Upstream	8.22	6.80	24.7
6.25% Effluent	8.24	6.80	24.7
12.5% Effluent	8.27	6.80	24.7
25% Effluent	8.28	6.80	24.7
50% Effluent	8.31	6.90	24.7
100% Effluent	8.33	6.90	24.7

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FINAL WATER QUALITY

EFFLUENT CONCENTRATION

	Upstream	100%
pH	8.30	8.38
D.O.	6.90	7.00
Temp	24.8	24.8
Alk	142	166
Hard	172	208
Cond	704	795

* 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 Pimephales promelas control survival rate was 100. The mean dry weight (growth) of the Pimephales promelas was determined at 0.541 g/organism in the controls. The percent coefficient of variation (%CV) values for the fathead minnow control for survival and growth were 0.00 and 5.65. The Ceriodaphnia dubia survival rates were 100 in the control. The Ceriodaphnia in the control produced an average of 23.7 young over the seven-day exposure period. Percent CV values for Ceriodaphnia dubia control survival and reproduction was 0.00 and 11.08. Control data met or exceeded all criteria set out by EPA 821-R-02-013 for test acceptance.

CONCLUSIONS

The No Observed Effect Concentration (NOEC) for Pimephales promelas was 100% for survival and 100% for growth. The No Observed Effect Concentration (NOEC) for Ceriodaphnia dubia was 100% for Survival and 100% for Reproduction. The tests were ran using an upstream control against effluent concentrations of 6.25%, 12.5%, 25%, 50%, and 100%. The effluent sampled on 4-15-19, 4-17-19, and 4-19-19 exhibited acceptable chronic toxicity in Pimephales promelas and in Ceriodaphnia dubia 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 Toxicant (NaCl) Pimephales promelas

Concentration of Toxicant	Avg. # of Live Organisms/replicate			
	0 hrs	24 hrs	48 hrs	7 days
10 g/l	40	8	2	0
8 g/l	40	30	20	4
6 g/l	40	38	35	24
4 g/l	40	40	40	39
2 g/l	40	40	40	39

IC25 (4.94 g/l Sodium Chloride)

Survival NOEC: 4.0 g/l

Reference Toxicant (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	7	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 (1.21 g/l Sodium Chloride)

Survival NOEC: 1.5 g/l

Submitted By: Tim Harrell
Timothy Harrell, Technical Director

60299927 PDC NIXA FATHEAD SURVIVAL
File: 6299927A 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
EXPECTED	1.608	5.808	9.168	5.808	1.608
OBSERVED	0	3	21	0	0

Calculated Chi-Square goodness of fit test statistic = 25.6517
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.

60299927 PDC NIXA FATHEAD SURVIVAL
File: 6299927A Transform: ARC SINE(SQUARE ROOT(Y))

Shapiro - Wilk's test for normality

D = 0.060

W = 0.668

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

60299927 PDC NIXA FATHEAD SURVIVAL
File: 6299927A Transform: ARC SINE(SQUARE ROOT(Y))

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

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

60299927 PDC NIXA FATHEAD SURVIVAL
File: 6299927A Transform: ARC SINE(SQUARE ROOT(Y))

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%	0.007	0.081	0.041	5.94
3	12.5%	0.007	0.081	0.041	5.94
4	25%	0.000	0.000	0.000	0.00
5	50%	0.007	0.081	0.041	5.94
6	100%	0.000	0.000	0.000	0.00

60299927 PDC NIXA FATHEAD SURVIVAL
File: 6299927A Transform: ARC SINE(SQUARE ROOT(Y))

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	0.010	0.002	0.600
Within (Error)	18	0.060	0.003	
Total	23	0.070		

Critical F value = 2.77 (0.05,5,18)
Since F < Critical F FAIL TO REJECT Ho: All equal

60299927 PDC NIXA FATHEAD SURVIVAL
File: 6299927A Transform: ARC SINE(SQUARE ROOT(Y))

DUNNETT'S TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	UPSTREAM	1.412	1.000		
2	6.25%	1.371	0.975	1.000	
3	12.5%	1.371	0.975	1.000	
4	25%	1.412	1.000	0.000	
5	50%	1.371	0.975	1.000	
6	100%	1.412	1.000	0.000	

Dunnett table value = 2.41 (1 Tailed Value, P=0.05, df=18,5)

60299927 PDC NIXA FATHEAD SURVIVAL
File: 6299927A 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	0.040	4.0	0.025
3	12.5%	4	0.040	4.0	0.025
4	25%	4	0.040	4.0	0.000
5	50%	4	0.040	4.0	0.025
6	100%	4	0.040	4.0	0.000

60299927 PDC NIXA FATHEAD GROWTH
File: 6299927B Transform: NO TRANSFORMATION

Shapiro - Wilk's test for normality

D = 0.045

W = 0.973

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.

60299927 PDC NIXA FATHEAD GROWTH
File: 6299927B Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance
Calculated B1 statistic = 4.76

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.

60299927 PDC NIXA FATHEAD GROWTH
File: 6299927B Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	UPSTREAM	4	0.502	0.576	0.541
2	6.25%	4	0.420	0.534	0.486
3	12.5%	4	0.403	0.589	0.478
4	25%	4	0.474	0.567	0.519
5	50%	4	0.428	0.549	0.485
6	100%	4	0.522	0.573	0.555

60299927 PDC NIXA FATHEAD GROWTH
File: 6299927B Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	UPSTREAM	0.001	0.031	0.015	5.65
2	6.25%	0.002	0.048	0.024	9.93
3	12.5%	0.006	0.080	0.040	16.73
4	25%	0.002	0.043	0.022	8.31
5	50%	0.003	0.055	0.028	11.41
6	100%	0.001	0.023	0.012	4.18

60299927 PDC NIXA FATHEAD GROWTH
File: 6299927B Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	0.021	0.004	1.702
Within (Error)	18	0.045	0.003	
Total	23	0.067		

Critical F value = 2.77 (0.05,5,18)
Since F < Critical F FAIL TO REJECT Ho: All equal

60299927 PDC NIXA FATHEAD GROWTH
File: 6299927B Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	UPSTREAM	0.541	0.541		
2	6.25%	0.486	0.486	1.557	
3	12.5%	0.478	0.478	1.782	
4	25%	0.519	0.519	0.613	
5	50%	0.485	0.485	1.585	
6	100%	0.555	0.555	-0.402	

Dunnett table value = 2.41 (1 Tailed Value, P=0.05, df=18,5)

60299927 PDC NIXA FATHEAD GROWTH
File: 6299927B 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			
2	6.25%	4	0.086	15.8	0.055
3	12.5%	4	0.086	15.8	0.063
4	25%	4	0.086	15.8	0.022
5	50%	4	0.086	15.8	0.056
6	100%	4	0.086	15.8	-0.014

FISHER'S EXACT TEST

IDENTIFICATION	NUMBER OF ALIVE	DEAD	TOTAL ANIMALS
CONTROL	10	0	10
6.25%	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

IDENTIFICATION	NUMBER OF 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

IDENTIFICATION	NUMBER OF 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
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

	NUMBER 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.

SUMMARY OF FISHER'S EXACT TESTS

	NUMBER	NUMBER	SIG

GROUP	IDENTIFICATION	EXPOSED	DEAD	(P=.05)
	CONTROL	10	0	
1	6.25%	10	0	
2	12.5%	10	0	
3	25%	10	0	
4	50%	10	0	
5	100%	10	0	

60299927 PDC NIXA CERIODAPHNIA DUBIA SURVIVA
File: 6299927D 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

60299927 PDC NIXA CERIODAPHNIA DUBIA SURVIVA
File: 6299927D 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

60299927 PDC NIXA CERIODAPHNIA DUBIA REPRODU
File: 6299927E 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
EXPECTED	4.020	14.520	22.920	14.520	4.020
OBSERVED	4	13	24	17	2

Calculated Chi-Square goodness of fit test statistic = 1.6487
Table Chi-Square value (alpha = 0.01) = 13.277

Data PASS normality test. Continue analysis.

60299927 PDC NIXA CERIODAPHNIA DUBIA REPRODU
File: 6299927E Transform: NO TRANSFORMATION

Bartlett's test for homogeneity of variance
Calculated B1 statistic = 4.13

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.

60299927 PDC NIXA CERIODAPHNIA DUBIA REPRODU
File: 6299927E Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	UPSTREAM	10	19.000	28.000	23.700
2	6.25%	10	23.000	30.000	25.100
3	12.5%	10	17.000	29.000	23.500
4	25%	10	20.000	27.000	23.600
5	50%	10	16.000	28.000	23.500
6	100%	10	19.000	28.000	24.100

60299927 PDC NIXA CERIODAPHNIA DUBIA REPRODU
File: 6299927E Transform: NO TRANSFORMATION

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	UPSTREAM	6.900	2.627	0.831	11.08
2	6.25%	4.989	2.234	0.706	8.90
3	12.5%	13.833	3.719	1.176	15.83
4	25%	5.822	2.413	0.763	10.22
5	50%	13.389	3.659	1.157	15.57
6	100%	11.211	3.348	1.059	13.89

60299927 PDC NIXA CERIODAPHNIA DUBIA REPRODU
File: 6299927E Transform: NO TRANSFORMATION

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	19.283	3.857	0.412
Within (Error)	54	505.300	9.357	
Total	59	524.583		

Critical F value = 2.45 (0.05,5,40)
Since F < Critical F FAIL TO REJECT Ho: All equal

60299927 PDC NIXA CERIODAPHNIA DUBIA REPRODU
File: 6299927E Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	UPSTREAM	23.700	23.700		
2	6.25%	25.100	25.100	-1.023	
3	12.5%	23.500	23.500	0.146	
4	25%	23.600	23.600	0.073	
5	50%	23.500	23.500	0.146	
6	100%	24.100	24.100	-0.292	

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

60299927 PDC NIXA CERIODAPHNIA DUBIA REPRODU
File: 6299927E 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	10			
2	6.25%	10	3.160	13.3	-1.400
3	12.5%	10	3.160	13.3	0.200
4	25%	10	3.160	13.3	0.100
5	50%	10	3.160	13.3	0.200
6	100%	10	3.160	13.3	-0.400

Conc. ID	1	2	3	4	5	6
Conc. Tested	0	6.25	12.5	25	50	100
Response 1	.502	.534	.443	.493	.428	.569
Response 2	.538	.420	.589	.474	.451	.557
Response 3	.576	.485	.403	.543	.511	.522
Response 4	.548	.504	.476	.567	.549	.573

*** Inhibition Concentration Percentage Estimate ***
Toxicant/Effluent: PDC Nixa
Test Start Date: 4/16/19 Test Ending Date: 4/23/19
Test Species: P promelas
Test Duration: 7 Days
DATA FILE:

Conc. ID	Number Replicates	Concentration %	Response Means	Std. Dev.	Pooled Response Means
1	4	0.000	0.541	0.031	0.541
2	4	6.250	0.486	0.048	0.505
3	4	12.500	0.478	0.080	0.505
4	4	25.000	0.519	0.043	0.505
5	4	50.000	0.485	0.055	0.505
6	4	100.000	0.555	0.023	0.505

*** 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. Tested	0	6.25	12.5	25	50	100
Response 1	23	25	23	20	28	27
Response 2	27	24	24	26	24	19
Response 3	28	24	24	21	26	21
Response 4	25	23	29	23	24	28
Response 5	23	26	29	23	23	23
Response 6	23	26	20	26	20	26
Response 7	21	30	25	25	26	23
Response 8	24	23	23	27	21	28
Response 9	19	27	21	24	16	20
Response 10	24	23	17	21	27	26

*** Inhibition Concentration Percentage Estimate ***
Toxicant/Effluent: PDC Nixa
Test Start Date: 4/16/19 Test Ending Date: 4/23/19
Test Species: C dubia
Test Duration: 7 days
DATA FILE:

Conc. ID	Number Replicates	Concentration %	Response Means	Std. Dev.	Pooled Response Means
1	10	0.000	23.700	2.627	24.400
2	10	6.250	25.100	2.234	24.400
3	10	12.500	23.500	3.719	23.675
4	10	25.000	23.600	2.413	23.675
5	10	50.000	23.500	3.659	23.675
6	10	100.000	24.100	3.348	23.675

*** 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.

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL		
FACILITY NAME Nixa Wastewater Treatment Facility	PERMIT NO. MO- 0028037	OUTFALL NO. 001

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

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

20. GENERAL INFORMATION

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

☐ Yes ☑ No

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

Number of non-categorical SIUs 0 ____

Number of CIUs 0 ____

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

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

NAME			
MAILING ADDRESS	CITY	STATE	ZIP CODE

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

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

Principal Product(s):

Raw Material(s):

21.3 Flow Rate

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

gpd ☐ Continuous ☐ Intermittent

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

gpd ☐ Continuous ☐ Intermittent

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

a. Local Limits ☐ Yes ☐ No

b. Categorical Pretreatment Standards ☐ Yes ☐ No

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

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

☐ Yes ☐ No

If Yes, describe each episode

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Nixa Wastewater Treatment Facility	MO- 0028037	001

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

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

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

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

22.3 Waste Description

EPA Hazardous Waste Number	Amount (volume or mass)	Units

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

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

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

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

23.4 Waste Treatment

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

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

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

If intermittent, describe the discharge schedule:

END OF PART F

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Nixa Wastewater Treatment Facility	MO- 0028037	001

PART G – COMBINED SEWER SYSTEMS

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

24. GENERAL INFORMATION

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

A. All CSO Discharges.
B. Sensitive Use Areas Potentially Affected by CSOs. (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems and Outstanding Natural Resource Waters.)
C. Waters that Support Threatened and Endangered Species Potentially Affected by CSOs.

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

A. Locations of Major Sewer Trunk Lines, Both Combined and Separate Sanitary.
B. Locations of Points where Separate Sanitary Sewers Feed into the Combined Sewer System.
C. Locations of In-Line or Off-Line Storage Structures.
D. Locations of Flow-Regulating Devices.
E. Locations of Pump Stations.

24.3 Percent of collection system that is combined sewer 0

24.4 Population served by combined sewer collection system 0

24.5 Name of any satellite community with combined sewer collection system None

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

25.1 Description of Outfall

a. Outfall Number
b. Location

c. Distance from Shore (if applicable) _____ ft
d. Depth Below Surface (if applicable) _____ ft
e. Which of the following were monitored during the last year for this CSO?

☐ Rainfall ☐ CSO Pollutant Concentrations ☐ CSO
☐ CSO Flow Volume ☐ Receiving Water Quality

f. How many storm events were monitored last year?

25.2 CSO Events

a. Give the Number of CSO Events in the Last Year Events ☐ Actual ☐ Approximate
b. Give the Average Duration Per CSO Event Hours ☐ Actual ☐ Approximate
c. Give the Average Volume Per CSO Event Million Gallons ☐ Actual ☐ Approximate
d. Give the minimum rainfall that caused a CSO event in the last year _____ inches of rainfall

25.3 Description of Receiving Waters

a. Name of Receiving Water
b. Name of Watershed/River/Stream System
c. U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)
d. Name of State Management/River Basin
e. U.S. Geological Survey 8- Digit Hydrologic Cataloging Unit Code (If Known)

25.4 CSO Operations

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

END OF PART G

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