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-0028886
Owner:	City of Blue Springs
Address:	903 W. Main Street, Blue Springs, MO 64015
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Sni-A-Bar WWTP
Facility Address:	4600 block of South Seymore Rd, Grain Valley, MO 64029
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

December 1, 2023
Effective Date

November 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.
Two (2) influent lift stations / wet weather lift station / peak flow basin / screening / grit removal / three (3) aeration basins / four (4) clarifiers / tertiary filtration / UV disinfection / effluent lift station / reaeration / two (2) aerobic sludge digestion basins / four (4) sludge reed beds / two (2) sludge storage and digestion lagoons / sludge is stored until hauled by contact hauler to landfill, or biosolids are land applied by permittee, or are hauled to a permitted disposal facility / facility does not have materials stored or conduct operations in a manner that would cause the discharge of pollutants via stormwater.

Design population equivalent is 98,883.
Design flow is 10.0 MGD.
Actual flow is 4.87 MGD.
Design sludge production is 2,131 dry tons/year.

Legal Description:	Sec. 25, T49N, R30W, Jackson County
UTM Coordinates:	X=397865, Y=4320885
Receiving Stream:	Tributary to Sni-A-Bar Creek
First Classified Stream and ID:	Sni-A-Bar Creek (P) (399) 303(d) List
USGS Basin & Sub-watershed No.:	(10300101-0504)

Permitted Feature INF – Influent Monitoring Location – Headworks

Legal Description:	Sec. 25, T49N, R30W, Jackson County
UTM Coordinates:	X=397549, Y=4320352

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 **December 1, 2030**. These interim effluent limitations in **Table A-1** are effective beginning **December 1, 2023** and remain in effect through **November 30, 2030** or as soon as possible. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	MONTHLY AVERAGE	MONTHLY TOTAL	MEASUREMENT FREQUENCY	SAMPLE TYPE
eDMR Limit Set: M						
Flow	MGD	*	*	*	once/day	24 hr. total
EFFLUENT PARAMETER(S)	**UNITS**	**DAILY MAXIMUM**	**WEEKLY AVERAGE**	**MONTHLY AVERAGE**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Biochemical Oxygen Demand$_5$ April 1 – September 30 October 1 – March 31	mg/L		 21 27	 14 18	once/week	composite**
Total Suspended Solids	mg/L		27	18	once/week	composite**
E. coli (**Note 1, Page 4**)	#/100mL		1,030	206	once/week	grab
Ammonia as N (Apr – Sep)	mg/L	2.2		0.8	once/week	composite**
Ammonia as N (Oct – Mar)	mg/L	4.7		1.8	once/week	composite**
Total Kjeldahl Nitrogen	mg/L	*		*	once/week	composite**
Nitrite + Nitrate	mg/L	*		*	once/week	composite**
EFFLUENT PARAMETER(S)	**UNITS**	**MINIMUM**		**MAXIMUM**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
pH – Units***	SU	6.5		9.0	once/week	grab
EFFLUENT PARAMETER(S)	**UNITS**	**DAILY MINIMUM**		**MONTHLY AVERAGE MINIMUM**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Dissolved Oxygen	mg/L	6.0		6.0	once/week	grab
EFFLUENT PARAMETER(S)			**UNITS**	**MONTHLY AVERAGE MINIMUM**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Biochemical Oxygen Demand$_5$ – Percent Removal (**Note 3, Page 4**)			%	85	once/month	calculated
Total Suspended Solids – Percent Removal (**Note 3, Page 4**)			%	85	once/month	calculated
EFFLUENT PARAMETER(S)	**UNITS**	**MONTHLY AVERAGE**		**MONTHLY TOTAL §**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Total Phosphorus	mg/L	*			once/week	composite**
Total Phosphorus	lbs.			*	once/week	calculated
Total Nitrogen (**Note 2, Page 4**)	mg/L	*			once/week	calculated
Total Nitrogen	lbs.			*	once/week	calculated

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; 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.

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

§ - 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 Million Gallons.

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 **December 1, 2030**. These interim effluent limitations in **Table A-1** are effective beginning **December 1, 2023** and remain in effect through **November 30, 2030** 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	
		ANNUAL AVERAGE ¥		ANNUAL TOTAL Φ	MEASUREMENT FREQUENCY	SAMPLE TYPE
eDMR Limit Set: A						
Total Phosphorus	mg/L	*			once/year	composite**
Total Phosphorus	lbs.			*	once/year	calculated
Total Nitrogen (**Note 2**)	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.

* Monitoring requirement only.

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

¥ - 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.).

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 – Total Nitrogen is calculated as; TN = Total Kjeldahl Nitrogen + Nitrate+Nitrite.

Note 3 – 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.

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 **December 1, 2030**. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	MONTHLY AVERAGE	MONTHLY TOTAL	MEASUREMENT FREQUENCY	SAMPLE TYPE
eDMR Limit Set: M						
Flow	MGD	*	*	*	once/day	24 hr. total
EFFLUENT PARAMETER(S)	**UNITS**	**DAILY MAXIMUM**	**WEEKLY AVERAGE**	**MONTHLY AVERAGE**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Biochemical Oxygen Demand$_5$ April 1 – September 30 October 1 – March 31	mg/L		21 27	14 18	once/week	composite**
Total Suspended Solids	mg/L		27	18	once/week	composite**
E. coli (**Note 1, Page 4**)	#/100mL		1,030	206	once/week	grab
Ammonia as N (Apr – Sep)	mg/L	1.6		0.8	once/week	composite**
Ammonia as N (Oct – Mar)	mg/L	3.6		1.8	once/week	composite**
Total Kjeldahl Nitrogen	mg/L	*		*	once/week	composite**
Nitrite + Nitrate	mg/L	*		*	once/week	composite**
EFFLUENT PARAMETER(S)	**UNITS**	**MINIMUM**		**MAXIMUM**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
pH – Units***	SU	6.5		9.0	once/week	grab
EFFLUENT PARAMETER(S)	**UNITS**	**DAILY MINIMUM**		**MONTHLY AVERAGE MINIMUM**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Dissolved Oxygen	mg/L	6.0		6.0	once/week	grab
EFFLUENT PARAMETER(S)			**UNITS**	**MONTHLY AVERAGE MINIMUM**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Biochemical Oxygen Demand$_5$ – Percent Removal (**Note 3, Page 4**)			%	85	once/month	calculated
Total Suspended Solids – Percent Removal (**Note 3, Page 4**)			%	85	once/month	calculated
EFFLUENT PARAMETER(S)	**UNITS**	**MONTHLY AVERAGE**		**MONTHLY TOTAL §**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
Total Phosphorus	mg/L	*			once/week	composite**
Total Phosphorus	lbs.			*	once/week	calculated
Total Nitrogen (**Note 2, Page 4**)	mg/L	*			once/week	calculated
Total Nitrogen	lbs.			*	once/week	calculated

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE JANUARY 28, 2031.

* Monitoring requirement only.

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

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

§ - 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 Million Gallons.

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 **December 1, 2030**. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		ANNUAL AVERAGE ¥		ANNUAL TOTAL Φ	MEASUREMENT FREQUENCY	SAMPLE TYPE
eDMR Limit Set: A						
Total Phosphorus	mg/L	*			once/year	composite**
Total Phosphorus	lbs.			30,441	once/year	calculated
Total Nitrogen (**Note 2, Page 4**)	mg/L	*			once/year	calculated
Total Nitrogen	lbs.			365,292	once/year	calculated

MONITORING REPORTS SHALL BE SUBMITTED **ANNUALLY**; THE FIRST REPORT IS DUE JANUARY 28, 2031.

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

¥ - 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.).

OUTFALL #001	TABLE A-3. 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-3** shall become effective on **December 1, 2023** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
eDMR Limit Set: Q						
Oil & Grease	mg/L	*		*	once/quarter Ω	grab
Cyanide, Amenable to Chlorination	µg/L	*		*	once/quarter Ω	grab
Zinc, Total Recoverable	µg/L	*		*	once/quarter Ω	composite**
Hardness, Total	mg/L	*		*	once/quarter Ω	grab

MONITORING REPORTS SHALL BE SUBMITTED **QUARTERLY**; THE FIRST REPORT IS DUE APRIL 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.
Ω See table on Page 7 for quarterly sampling requirements.

Quarterly Minimum Sampling Requirements			
Quarter	**Months**	**Quarterly Effluent Parameters**	**Report is Due**
First	January, February, March	Sample at least once during any month of the quarter	April 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

PERMITTED FEATURE INF	**TABLE B-1. INFLUENT MONITORING REQUIREMENTS**

The monitoring requirements in **Table B-1** shall become effective on **December 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 3, Page 4**)	mg/L			*	once/month	composite**
Total Suspended Solids (**Note 3, Page 4**)	mg/L			*	once/month	composite**
Ammonia as N	mg/L	*		*	once/month	composite**
Total Phosphorus	mg/L	*		*	once/month	composite**
Total Kjeldahl Nitrogen	mg/L	*		*	once/month	composite**
Nitrite + Nitrate	mg/L	*		*	once/month	composite**

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE 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.

C. SCHEDULE OF COMPLIANCE

The facility shall attain compliance with final effluent limitations as soon as possible but in no case later than **seven (7) 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 Ammonia, Total Phosphorus, and 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.

3. Within **seven (7) years** of the effective date of this permit, the permittee shall attain compliance with the final effluent limits for Ammonia, Total Phosphorus, and 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 facility for the previous year.
   (b) A summary of the general maintenance and repairs to the collection system serving the facility for the previous year.
   (c) A summary of any planned maintenance and repairs to the collection system serving the facility for the upcoming calendar year. This list shall include locations (GPS, 911 address, manhole number, etc.) and actions to be taken.

9. Bypasses are not authorized at this facility unless they meet the criteria in 40 CFR 122.41(m). If a bypass occurs, the permittee shall report in accordance to 40 CFR 122.41(m)(3), and with Standard Condition Part I, Section B, subsection 2. Bypasses are to be reported to the Kansas City 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 storage basin(s) shall be operated and maintained to ensure their structural integrity, which includes maintaining adequate freeboard and keeping the berms free of deep-rooted vegetation, animal dens, or other potential sources of damage.

15. The facility shall ensure that adequate provisions are provided to prevent or minimize surface water intrusion into the storage basin and to divert stormwater runoff around the storage basin and protect embankments from erosion.

16. 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 three acute toxicity tests and one chronic toxicity test in accordance with Special Conditions #17 and #18.

17. 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.

18. Chronic Whole Effluent Toxicity (WET) tests shall be conducted as follows:
    (a) Freshwater Species and Test Methods: Species and short-term test methods for estimating the chronic toxicity of NPDES effluents are found in the most recent edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (EPA/821/R-02/013; Table IA, 40 CFR Part 136).* The permittee shall concurrently conduct 7-day, static renewal toxicity tests with the following species:
        i. The fathead minnow, *Pimephales promelas* (Survival and Growth Test Method 1000.0).
        ii. The daphnid, *Ceriodaphnia dubia* (Survival and Reproduction Test Method 1002.0).
    (b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
    (c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
    (d) The laboratory shall not chemically dechlorinate the sample.
    (e) The Allowable Effluent Concentration (AEC) is 100%, the dilution series is: 100%, 50%, 25%, 12.5%, and 6.25%.
    (f) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
    (g) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of chronic toxic units ($TU_c = 100/IC_{25}$) reported according to the *Methods for Measuring the Chronic Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* chapter on report preparation and test review. The 25 percent Inhibition Effect Concentration (IC_{25}) is the toxic or effluent concentration that would cause 25 percent reduction in mean young per female or in growth for the test populations.

19. 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.

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-0028886
SNI-A-BAR 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: 02/19/19
Expiration Date: 08/31/19

Facility Type and Description: POTW - Two (2) influent lift stations / wet weather lift station / peak flow basin / screening / grit removal / three (3) aeration basins / four (4) clarifiers / tertiary filtration / UV disinfection / effluent lift station / reaeration / two (2) aerobic sludge digestion basins / four (4) sludge reed beds / two (2) sludge storage and digestion lagoons / sludge is stored until hauled by contact hauler to landfill, or biosolids are land applied by permittee, or are hauled to a permitted disposal facility / facility does not have materials stored or conduct operations in a manner that would cause the discharge of pollutants via stormwater.

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
#001	15.5	Tertiary	Domestic

Comments:
Changes in this permit for Outfall #001 include the addition of monitoring requirements for Cyanide, Zinc, Hardness, Total Kjeldahl Nitrogen, Nitrate + Nitrite, Total Phosphorus, and Total Nitrogen. This permit includes a schedule of compliance to meet more stringent daily maximum limits for ammonia and annual mass limits for Total Phosphorus and Total Nitrogen. Revisions to Outfall #001 parameters include the reduction of Oil & Grease from monthly limits to quarterly monitoring, the revision of the months to which existing BOD_5 limits are applicable to, the revision of TSS to have the same limits in all months, the revision of pH minimum, and the revision of Dissolved Oxygen to have the same limits in all months. Acute and Chronic WET testing was removed, however facility shall still comply with special conditions 16-18. Permitted Features SM1, SM2, and Outfall #002 were removed as instream monitoring is no longer necessary to meet QUAL2K model assumptions and the old outfall was removed therefore the bypass no longer exists. Permitted Feature INF was added to designate previously required influent monitoring for BOD and TSS and to include the addition of influent monitoring for Ammonia, Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrate + Nitrite. See Part II of the Fact Sheet for further information regarding the addition, revision, and removal of influent, instream, and effluent parameters.

Special conditions were updated to include the addition of the following conditions: Electronic Discharge Monitoring Report (eDMR) Submission System, requirements regarding peak flow basin maintenance, and expanded effluent testing to ensure sufficiently sensitive testing methods are used for the next renewal application; the revision of the following conditions: reporting Non-Detects, WET testing, bypass reporting, and requirement to implement a program for maintenance and repair of the collection system; and the removal of the following conditions: land application of biosolids but this facility is still subject to Standard Conditions Part III, the requirement for gates and warning signs as this facility has already complied with 10 CSR 20 Chapter 8 requirements but the facility must remain sufficiently secured to restrict access per special condition 10, the removal of the requirement to cease discharge and connect to a facility with an area-wide management plan due to the facility already having a management plan with MARC, the

removal of the special condition regarding discharges of toxic substances however this facility is still subject to Standard Conditions Part I, Section B, and the removal of general criteria as a special condition as the permit writer evaluated each narrative statement in Part II – Effluent Limitations and Monitoring Requirements for reasonable potential to cause or contribute to an excursion of the criteria and established numeric effluent limitations where necessary. The condition for Sewer Extension Construction Permit Authority was removed as the permittee did not provide the requested materials to renew this authority. The facility may apply for permit modification to add this authority back once the necessary items have been received by the Department for review.

Additional changes to this permit include the correction of the receiving stream which has historically listed Outfall #001 as directly discharging to Sni-A-Bar Creek on previous permits. Aerial imagery, construction documentation provided by the facility, and a site visit by the Department on March 16, 2023 confirmed that the discharge is not direct to Sni-A-Bar Creek, thus mixing considerations were removed. The removal of mixing has no significant impact on limits in this permit because the limits are based on an updated QUAL2K model run by the Department to meet current water quality criteria for Dissolved Oxygen. Also, the certification level for the required certified operator changed from Class B to Class A due to updates to the facility description, but the facility already employees an operator of the necessary level.

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)
Tributary to Sni-A-Bar Creek	--	--	--	10300101-0504	0.11
Sni-A-Bar Creek	P	399	WWH, IRR, LWP, HHP, SCR, WBC-B		

*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)(F)].

Uses found in the receiving streams table, above:

10 CSR 20-7.031(1)(F)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)(F)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)(F)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)(F)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
Tributary to Sni-A-Bar Creek	0	0	0

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

Receiving 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 discharges to a 303(d) listed stream. Sni-A-Bar Creek is listed on the 2020 Missouri 303(d) List for Dissolved Oxygen.
  - o This facility is considered to be a source of or has the potential to contribute to the above listed pollutant. Limits for Total Phosphorus and Total Nitrogen in this permit are established to address this facility's contribution to the impairment.
- ✓ This facility discharges to a stream with an EPA approved TMDL, the Missouri River chlordane and PCBs TMDL. This facility is not considered to be a source of the above impairment because these chemicals have been banned from use in 1988 and 1977, respectively.

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 ****
BOD_5 April 1 – September 30 October 1 – March 31	mg/L	6		21 27	14 18	21/14 May 1 – October 31 27/18 November 1 – April 30	1/week	monthly	C
TSS	mg/L	6		27	18	23/15 May 1 – October 31 27/18 November 1 – April 30	1/week	monthly	C
Ammonia as N (Final) April 1 – September 30 October 1 – March 31	mg/L	6	1.6 3.6		0.8 1.8	2.2/0.8 4.7/1.8	1/week	monthly	C

* - Monitoring requirement only.
** - #/100mL; the Monthly Average for *E. coli* is a geometric mean.
*** - Parameter not previously established in previous state operating permit.
**** - C = 24-hour composite
G = Grab
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

CHANGES TO EFFLUENT LIMITATIONS TABLE (CONTINUED):

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, 7	*		*	15/10 1/month	1/quarter	quarterly	G
Cyanide, Amenable to Chlorination	µg/L	1, 7	*		*	***	1/quarter	quarterly	G
Zinc, Total Recoverable	µg/L	1, 7	*		*	***	1/quarter	quarterly	C
Hardness, Total	mg/L	1, 7	*		*	***	1/quarter	quarterly	G
Total Kjeldahl Nitrogen	mg/L	1, 6	*		*	***	1/week	monthly	C
Nitrite + Nitrate	mg/L	1, 6	*		*	***	1/week	monthly	C
PARAMETER	Unit	Basis for Limits	Monthly Average		Monthly Total	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
Total Phosphorus	mg/L	6	*			***	1/week	monthly	C
Total Phosphorus	lbs	6			*	***	1/week	monthly	M
Total Nitrogen	mg/L	6	*			***	1/week	monthly	M
Total Nitrogen	lbs	6			*	***	1/week	monthly	M
PARAMETER	Unit	Basis for Limits	Annual Average		Annual Total	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
Total Phosphorus	mg/L	6	*			***	1/year	annually	C
Total Phosphorus (Interim)	lbs	6			*	***	1/year	annually	M
Total Phosphorus (Final)	lbs	6			30,441	***	1/year	annually	M
Total Nitrogen	mg/L	6	*			***	1/year	annually	M
Total Nitrogen (Interim)	lbs	6			*	***	1/year	annually	M
Total Nitrogen (Final)	lbs	6			365,292	***	1/year	annually	M
PARAMETER	Unit	Basis for Limits	Minimum		Maximum	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
pH	SU	1	6.5		9.0	6.0-9.0	1/week	monthly	G
PARAMETER	Unit	Basis for Limits	Daily Minimum		Monthly Avg. Min	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
Dissolved Oxygen (DO)	mg/L	3, 6, 7	6.0		6.0	6.0/6.0 May 1 – October 31 7.5/7.5 November 1 – April 30	1/week	monthly	G

* - Monitoring requirement only.
** - #/100mL; the Monthly Average for *E. coli* is a geometric mean.
*** - Parameter not previously established in previous state operating permit.
**** - C = 24-hour composite
G = Grab
M = Measured/calculated

Basis for Limitations Codes:

4. State or Federal Regulation/Law
5. Water Quality Standard (includes RPA)
6. 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 21 mg/L as a Weekly Average and 14 mg/L as a Monthly Average in the summer months and 27 mg/L as a Weekly Average and 18 mg/L as a Monthly Average in the winter months but per the Department's April 10, 2023 QUAL2K Model, the months have been updated from May – October to April – September and from November – April to October – March, respectively. Please see the attached April 10, 2023 QUAL2K Model.

  The QUAL2K model lists the above monthly average effluent limits as target concentrations, and recommends daily maximum limits be 1.5 times higher. As this is a POTW, weekly average and monthly average limits are appropriate per 40 CFR 122.45(d)(2), thus a weekly average that is 1.5 times the modeled monthly average limit is set.

- **Total Suspended Solids (TSS)**. This permit established new limits for TSS. 27 mg/L as a Weekly Average and 18 mg/L as a Monthly Average. Please see the attached April 10, 2023 QUAL2K Model.

  The QUAL2K model lists the above monthly average effluent limit as a target concentration, and recommends the daily maximum limit be 1.5 times higher. As this is a POTW, weekly average and monthly average limits are appropriate per 40 CFR 122.45(d)(2), thus a weekly average that is 1.5 times the modeled monthly average limit is set.

- ***Escherichia coli (E. coli)***. Monthly average of 206 per 100 mL as a geometric mean and Weekly Average of 1,030 per 100 mL as a geometric mean during the recreational season (April 1 – October 31), for discharges within two miles upstream of segments or lakes with Whole Body Contact Recreation (B) designated use of the receiving stream, as per 10 CSR 20-7.015(9)(B). An effluent limit for both monthly average and weekly average is required by 40 CFR 122.45(d). The Geometric Mean is calculated by multiplying all of the data points and then taking the nth root of this product, where n = # of samples collected. For example: Five *E. coli* samples were collected with results of 1, 4, 6, 10, and 5 (#/100mL). Geometric Mean = 5^{th} root of (1)(4)(6)(10)(5) = 5^{th} root of 1,200 = 4.1 #/100mL.

- **Total Ammonia Nitrogen (Interim).** Permit retains 2.2 mg/L as a Daily Maximum and 0.8 mg/L as a Monthly Average for April – September and 4.7 mg/L as a Daily Maximum and 1.8 mg/L as a Monthly Average for October – March. These limits were established by the Department when the facility expanded to a design flow of 10 MGD. The existing limits were determined by the Department to be protective during the interim period of the schedule of compliance as they are more stringent than the applicable water quality based effluent limits (WQBELs) in all months for both daily maximum and monthly average.

Month	Existing Permit Limits		WQBELs	
	Daily Maximum	Monthly Average	Daily Maximum	Monthly Average
January	4.7	1.8	8.4	2.4
February	4.7	1.8	8.4	2.4
March	4.7	1.8	8.4	2.4
April	2.2	0.8	6.9	1.9
May	2.2	0.8	8.4	1.6
June	2.2	0.8	6.9	1.0
July	2.2	0.8	6.9	0.8
August	2.2	0.8	8.4	1.0
September	2.2	0.8	6.9	1.1
October	4.7	1.8	6.9	1.8
November	4.7	1.8	8.4	2.4
December	4.7	1.8	8.4	2.4

- **Total Ammonia Nitrogen (Final)**. New limits for Ammonia as N are established consisting of 1.6 mg/L as a Daily Maximum and 0.8 mg/L as a Monthly Average during April – September and 3.6 mg/L as a Daily Maximum and 1.8 mg/L as a Monthly Average for October – March. Please see the attached April 10, 2023 QUAL2K Model.

  The QUAL2K model lists the above monthly average effluent limits as target concentrations, and recommends daily maximum limits be 2.0 times higher. This is consistent with a method for translating WLA outputs into permit limits as described in Section 5.4.2 of the Environmental Protection Agency's Technical Support Document For Water Quality-based Toxics Control (TSD). The modeled limits are more protective than the applicable WQBELs in all months for both daily maximum and monthly average.

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

- **Total Phosphorus (Interim)**. Monitoring required for facilities greater than 100,000 gpd design flow per 10 CSR 20-7.015(9)(D)7.

- **Total Phosphorus (Final)**. Effluent limits for Total Phosphorus were recommended by the Department's April 10, 2023 QUAL2K Model to address the Dissolved Oxygen impairment in Sni-A-Bar Creek. The QUAL2K model lists an effluent limit of 1.0 mg/L for Total Phosphorus.

  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 QUAL2K modeled limit for Total Phosphorous will be applied as an Annual Total Limit (ATL) with a Monthly Total monitoring only requirement due to the long term effects of nutrients on streams. This value is consistent with the assumptions and requirements of the model.

QUAL2K = WLA = 1.0 mg/L
Concentration to Mass formula: Mass (lbs./day) = concentration (mg/L) x Flow (MGD) x Conversion Factor
MDL = 1 mg/L x 10 MGD x 8.34 = 83.4 lbs./day
ATL = MDL x 365 days
ATL = 83.4 lbs./day x 365 days = **30,441 lbs.**

- **Total Nitrogen (Interim)**. Monitoring required for facilities greater than 100,000 gpd design flow per 10 CSR 20-7.015(9)(D)7. Total Nitrogen shall be determined by testing for Total Kjeldahl Nitrogen (TKN) and Nitrate + Nitrite and reporting the sum of the results (reported as N).

- **Total Nitrogen (Final)**. Effluent limits for Total Nitrogen were recommended by the Department's April 10, 2023 QUAL2K Model to address the Dissolved Oxygen impairment in Sni-A-Bar Creek. Total Nitrogen is calculated as Total Kjeldahl Nitrogen + Nitrate + Nitrite. The QUAL2K model lists daily maximum limits for Total Nitrogen of 25.8 mg/L for April- September and 26.8 for October – March. The facility anticipates meeting a 12 mg/L annual average once upgrades are complete, therefore this will be utilized to establish the limit as it is more protective.

  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 12 mg/L effluent concentration anticipated by the facility will be applied as an Annual Total Limit (ATL) with a Monthly Total monitoring only requirement due to the long term effects of nutrients on streams. This value is consistent with and more protective than the assumptions and requirements of the model.

  Anticipated effluent concentration = WLA = 12 mg/L
  Concentration to Mass formula: Mass (lbs./day) = concentration (mg/L) x Flow (MGD) x Conversion Factor
  MDL = 12 mg/L x 10 MGD x 8.34 = 1000.8 lbs./day
  ATL = MDL x 365 days
  ATL = 1000.8 lbs./day x 365 days = **365,292 lbs.**

- **pH**. 6.5-9.0 SU. pH limitations of 6.0-9.0 SU [10 CSR 20-7.015] are not protective of the in-stream Water Quality Standard, which states that water contaminants shall not cause pH to be outside the range of 6.5-9.0 SU.

- **Dissolved Oxygen**. This permit established new limits for Dissolved Oxygen. 6.0 mg/L Daily Minimum and 6.0 mg/L Monthly Average Minimum. Please see the attached April 10, 2023 QUAL2K Model.

- **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.

- **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.

- **Cyanide, Amenable to Chlorination**. Monitoring only requirements have been included in this permit as a reasonable potential may exist based on the expanded effluent testing data submitted with the renewal application for this permit. Due to the limited dataset and the three data points observed being below the water quality standard, monitoring is being required to provide the Department with sufficient data upon renewal to determine if limits are necessary**.** This determination will be reassessed at the time of renewal.

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

Metals

Effluent water hardness of 209 mg/L is used in the calculation below. This value represents the 50th percentile (median) for all sample data submitted to the Department by the facility in compliance with the expanded effluent testing requirements of the operating permit renewal application.

Due to the absence of contemporaneous effluent and instream data for total recoverable metals, dissolved metals, hardness, and total suspended solids with which to calculate metals translators, partitioning between the dissolved and absorbed phases was assumed to be minimal (Section 5.7.3, EPA/505/2-90-001). Freshwater criteria conversion factors for dissolved metals were used as the metals translator as recommended in guidance (Section 1.3, 1.5.3, and Table 1, EPA 823-B-96-007). If concurrent site-specific data for total recoverable metals, dissolved metals, hardness, and total suspended solids are provided to the Department, partitioning evaluations may be considered and site-specific translators developed.

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Zinc	0.978	0.986

Conversion factors for Zn are hardness dependent. Values calculated using equation found in Section 1.3 of EPA 823-B-96-007 and hardness = 209 mg/L.

- **Zinc, Total Recoverable**. Monitoring only requirements have been included in this permit as a reasonable potential may exist based on the expanded effluent testing data submitted with the renewal application for this permit. Due to the limited dataset and the three data points observed being below the water quality standard, monitoring is being required to provide the Department with sufficient data upon renewal to determine if limits are necessary**.** This determination will be reassessed at the time of renewal.

Sampling Frequency Justification: The Department has determined that previously established sampling and reporting frequency for most parameters is sufficient to characterize the facility's effluent and be protective of water quality. Oil & Grease was reduced to quarterly sampling and reporting due to consistency of effluent data and compliance with water quality standards. Cyanide and Zinc were established at quarterly to provide the Department with more data upon renewal and Hardness is set to quarterly to match the frequency of Zinc. Weekly sampling is required for Total Phosphorus, Total Kjeldahl Nitrogen, Nitrate + Nitrite and Total Nitrogen to ensure facility addresses it's contributions to the Dissolved Oxygen impairment of Sni-A-Bar Creek and to provide the Department with sufficient data upon renewal to observe compliance with the modeled 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*, Oil & Grease, Dissolved Oxygen, and Cyanide in accordance with recommended analytical methods. For further information on sampling and testing methods please review 10 CSR 20-7.015(9)(D) 2.

PERMITTED FEATURE INF – INFLUENT MONITORING

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

CHANGES TO INFLUENT MONITORING:

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

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

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 to provide the Department with sufficient data points to assist in determining the removal of nutrients from the treatment plant, per 10 CSR 20-7.015(9)(D)8. The sampling and reporting frequencies for influent BOD_5 and TSS have been established to match the required sampling frequency of these parameters in the effluent.

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

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 February 3, 2021, 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 effluent limits that are more stringent than the secondary treatment technology based effluent limits established in this permit and there has been no indication to the Department that the stream has had issues maintaining beneficial uses as a result of this discharge. Based on the information reviewed during the drafting of this permit, these final effluent limitations appear to have protected against the excursion of this criterion in the past. Therefore, the discharge does not have the reasonable potential to cause or contribute to an excursion of this criterion.

(B) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses. Please see (A) above as justification is the same.

(C) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses. Please see (A) above as justification is the same.

(D) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life. This permit contains final effluent limitations which are protective of both acute and chronic toxicity for various pollutants that are either expected to be discharged by domestic wastewater facilities or that were disclosed by this facility on the application for permit coverage. Based on the information reviewed during the drafting of this permit, it has been determined if the facility meets final effluent limitations established in this permit, there is no reasonable potential for the discharge to cause an excursion of this criterion.

(E) Waters shall provide for the attainment and maintenance of water quality standards downstream including waters of another state. Please see (D) above as justification is the same.

(F) There shall be no significant human health hazard from incidental contact with the water. Please see (D) above as justification is the same.

(G) There shall be no acute toxicity to livestock or wildlife watering. Please see (D) above as justification is the same.

(H) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community. Please see (A) above as justification is the same.

(I) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247. The discharge from this facility is made up of treated domestic wastewater. No evidence of an excursion of this criterion has been observed by the Department in the past and the facility has not disclosed any other information related to the characteristics of the discharge on their permit application which has the potential to cause or contribute to an excursion of this narrative criterion. Additionally, any solid wastes received or produced at this facility are wholly contained in appropriate storage facilities, are not discharged, and are disposed of offsite. This discharge is subject to Standard Conditions Part III, which contains requirements for the management and disposal of sludge to prevent its discharge. Therefore, this discharge does not have reasonable potential to cause or contribute to an excursion of this criterion.

Part 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.

- o 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.

  - **Removal of Outfall #002**. The previous permit had Outfall #002 which stated discharges from this permitted feature were no longer authorized and would be considered bypassing. The facility removed and closed this outfall with the expansion to 10 MGD, as confirmed by the Department during a site visit conducted March 16, 2023. This permit is still protective of water quality and this determination will be reassessed at the time of renewal. Also, the removal of the permitted feature meets the requirements of the safety clause, as the removal of the permitted feature will not result in a violation of a water quality standard.

- **Removal of Upstream Permitted Feature SM1 & Downstream Permitted Feature SM2 (Instream Flow, Dissolved Oxygen, pH, Temperature, and Ammonia as N Monitoring)**. The previous permit had Permitted Features SM1 and SM2, which contained instream monitoring requirements for Flow, Dissolved Oxygen, pH, Temperature, and Ammonia as N. 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. Also, the removal of the permitted feature meets the requirements of the safety clause, as the removal of the permitted feature will not result in a violation of a water quality standard.

- **Biochemical Oxygen Demand$_5$ – October.** The previous permit contained final effluent limits of 21 mg/L as a weekly average and 14 mg/L as a monthly average for the month of October. This permit contains final effluent limits of 27 mg/L and 18 mg/L, respectively, based on an update to which months fall into the summer and winter seasons. The QUAL2K model ran by the Department recommends limits intended to meet the applicable instream Dissolved Oxygen criteria, so the limits in this model supersede the previous limits which were set by the 2009 antidegradation review associated with this facility's expansion to 10 MGD. This backsliding is justified as there is information available which was not available at the time of the previous permit issuance (new QUAL2K model). This new information justifies the application of a less stringent effluent limitation at the time of permit issuance. Also, the revision of the effluent limit also meets the requirements of the safety clause, as the revision will not result in a violation of a water quality standard.

- **Total Suspended Solids – May 1 - October 31.** The previous permit contained final effluent limits of 23 mg/L as a weekly average and 15 mg/L as a monthly average for the months of May through October. This permit contains final effluent limits of 27 mg/L and 18 mg/L, respectively, year round based on the April 10 QUAL2K model run by the Department. The QUAL2K recommends limits intended to meet the applicable instream Dissolved Oxygen criteria, so the limits in this model supersede the previous limits which were set by the 2009 antidegradation review associated with this facility's expansion to 10 MGD. This backsliding is justified as there is information available which was not available at the time of the previous permit issuance (new QUAL2K model). This new information justifies the application of a less stringent effluent limitation at the time of permit issuance. Also, the revision of the effluent limit also meets the requirements of the safety clause, as the revision will not result in a violation of a water quality standard.

- **Dissolved Oxygen – November 1 - April 30.** The previous permit contained final effluent limits of 7.5 mg/L as both the daily minimum and monthly average minimum for the months of November through April. This permit contains final effluent limits of 6.0 mg/L for both daily minimum and monthly average minimum year round based on the April 10 QUAL2K model run by the Department. The QUAL2K recommends limits intended to meet the applicable instream Dissolved Oxygen criteria, so the limits in this model supersede the previous limits which were set by the 2009 antidegradation review associated with this facility's expansion to 10 MGD. This backsliding is justified as there is information available which was not available at the time of the previous permit issuance (new QUAL2K model). This new information justifies the application of a less stringent effluent limitation at the time of permit issuance. Also, the revision of the effluent limit also meets the requirements of the safety clause, as the revision will not result in a violation of a water quality standard.

- **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.

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

✓ 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. An antidegradation review was previously conducted in 2009. Final effluent limits that were established by that review have been replaced by the limits determined in the Department's April 10, 2023 QUAL2K Model.

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

✓ The facility does not have stormwater discharges or the stormwater outfalls onsite have no industrial exposure.

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. Sludge/biosolids may also be removed by contract hauler and hauled to a landfill or to a permitted disposal facility. 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 February 3, 2021. 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;

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

- o 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. MARC has an approved Clean Water Act Section 208 plan in Jackson County. The applicant has shown that:

- A higher level authority does not have jurisdiction; MARC has management agreements with municipalities in its service area including the continuing authority listed for this permit.

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

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: Jeff Butner
Certification Number: 6629
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)
Dissolved Oxygen – Aerobic Digester	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 not conducted for this facility.

- ✓ 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.

- ✓ A RPD was made for Cyanide and Zinc, that a potential to violate water quality standards may 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 Ammonia, Total Phosphorus, and Total Nitrogen. The seven 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.

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 7 Year Schedule of Compliance

Year	Milestone(s)
1	**Apply for State Revolving Fund loans and/or grants and submit facility plan**
2	**Select Design Engineer; Hold bond election; Begin Design**
3	**Apply for construction permit; Submit drawings and specifications for WWTF improvements**
4	**Close on loan; Bid/ award project**
5	**Begin construction and submit application for renewal of the existing operating permit with new financial and socio-economic data**
6	**Construction**
7	**Complete construction**

SEWER EXTENSION AUTHORITY SUPERVISED PROGRAM:

✓ 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.

- ✓ The City of Blue Springs submitted to the Department a No Exposure Certification for Exclusion from NPDES Stormwater Permitting on May 19, 2023. As a result of the submittal of the certification, the permittee is not required to develop and implement a SWPPP at this time. This exclusion will be reevaluated at the time of renewal or during a Department inspection.

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 drafted under premises of a petition for variance. In 2011, the EPA approved a temporary site specific dissolved oxygen criteria (SSDOC) for Sni-A-Bar Creek of 4.4 mg/L daily average and 4.0 mg/L daily minimum under the condition the criterion expired October 31, 2014; this was in response to the results of a 2005 study by MEC. The temporary approval was intended to provide the facility time to collect and provided further information that the SSDOC was protective of the stream’s designated use for aquatic life and that the sediment oxygen demand (SOD) in Sni-A-Bar Creek represents a naturally occurring condition. In 2019, the facility requested a renewal of the SSDOC and provided a 2019 report by HDR of a 2013 study by Geosyntec Consultants, the findings of which determined the criteria of 5.0 mg/L for instream dissolved oxygen was not achievable, the SOD levels represent a naturally occurring condition, the aquatic life is fully supported, and the stream fully supports the designated beneficial use. On December 20, 2022, the EPA disapproved the request to renew the SSDOC. As such, the limits in this permit are based on a QUAL2K model conducted by the Department to be protective of a 5.0 mg/L minimum instream dissolved oxygen criteria.

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:

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

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

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

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

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

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

Number of Samples "n":

Additionally, in accordance with the TSD for water quality-based permitting, effluent quality is determined by the underlying distribution of daily values, which is determined by the Long Term Average (LTA) associated with a particular Wasteload Allocation (WLA) and by the Coefficient of Variation (CV) of the effluent concentrations. Increasing or decreasing the monitoring frequency does not affect this underlying distribution or treatment performance, which should be, at a minimum, be targeted to comply with the values dictated by the WLA. Therefore, it is recommended that the actual planned frequency of monitoring normally be used to determine the value of "n" for calculating the AML. However, in situations where monitoring frequency is once per month or less, a higher value for "n" must be assumed for AML derivation purposes. Thus, the statistical procedure being employed using an assumed number of samples is "n = 4" at a minimum. For Total Ammonia as Nitrogen, "n = 30" is used.

WLA MODELING:

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

- ✓ A WLA study including model was submitted to the Department. The facility conducted a study in 2013 as described in the 2019 report submitted with the SSDOC renewal request. The report utilized data from the 2013 study to develop a QUAL2K model. Data and assumptions from that study were used in the Department's QUAL2K model which determines effluent limits in this permit.

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 an Acute WET test once per year and a Chronic WET test once per permit cycle. The permit writer determined the facility does not have reasonable potential to exceed narrative water quality standards for acute and chronic toxicity at this time and the Acute and Chronic WET testing requirements have been removed from this permit. Acute and Chronic WET testing is still required to complete the renewal application per Special Condition #16.

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 Blue Springs

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
$84,799	$58.72	0.83%	2.5	Low Burden	7 years
Pollution Control Option Selected for Analysis: BNR system with phosphorus removal + new sampling requirements					
Estimated Present Worth: $85,380,584					

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 contains a permit requirement for Zinc which water quality criteria has been modified by twenty-five percent or more since the issuance of the previous permit. The approval of these changes by the EPA is environmentally necessary to ensure the criteria are reflective of the most current science available while protecting the water quality standards of the receiving stream without placing needless and overly burdensome requirements on regulated entities. The "Evaluation of Environmental and Economic Impacts of Revised Water Quality Standards and Criteria on a Subbasin Basis" report is available upon request to the Department.

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 response received.

DATE OF FACT SHEET: JULY 24, 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.)	10
Design Flow (avg. day) or peak month's flow (avg. day) whichever is larger	1 pt. / MGD or major fraction thereof. (Max 10 pts.)	10
Effluent Discharge		
Missouri or Mississippi River	0	
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	
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	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)**	----	61

APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Solids Handling		
Sludge Holding	5	5
Anaerobic digestion	10	
Aerobic digestion	6	6
Evaporative sludge drying	2	2
Mechanical dewatering	8	
Solids reduction (incineration, wet oxidation)	12	
Land application	6	6
Disinfection		
Chlorination or comparable	5	
On-site generation of disinfectant (except UV light)	5	
Dechlorination	2	
UV light	4	4
Required Laboratory Control Performed by Plant Personnel (highest level only)		
Lab work done outside the plant	0	
Push – button or visual methods for simple test such as pH, settleable solids	3	
Additional procedures such as DO, COD, BOD, titrations, solids, volatile content	5	
More advanced determinations, such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	7	7
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	
Total from page **TWO (2)**	----	30
Total from page **ONE (1)**	---	61
Grand Total	---	91

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

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 – ALTERNATIVE: Outfall location in relation to Sni-A-Bar Creek and facility components.

APPENDIX: April 10, 2023 QUAL2K Model

MISSOURI DEPARTMENT OF NATURAL RESOURCES

Michael L. Parson
Governor

Dru Buntin
Director

MEMORANDUM

DATE: April 10, 2023

TO: Mike Abbott, Chief
Operating Permit Section

THROUGH: John Hoke, Chief
Water Pollution Control Branch

THROUGH: Heather Peters, Chief
Watershed Protection Section

FROM: Mike Kruse, Chief
Total Maximum Daily Load and Modeling Unit

SUBJECT: QUAL2K effluent targets for Sni-A-Bar Wastewater Treatment Facility

The Total Maximum Daily Load and Modeling Unit has completed QUAL2K modeling to address contributions from the Sni-A-Bar Wastewater Treatment Facility to the low dissolved oxygen impairment of Sni-A-Bar Creek, water body identification 399. Sni-A-Bar Creek is included on Missouri's 2020 303(d) List of Impaired Waters for low dissolved oxygen. Modeling results and effluent limit recommendations provided in Attachment 1 are expected to result in attainment of water quality standards downstream of the facility outfall.

Final effluent limit modeling was completed using an approach similar to what would be used for total maximum daily load development, including appropriate margins of safety to account for any lack of knowledge concerning the relationship between effluent limitations and water quality.

If you have questions or would like to discuss these recommendations, please contact James Crawshaw, of my team, by email at James.Crawshaw@dnr.mo.gov or by phone at 573-751-2034. Thank you.

MK/jca

Attachment

c: Jaime Rizo
Ashley Kneemueller

Attachment 1
QUAL2K Modeling for Sni-A-Bar Wastewater Treatment Facility

Summary

A 36.6-mile segment of Sni-A-Bar Creek, water body identification (WBID) 399, is included on Missouri's 2020 303(d) List of Impaired Waters due to violations of Missouri's minimum dissolved oxygen (DO) criterion of 5.0 milligram per liter (mg/L).[1] The 303(d) List does not identify a specific pollutant source as being the primary cause of the impairment. Due to its impaired status, federal regulations at 40 CFR 130.7(c)(1) require a total maximum daily load (TMDL) to be established for Sni-A-Bar Creek at levels necessary to attain and maintain applicable water quality standards. However, the Department may assign lower prioritization for the development of a TMDL to allow time for more immediate efforts to be taken to improve or restore water quality.

The TMDL and Modeling Unit conducted QUAL2K modeling to determine effluent limit recommendations for the Sni-A-Bar Wastewater Treatment Facility that address all contributions to the impairment from this facility. Resulting effluent concentrations are expected to result in DO concentrations greater than 5.0 mg/L when all other point and nonpoint source reductions upstream of the facility are achieved. The Department will periodically evaluate progress towards attainment of water quality standards and the need to reassess the prioritization for development of a TMDL for Sni-A-Bar Creek during its biennial assessment and reporting of water quality, as required by Clean Water Act sections 305(d) and 303(d).

Discussion of the QUAL2K modeling process and data used to derive effluent limit recommendations for the Sni-A-Bar Wastewater Treatment Facility follow in the next sections. Should the portion of Sni-A-Bar Creek downstream of the facility outfall attain water quality standards prior to full implementation of the suggested effluent concentrations, then existing limits at that time will suffice and no further pollutant reductions from this facility will be necessary. Final effluent limit recommendations were derived for 5-day biochemical oxygen demand (BOD5), total suspended solids (TSS), total phosphorus (TP), total nitrogen (TN), and ammonia as nitrogen (ammonia-N). Minimum effluent DO concentrations are also specified and are required to meet the model assumptions for attainment of water quality standards. Final effluent limit recommendations are provided on the following page in Table 1.

[1]The Department maintains current and past 303(d) lists and corresponding assessment worksheets online at dnr.mo.gov/water/what-were-doing/water-planning/quality-standards-impaired-waters-total-maximum-daily-loads/impaired-waters. Sni-A-Bar Creek was first listed as impaired on Missouri's combined 2004/2006 303(d) list.

Table 1. QUAL2K-Derived Effluent Limit Recommendations for Sni-A-Bar WWTF*

Effluent Parameter	Target Effluent Concentration (mg/L)
BOD_5 (April 1 – Sep 30)	14.0
BOD_5 (Oct 1 – March 31)	18.0
TSS	18.0
TP	1.0
TN** (April 1 – Sep 30)	****25.8
TN** (Oct 1 – March 31)	****26.8
Ammonia-N (April 1 – Sep 30)	0.8
Ammonia-N (Oct 1 – March 31)	1.8
Minimum DO requirement	6.0
Monitoring Recommendations and model assumptions	
Organic N***	5.0
NO_3+NO_2	20.0

*BOD5 and TSS values represent monthly average effluent limits; daily maximum effluent limits are typically 1.5 times higher. Ammonia-N values represent monthly average effluent limits; Daily maximum effluent limits are typically 2 times higher. Ammonia-N effluent limits should not exceed acute or chronic toxicity criteria. TN effluent limits represent daily maximum.

**TN is the sum of organic nitrogen, Ammonia-N, and NO_3+NO_2.

*** Organic N is typically estimated as: Organic N = TN – Ammonia-N – (NO_3+NO_2)

**** Facility anticipates meeting a TN of 12 mg/L annual average. As this is below the QUAL2K modeled limit and therefore more protective, limits for TN are based on 12 mg/L instead of the model.

Background

Sni-A-Bar Creek is located in western Missouri in Jackson and Lafayette Counties within the Lower Missouri-Crooked subbasin, which is cataloged by the U.S. Geological Survey (USGS) as the 8-digit hydrologic unit code 10300101. Missouri's 2020 303(d) list cites unknown sources as the cause of the low DO impairment. The Sni-A-Bar facility is a mechanical plant with a design flow of 10.0 million gallons per day (MGD) and a five-year average actual flow of 4.3 MGD. Discharge monitoring report (DMR) records from 2018-2022 show occasional exceedances of ammonia as nitrogen effluent limits. The location of the Sni-A-Bar Wastewater Treatment Facility and the impaired segment within the Sni-A-Bar Creek watershed are depicted in Figure 1.

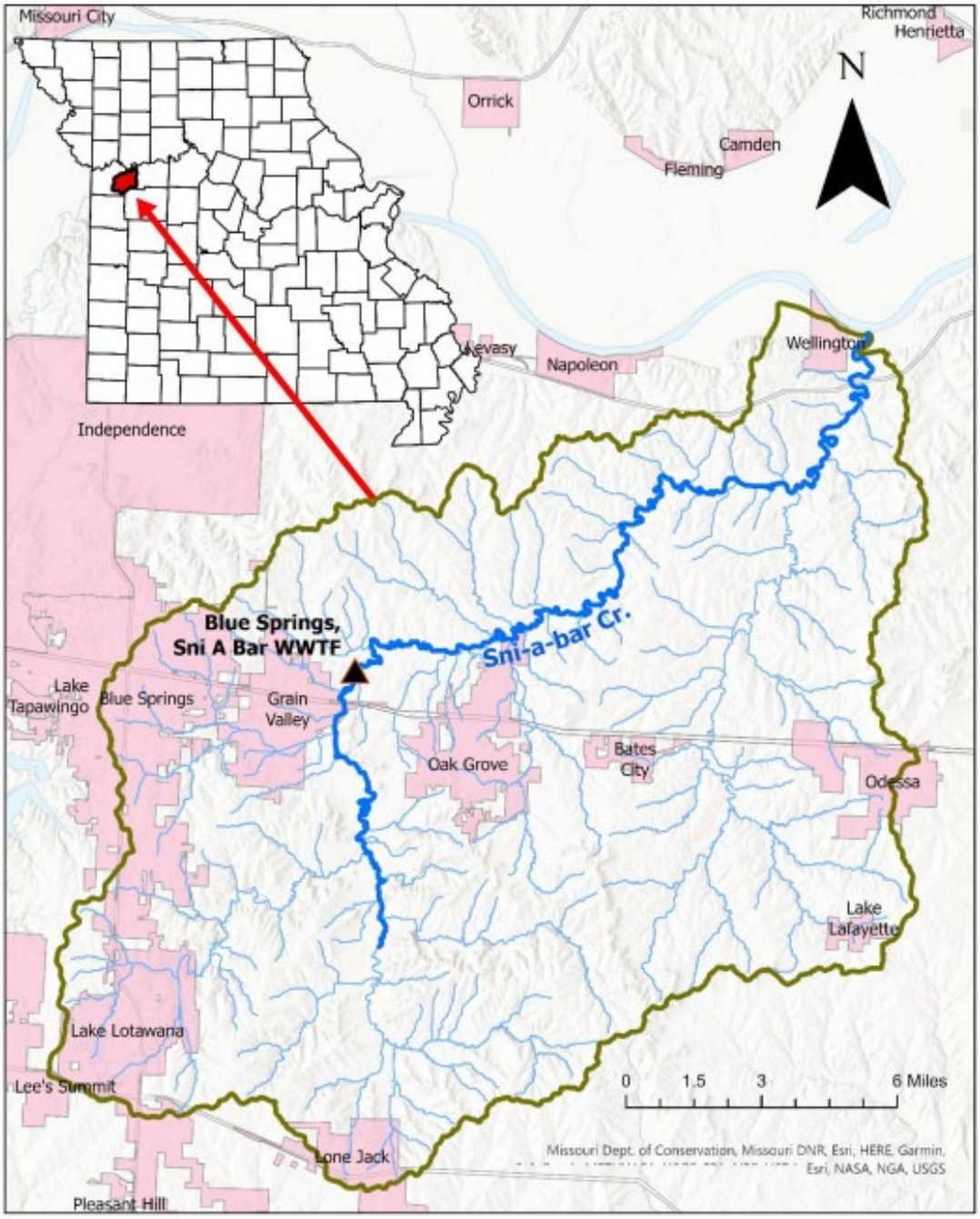

Figure 1. Location of the Sni-A-Bar Wastewater Treatment Facility in the Sni-A-Bar Creek Watershed

Sni-A-Bar Creek Stream Survey

Geosyntec consultants conducted a stream survey on Sni-A-Bar Creek from September 9 to 10, 2013, in the vicinity of the Sni-A-Bar Wastewater Treatment Facility. The study included four monitoring locations along 3.4 miles of Sni-A-Bar Creek. Effluent from the Sni-A-Bar Wastewater Treatment Facility is a major source of flow in Sni-A-Bar Creek when precipitation is low or absent. The 3.4 mile study area has a pool-riffle channel type. Study site locations are summarized in Table 2 and depicted in Figure 2.

Table 2. Sni-A-Bar Creek sample sites

Site ID:	SNI-1	OTF-1	SNI-2	SNI-3	SNI-4
Distance:	0.6 miles upstream of outfall	Sni-A-Bar facility outfall	0.3 miles downstream of outfall	1.2 miles downstream of outfall	2.8 miles downstream of outfall

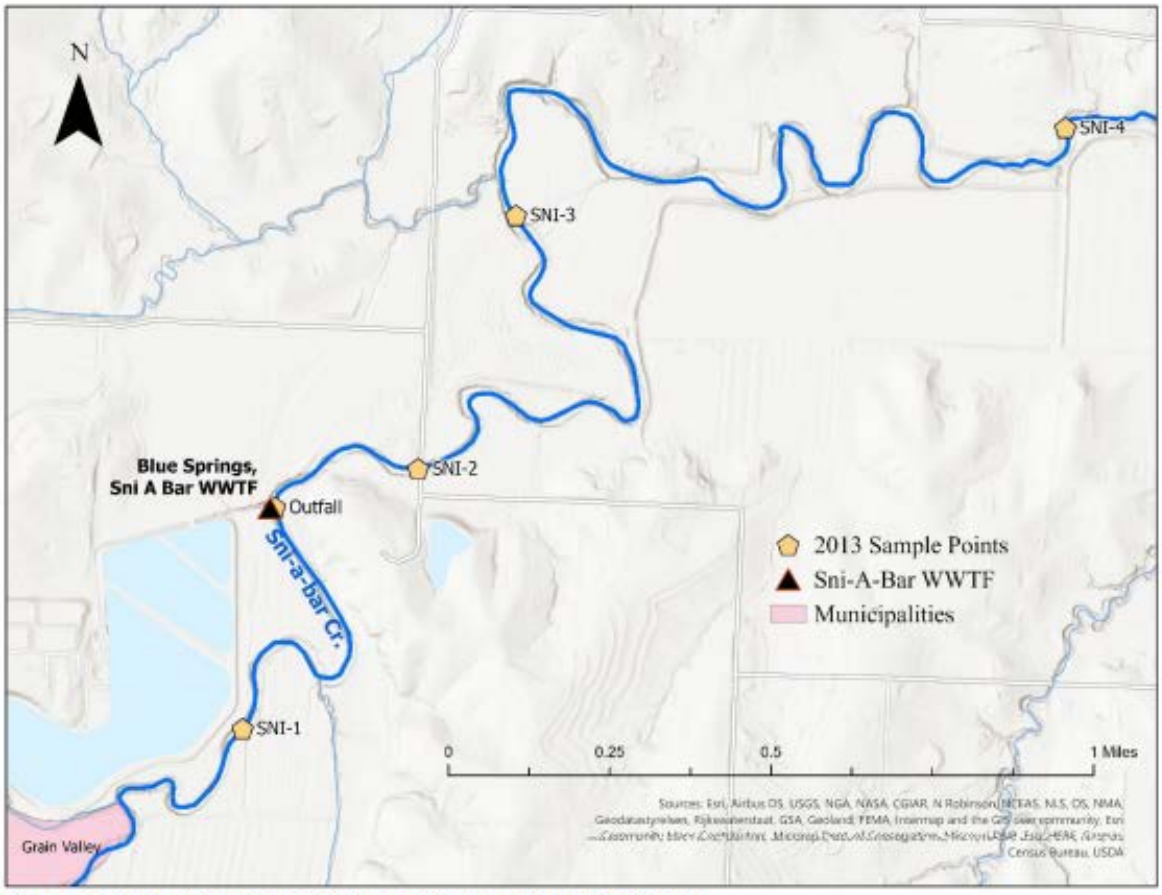

Figure 2. Sni-A-Bar Creek Stream Survey Sample Points

QUAL2K Modeling

Calibration Model

The 3.4 mile study completed by Geosyntec was divided into three reaches based on the stream survey sample points shown in Figure 2. The distance, diffuse sources, and tributary for each of the reaches, with distances in SI units consistent with the units used in the QUAL2K model, are shown in Figure 3.

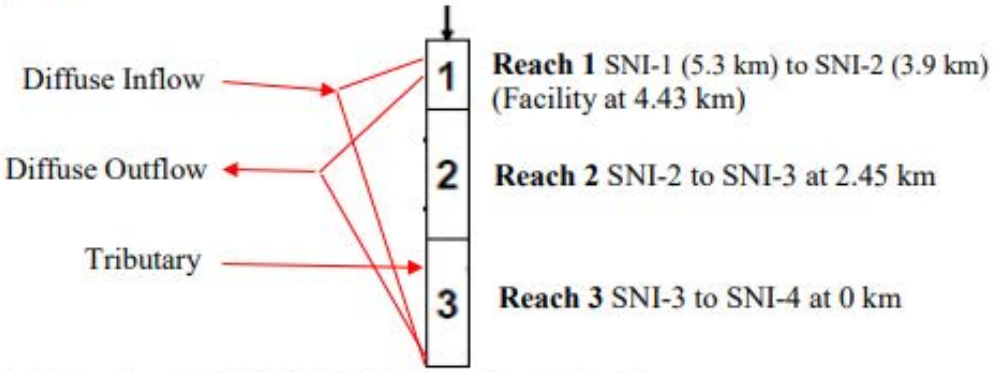

Figure 3. Sni-A-Bar Creek QUAL2K Calibration Model Reaches

Modeled Flow

A flow of 1.04 cubic feet per second (cfs) was observed in Sni-A-Bar Creek upstream of the Sni-A-Bar Wastewater Treatment Facility, which had an observed flow of 4.58 cfs. Therefore, effluent is considered the primary source of flow in Sni-A-Bar Creek immediately downstream of the outfall. However, observed flows during the time of study indicate that there are other sources of flow downstream of the facility as well as observed reductions in flow. To account for the observed flows, diffuse sources of streamflow and a tributary were added to the model. Diffuse inflow and outflows were added to all three reaches to calibrate flow, temperature, specific conductivity, inorganic suspended solids, biochemical oxygen demand (CBOD), nitrate, organic phosphorus, inorganic phosphorus, alkalinity, and pH. A tributary was added to Reach 3 to calibrate flow, temperature, specific conductivity, dissolved oxygen, CBOD, organic nitrogen, nitrate, organic phosphorus, inorganic phosphorus, alkalinity, and pH.

Manning's Equation

Manning's equation was used to model velocity and depth based on observed flows. The manning's equation variables for each reach are shown in Table 3.

Table 3. Manning's equation variables used in model

	Bottom Width (m)	Left Side Slope (degrees)	Right Side Slope (degrees)	Channel Slope (m/m)	Manning's Roughness (n)
Reach 1	12.80	20	20	0.0014	0.035
Reach 2	12.10	20	20	0.0009	0.035
Reach 3	12.20	20	20	0.0011	0.035

Calibration Data

The QUAL2K model was calibrated to data collected on September 10, 2013, by Geosyntec consultants. The 2013 records are the most recent data where morning low DO concentrations were recorded in addition to afternoon DO concentrations. The flow and nutrient concentrations recorded at the SNI-1 sample site are "Headwater" inputs in the QUAL2K models. Prescribed sediment oxygen demand was added in the calibration model during final DO calibration and represent the influence of accumulated organic material in the stream. The data used for the Sni-A-Bar Creek QUAL2K calibration model are summarized in Tables 4 and 5. The DO calibration model output is displayed on Figure 4.

Table 4. 2013 Grab Sample Data Used for the Sni-A-Bar Creek QUAL2K Calibration Model

Site ID	Time	Flow (cfs)	Alk (mg/l)	CBODu (mg/l)	NH4N (mg/l)	TKN (mg/l)	OrgN (mg/l)	NO3N (mg/l)	TN (mg/l)	TP (mg/l)	pH	TSS (mg/l)	VSS (mg/l)
SNI-1	7:15	1.038	168	4	<0.3	1.1	1.138	0.26	1.4	0.12	7.77	34	6
	15:15		170		<0.3	1.1	1.068	0.53	1.6	0.11	7.8	28	12
OTF-1 (Outfall)	7:00	4.58	65	6	0.3	2.2	2.25	21.3	23.8	5.15	7.34	10	5
	15:00		64		0.3	2.2	2.166	21.2	23.6	5.11	7.24	8	6
SNI-2	7:50	4.525	77	6	0.3	1.1	1.124	19.6	21	4.43	7.37	38	8
	15:35		86		<0.3	1.1	1.082	17.5	18.8	3.9	7.44	26	9
SNI-3	8:15	3.461	87	5	<0.3	1.1	1.072	18.9	20.3	3.72	7.4	55	12
	16:05		86		<0.3	1.1	1.046	18.1	19.4	3.76	7.48	29	12
SNI-4	8:50	5.143	86	5	0.3	2.2	2.19	18.6	21	3.66	7.56	64	12
	16:45		94		<0.3	2.2	2.18	17.3	19.7	3.05	7.78	28	4

Table 5. 2013 Sonde Data Used for the Sni-A-Bar Creek QUAL2K Calibration Model

	SNI-1		OTF-1 (Outfall)		SNI-2		SNI-3		SNI-4	
Date Time	Temp	DO	Temp	DO	Temp	DO	Temp	DO	Temp	DO
(M/D/Y 24:00)	(°C)	(mg/L)	(°C)	(mg/L)	(°C)	(mg/L)	(°C)	(mg/L)	(°C)	(mg/L)
9/10/13 0:00	25.2	4.8	25.2	7.2	25.4	6.0	25.7	4.5	26.0	5.9
9/10/13 0:15	25.2	4.8	25.2	7.2	25.4	6.0	25.6	4.6	25.9	5.9
9/10/13 0:30	25.1	4.8	25.2	7.2	25.4	6.0	25.6	4.5	25.8	5.9
9/10/13 0:45	25.1	4.8	25.1	7.2	25.4	6.0	25.5	4.5	25.7	5.8
9/10/13 1:00	25.0	4.8	25.1	7.2	25.3	6.0	25.4	4.5	25.7	5.8
9/10/13 1:15	25.0	4.7	25.1	7.2	25.3	6.0	25.3	4.5	25.6	5.8
9/10/13 1:30	25.0	4.7	25.1	7.2	25.3	6.0	25.3	4.5	25.5	5.8
9/10/13 1:45	25.0	4.7	25.1	7.2	25.2	6.0	25.2	4.5	25.5	5.7
9/10/13 2:00	24.9	4.6	25.1	7.2	25.2	6.0	25.1	4.5	25.4	5.7
9/10/13 2:15	24.9	4.6	25.1	7.2	25.2	6.0	25.0	4.5	25.3	5.7
9/10/13 2:30	24.9	4.7	25.1	7.1	25.1	6.0	25.0	4.5	25.3	5.6
9/10/13 2:45	24.9	4.6	25.0	7.1	25.1	6.1	24.9	4.5	25.2	5.5
9/10/13 3:00	24.8	4.6	25.0	7.1	25.1	6.0	24.9	4.5	25.1	5.6
9/10/13 3:15	24.8	4.6	25.0	7.1	25.0	6.1	24.8	4.4	25.1	5.6
9/10/13 3:30	24.7	4.6	25.0	7.1	25.0	6.1	24.8	4.4	25.0	5.6
9/10/13 3:45	24.7	4.6	25.0	7.2	25.0	6.1	24.7	4.4	25.0	5.7
9/10/13 4:00	24.7	4.6	25.0	7.1	24.9	6.0	24.7	4.4	24.9	5.7
9/10/13 4:15	24.6	4.6	25.0	7.1	24.9	6.0	24.7	4.4	24.9	5.7
9/10/13 4:30	24.6	4.6	25.0	7.0	24.9	6.1	24.6	4.4	24.8	5.7

	SNI-1		OTF-1 (Outfall)		SNI-2		SNI-3		SNI-4	
Date Time	Temp	DO	Temp	DO	Temp	DO	Temp	DO	Temp	DO
(M/D/Y 24:00)	(°C)	(mg/L)	(°C)	(mg/L)	(°C)	(mg/L)	(°C)	(mg/L)	(°C)	(mg/L)
9/10/13 4:45	24.5	4.6	25.0	6.9	24.9	6.1	24.6	4.4	24.8	5.7
9/10/13 5:00	24.5	4.6	25.0	7.0	24.8	6.1	24.5	4.4	24.7	5.7
9/10/13 5:15	24.5	4.7	25.0	7.0	24.8	6.1	24.5	4.3	24.7	5.7
9/10/13 5:30	24.4	4.6	25.0	6.9	24.7	6.1	24.5	4.3	24.7	5.7
9/10/13 5:45	24.4	4.7	25.0	7.0	24.7	6.1	24.4	4.3	24.6	5.7
9/10/13 6:00	24.4	4.7	24.9	6.9	24.7	6.1	24.4	4.3	24.6	5.7
9/10/13 6:15	24.4	4.8	25.0	7.0	24.6	6.1	24.4	4.3	24.5	5.7
9/10/13 6:30	24.3	4.7	25.0	7.0	24.6	6.1	24.3	4.3	24.5	5.7
9/10/13 6:45	24.3	4.7	24.9	6.9	24.6	6.1	24.3	4.2	24.5	5.7
9/10/13 7:00	24.3	4.8	24.9	7.1	24.6	6.1	24.3	4.2	24.4	5.7
9/10/13 7:15	24.3	4.8	24.9	6.9	24.5	6.1	24.2	4.2	24.4	5.7
9/10/13 7:30	24.3	4.8	25.0	7.1	24.5	6.1	24.2	4.2	24.3	5.7
9/10/13 7:45	24.2	4.8	24.9	7.1	24.5	6.1	24.2	4.1	24.3	5.7
9/10/13 8:00	24.2	4.8	24.9	7.1	24.5	6.1	24.1	4.1	24.3	5.7
9/10/13 8:15	24.2	4.7	24.9	7.0	24.5	6.1	24.1	4.2	24.3	5.7
9/10/13 8:30	24.2	4.7	25.0	7.1	24.5	6.1	24.1	4.1	24.3	5.8
9/10/13 8:45	24.2	4.8	25.0	7.1	24.5	6.1	24.1	4.1	24.3	5.8
9/10/13 9:00	24.3	4.8	25.0	7.1	24.6	6.2	24.1	4.1	24.4	5.9
9/10/13 9:15	24.3	4.7	25.0	7.1	24.6	6.2	24.1	4.1	24.5	5.9
9/10/13 9:30	24.3	4.7	24.9	7.1	24.6	6.2	24.1	4.1	24.5	6.0
9/10/13 9:45	24.3	4.7	24.9	7.2	24.7	6.2	24.1	4.0	24.6	6.1
9/10/13 10:00	24.4	4.7	24.9	7.2	24.7	6.2	24.1	4.0	24.7	6.2
9/10/13 10:15	24.4	4.7	24.9	7.3	24.7	6.2	24.1	3.9	24.8	6.2
9/10/13 10:30	24.5	4.7	24.9	7.3	24.7	6.2	24.2	3.9	24.9	6.3
9/10/13 10:45	24.5	4.7	25.0	7.3	24.8	6.3	24.2	4.1	25.0	6.4
9/10/13 11:00	24.6	4.9	25.0	7.3	24.8	6.3	24.3	4.2	25.1	6.4
9/10/13 11:15	24.6	5.0	25.0	7.3	24.9	6.3	24.5	4.2	25.2	6.5
9/10/13 11:30	24.7	4.7	25.0	7.3	25.0	6.3	24.6	4.3	25.4	6.6
9/10/13 11:45	25.0	4.8	25.1	7.3	25.1	6.2	24.7	4.4	25.5	6.6
9/10/13 12:00	25.1	5.0	25.1	7.4	25.1	6.2	24.8	4.4	25.7	6.7
9/10/13 12:15	25.4	5.0	25.2	7.4	25.2	6.2	24.9	4.5	25.8	6.8
9/10/13 12:30	25.8	5.3	25.2	7.4	25.2	6.2	25.0	4.5	26.0	6.9
9/10/13 12:45	26.0	5.4	25.2	7.3	25.3	6.2	25.1	4.6	26.1	7.0
9/10/13 13:00	26.2	5.8	25.3	7.3	25.3	6.3	25.3	4.7	26.2	7.1
9/10/13 13:15	26.5	5.9	25.3	7.3	25.3	6.3	25.4	4.8	26.3	7.1
9/10/13 13:30	26.8	6.0	25.4	7.3	25.4	6.4	25.6	5.0	26.5	7.2
9/10/13 13:45	26.9	6.2	25.4	7.3	25.4	6.4	25.7	5.2	26.5	7.3
9/10/13 14:00	26.9	6.2	25.4	7.3	25.5	6.5	25.9	5.3	26.6	7.3
9/10/13 14:15	27.0	6.5	25.5	7.3	25.5	6.6	26.1	5.4	26.8	7.4
9/10/13 14:30	26.8	6.6	25.6	7.3	25.5	6.5	26.3	5.5	26.8	7.5
9/10/13 14:45	26.9	6.5	25.6	7.3	25.5	6.6	26.5	5.7	26.9	7.6
9/10/13 15:00	26.9	6.4	25.7	7.3	25.5	6.6	26.6	5.7	27.0	7.7
9/10/13 15:15	27.0	6.5	25.7	7.3	25.5	6.6	26.7	5.8	27.1	7.8
9/10/13 15:30	27.1	6.5	25.8	7.3	25.6	6.8	26.8	5.8	27.2	7.9
9/10/13 15:45	27.3	6.7	25.8	7.3	25.7	6.8	26.9	5.8	27.3	7.9
9/10/13 16:00	27.3	6.7	25.8	7.3	25.7	6.7	27.0	5.9	27.4	8.0

	SNI-1		OTF-1 (Outfall)		SNI-2		SNI-3		SNI-4	
Date Time	Temp	DO	Temp	DO	Temp	DO	Temp	DO	Temp	DO
(M/D/Y 24:00)	(°C)	(mg/L)	(°C)	(mg/L)	(°C)	(mg/L)	(°C)	(mg/L)	(°C)	(mg/L)
9/10/13 16:15	27.3	6.7	25.9	7.2	25.7	6.8	27.0	6.0	27.5	8.0
9/10/13 16:30	27.2	6.5	25.9	7.3	25.8	6.8	27.1	6.0	27.6	8.0
9/10/13 16:45	27.1	6.5	25.9	7.2	25.8	6.8	27.1	5.9	27.7	8.0
9/10/13 17:00	26.9	6.3	25.9	7.2	25.8	6.7	27.1	5.9	27.9	8.0
9/10/13 17:15	26.8	6.2	25.9	7.2	25.8	6.7	27.1	5.9	28.0	8.0
9/10/13 17:30	26.6	6.0	25.9	7.2	25.9	6.6	27.1	5.8	28.1	8.0
9/10/13 17:45	26.5	5.9	25.9	7.2	25.9	6.6	27.0	5.8	28.1	8.0
9/10/13 18:00	26.4	5.8	25.9	7.2	25.8	6.5	26.9	5.7	28.1	7.9
9/10/13 18:15	26.3	5.7	25.9	7.1	25.8	6.5	26.8	5.7	28.1	7.8
9/10/13 18:30	26.2	5.6	25.9	7.2	25.8	6.4	26.8	5.6	28.0	7.7
9/10/13 18:45	26.2	5.6	25.9	7.1	25.9	6.4	26.7	5.5	27.9	7.6
9/10/13 19:00	26.1	5.4	25.9	7.1	25.9	6.4	26.7	5.4	27.9	7.5
9/10/13 19:15	26.1	5.4	25.9	7.1	25.9	6.4	26.6	5.4	27.8	7.4
9/10/13 19:30	26.0	5.3	25.8	7.1	25.9	6.3	26.5	5.3	27.7	7.2
9/10/13 19:45	25.9	5.3	25.8	7.1	25.8	6.3	26.5	5.3	27.6	7.1
9/10/13 20:00	25.9	5.2	25.8	7.2	25.8	6.3	26.4	5.2	27.4	7.0
9/10/13 20:15	25.8	5.1	25.8	7.1	25.8	6.3	26.4	5.2	27.3	6.9
9/10/13 20:30	25.8	5.0	25.8	7.2	25.8	6.2	26.3	5.1	27.2	6.8
9/10/13 20:45	25.7	5.0	25.7	7.2	25.8	6.2	26.3	5.0	27.1	6.6
9/10/13 21:00	25.7	4.9	25.7	7.2	25.8	6.2	26.3	5.0	27.0	6.5
9/10/13 21:15	25.6	4.9	25.7	7.2	25.8	6.2	26.2	5.0	26.9	6.4
9/10/13 21:30	25.6	4.9	25.6	7.2	25.7	6.2	26.2	4.9	26.8	6.4
9/10/13 21:45	25.6	4.9	25.6	7.2	25.7	6.2	26.2	4.9	26.7	6.3
9/10/13 22:00	25.5	4.9	25.6	7.3	25.7	6.2	26.1	4.8	26.6	6.2
9/10/13 22:15	25.5	4.8	25.5	7.3	25.7	6.1	26.1	4.7	26.5	6.2
9/10/13 22:30	25.4	4.8	25.5	7.3	25.6	6.1	26.0	4.7	26.3	6.1
9/10/13 22:45	25.4	4.8	25.4	7.3	25.6	6.1	26.0	4.6	26.2	6.1
9/10/13 23:00	25.3	4.8	25.4	7.3	25.6	6.1	25.9	4.7	26.1	6.0
9/10/13 23:15	25.3	4.8	25.4	7.3	25.6	6.1	25.9	4.6	26.0	6.0
9/10/13 23:30	25.2	4.7	25.3	7.3	25.5	6.1	25.8	4.6	25.9	6.0
9/10/13 23:45	25.2	4.7	25.3	7.3	25.5	6.1	25.8	4.6	25.9	5.9

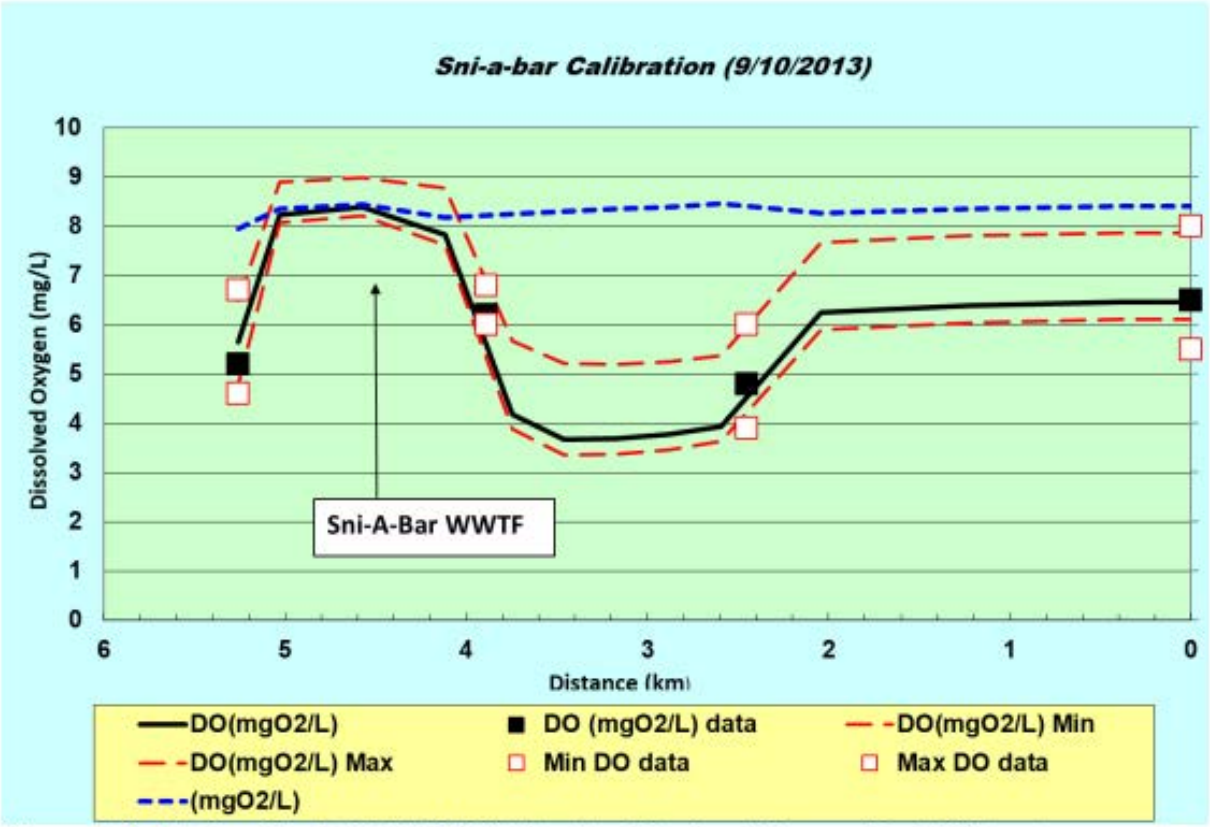

Figure 4. Sni-A-Bar Creek QUAL2K Calibration Dissolved Oxygen Model Output

Critical Condition Model for Effluent Limit Recommendations

Effluent limit recommendations are based on critical condition model outputs. The critical condition model represents water quality when effluent from the Sni-A-Bar Wastewater Treatment Facility is discharged at full design flow (10 MGD), headwater flow in Sni-A-Bar Creek is at 7Q10 low flow, and water temperatures are typical for the warmest month of the year. Critical condition water temperatures at the facility outfall were based on the mean summer temperature from Discharge Monitoring Reports (DMR) 2018 through 2022. Headwater, groundwater, and tributary nutrient concentrations were set at EPA benchmarks developed for Region 7 streams (0.9 mg/L TN and 0.075 mg/L TP). With the exception of prescribed Sediment Oxygen Demand (SOD), all rates and formulae were retained from the calibration model. Prescribed SOD was reduced in the critical condition model proportionally to the reduction in effluent total phosphorus that is expected if the suggested effluent limits are implemented.

Since flow from the Sni-A-Bar facility is the primary source of flow in Sni-A-Bar Creek when precipitation is low or absent, reaeration rates in the stream vary depending on the facility's flow volume. The variation in reaeration rates between the flow observed during the 2013 stream survey (2.5 MGD), the five-year average actual flow (4.3 MGD), and facility design flow (10.0

MGD) can potentially influence the dissolved oxygen levels in the stream. For this reason, two summer critical condition models were developed, one for the current five-year average (actual) facility flow and one for the facility design flow. The recommended effluent limitations were found to be protective of the dissolved oxygen criteria under both design flow and actual flow conditions.

Minimum effluent DO and maximum effluent total nitrogen (TN) and total phosphorus (TP) concentrations are needed for the model to achieve the DO criterion at all facility flows. A minimum effluent DO concentration of 6.0 mg/L at actual flow is necessary to allow the 5.0 mg/L BOD_5. Data collected during the Sni-A-Bar Creek stream survey indicate periodic occurrences of high nitrogen and phosphorus in the facility's effluent. Nitrogen and phosphorus promote benthic and sestonic algae growth. Excess algae and organic components of TN can also exert high oxygen demand on the stream resulting in low DO conditions. As a result, the model required reductions in both TN and TP in order to result in attainment of the minimum DO criterion.

For the model to show attainment of the DO criterion, and to minimize daily DO fluctuations caused by benthic algae respiration, a TP input of 1.0 mg/L is needed. This value is also consistent with proposed TP effluent regulations for major facilities. Inputs of TN were based on organic nitrogen concentrations $\leq$ 5.0 mg/L and a nitrate plus nitrite concentration of 20 mg/L. For ammonia as N, current effluent limits (0.8 mg/L summer and 1.8 mg/L winter) are expected to result in DO concentrations greater than 5.0 mg/L at all facility flows throughout the year. Due to uncertainty regarding the sensitivity of the model to organic nitrogen, only TN and ammonia as N limits are currently recommended. However, specific monitoring of other nitrogen speciations are recommended as a permit condition in order to evaluate if TN effluent limits are sufficient in addressing the impairment or if more specific nitrogen limits are necessary. Current effluent limits for BOD5 (14 mg/L summer and 18 mg/L winter) were also found to be protective of the DO criterion.

These concentrations are expected to be protective of Missouri's water quality standards and result in attainment of Missouri's DO criterion at all facility flows. This is confirmed by the QUAL2K model and results in DO greater than 5.0 mg/L. These recommended effluent limits were developed using appropriate conservative assumptions and best professional judgement. The recommended winter ammonia as N limit of 1.8 mg/L is based on a winter effluent temperature of 15.3 °C and an ambient stream temperature of 17.5 °C. This represents the warmest typical winter effluent temperature observed in DMR data from 2018-2022. Figure 5 shows model DO outputs based on summer effluent limit recommendations.

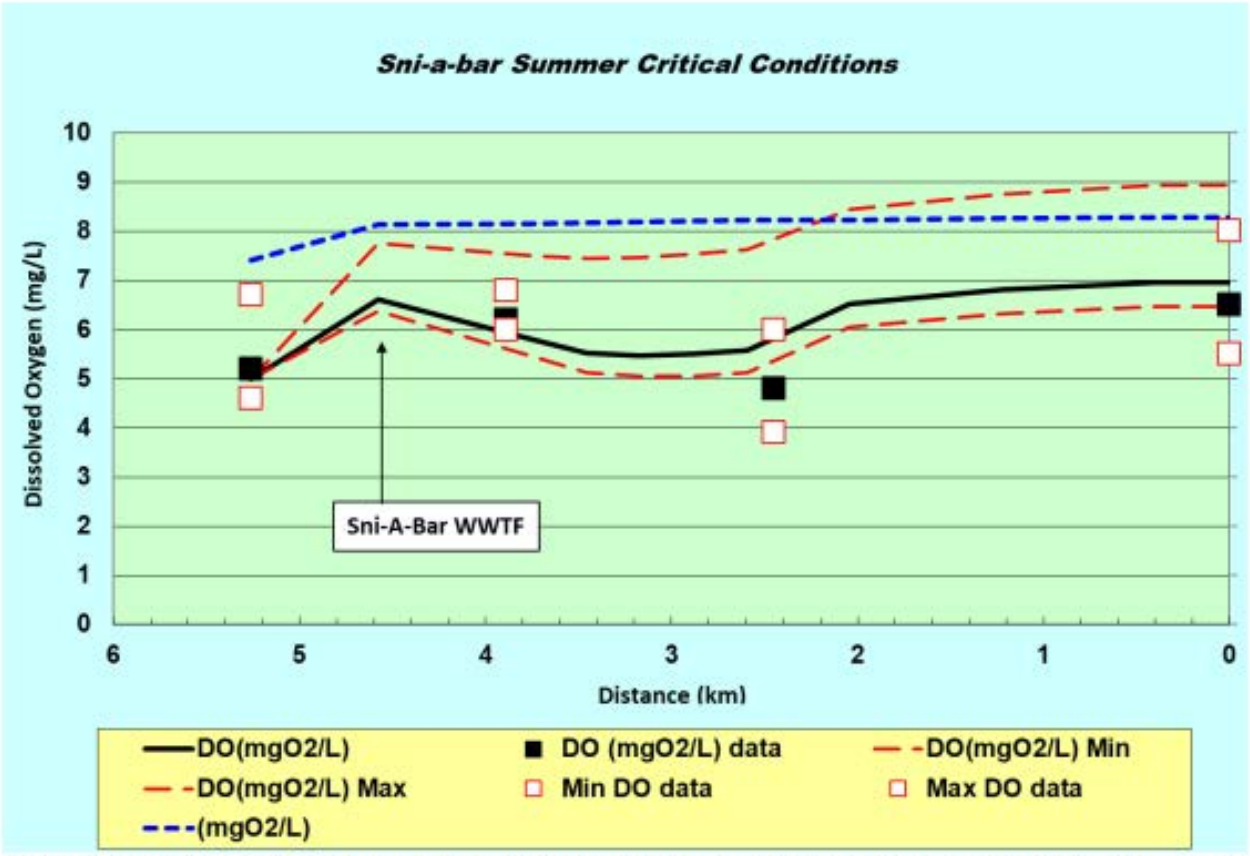

Figure 5. Sni-A-Bar Creek Dissolved Oxygen Model for QUAL2K Summer Effluent Limits

APPENDIX – COST ANALYSIS FOR COMPLIANCE:

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

Sni-A-Bar WWTF, Permit Renewal
City of Blue Springs
Missouri State Operating Permit #MO-0028886

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 Ammonia, Total Phosphorus, and Total Nitrogen, which may require the design, construction, and operation of a different treatment technology. The cost assumptions in this analysis anticipate complete replacement of the existing treatment facility. For this analysis, the Department has selected the mechanical treatment technology that could be the most practical solution to meet the new requirements for the community.

The permit also requires compliance with new influent monitoring requirements for Ammonia, Total Kjeldahl Nitrogen, Nitrate + Nitrite, and Total Phosphorus and new effluent monitoring requirements for Cyanide, Zinc, Hardness, Total Kjeldahl Nitrogen, Nitrate + Nitrite, Total Nitrogen, 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: 10 MGD	
Connection Type	**Number**
Residential	15,440
Commercial	1,166
Industrial	78
Total	**16,684**

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

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 Blue Springs	
Current Monthly User Rates per 5,000 gallons*	$39.50
Municipal Bond Rating (if applicable)	AA
Bonding Capacity**	$208,332,733
Median Household Income (MHI) [2]	$84,799
Current Annual Operating Costs (excludes depreciation)	$1,252,390
Current Outstanding Debt for the Facility	$11,345,952
Amount within the Current User Rate Used toward Payments on Outstanding Debt Related to the Current Wastewater Infrastructure	$3.10

* 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 phosphorus removal 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
Cyanide, Amenable to Chlorination - Effluent	Quarterly	$43 x 4	$172
Zinc, Total Recoverable - Effluent	Quarterly	$22 x 4	$88
Hardness - Effluent	Quarterly	$47 x 4	$188
Total metal concentration analysis	Quarterly	$13 x 4	$52
Total Phosphorus – Effluent	Weekly	$26 x 52	$1,352
Total Kjeldahl Nitrogen - Effluent	Weekly	$35 x 52	$1,820
Nitrate + Nitrite - Effluent	Weekly	$44 x 52	$2,288
Total Nitrogen - Effluent	Weekly §	--	--
Total Estimated Annual Cost of New Sampling and Permit Requirements			$7,484

§ - TN is equal to the calculated value of TKN plus Nitrate + Nitrite, sample cost is zero as cost of TKN and Nitrate + Nitrite already listed.

Mechanical Plant Pollution Control Option Cost Estimates:
For the mechanical plant option, the Department has estimated costs for a BNR system with phosphorus removal. Treatment technologies were selected that meet the following monthly average effluent limits:

- Total Phosphorus of 1.0 mg/L

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	$85,380,584
	Estimated Capital Cost	$48,200,740
	Estimated Annual Cost of Operation and Maintenance	$2,990,842
	Estimated Monthly Cost Per User	$55.58
	Estimated Monthly Cost of New Sampling and Permit Requirements Per User	$0.04
(2)	Current Monthly Debt Retirement Amount Per User	$3.10
(3)	Total Monthly User Cost*	$58.72
	Total Monthly User Cost as a Percent of MHI [4]	0.83%

* Estimated Monthly Costs + Estimated Monthly Costs of New Sampling and Permit Requirements + Debt Retirement Amount

(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 Monitoring

Nutrients are mineral compounds that are required for organisms to grow and thrive. Of the six (6) elemental macronutrients, nitrogen and phosphorus are generally not readily available and limit growth of organisms. Excess nitrogen and phosphorus will cause a shift in the ecosystem's food web. Once excess nitrogen and 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 monitoring requirements for nitrogen and phosphorus have been added to the permit to provide data regarding the health of the receiving stream's aquatic life. A healthy ecosystem is beneficial as it provides reduced impacts on human and aquatic health as well as recreational opportunities.

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.

Metals Monitoring

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

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

The monitoring requirements for metals have been added to the permit to provide data regarding the health of the receiving stream's aquatic life. A healthy ecosystem is beneficial as it provides reduced impacts on human and aquatic health as well as recreational opportunities.

(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 $11,345,952. The community reported that each user pays $39.50 monthly, of which, $3.10 is used toward payments on the current outstanding debt.

As shown in Criterion 2, the projected user rate plus the amount of the current user rate used toward payments on outstanding debt is $58.72 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 Blue Springs

No.	Administrative Unit	Blue Springs City	Missouri State
1	Population (2021)	58,265	6,141,534
2	Percent Change in Population (2000-2021)	21.2%	9.8%
3	2021 Median Household Income (in 2022 Dollars)	$84,799	$65,928
4	Percent Change in Median Household Income (2000-2021)	-12.9%	-1.1%
5	Median Age (2021)	36.4	38.8
6	Change in Median Age in Years (2000-2021)	3.3	2.7
7	Unemployment Rate (2021)	3.9%	4.5%
8	Percent of Population Below Poverty Level (2021)	5.6%	12.8%
9	Percent of Household Received Food Stamps (2021)	5.3%	10.1%
10	(Primary) County Where the Community Is Located	Jackson County	

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

The community reported their five year CIP includes a facility plan which is currently in progress and sludge removal for $4 million scheduled for fiscal years 2024-2025.

(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%	2
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)	3
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%	3
Total Average Score (Financial Capability Indicator)	--	--	--	2.5

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): 2.5
- Mechanical Plant Residential Indicator (from Criterion 2): 0.83%

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 system with phosphorus removal is the most practical and affordable option for the City of Blue Springs. The construction and operation of a BNR system with phosphorus removal 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 a **seven (7)** year schedule of compliance for the design and construction of a BNR system with phosphorus removal. 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 7 Year Schedule of Compliance

Year	Milestone(s)
1	Apply for State Revolving Fund loans and/or grants and submit facility plan
2	Select Design Engineer; Hold bond election; Begin Design
3	Apply for construction permit; Submit drawings and specifications for WWTF improvements
4	Close on loan; Bid/ award project
5	Begin construction and submit application for renewal of the existing operating permit with new financial and socio-economic data
6	Construction
7	Complete construction

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. ($58.72/($84,799/12))100% = 0.83% (mechanical + sampling)
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.

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.

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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	
Sni-A-Bar Wastewater Treatment Facility	
PERMIT NO.	COUNTY
0028886	Jackson

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

37796 RECEIVED

Ck#209330 Returned - No fee Due @ time of Renewal

FEB 19 2019

Water Protection Program

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
2-19-19	0 SB

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- 0028886 Expiration Date August 31, 2019

☐ 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	
Sni-A-Bar Wastewater Treatment Facility		(816)-224-2717	
ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE
4600 South Seymore Road	Grain Valley	MO	64029

2.1 **LEGAL DESCRIPTION** (Facility Site): NW¼, NW¼, SW ¼, Sec. 25 , T 49N , R 30W COUNTY: Jackson

2.2 UTM Coordinates Easting (X): 397997 Northing (Y): 4320905
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

2.3 Name of receiving stream: Sni-A-Bar Creek

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

3. OWNER

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
City of Blue Springs	CSandie@bluespringsgov.com	(816)-228-0110	
ADDRESS	CITY	STATE	ZIP CODE
903 W. Main Street	Blue Springs	MO	64015

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

3.2 Are you a Publically Owned Treatment Works (POTW)? ☑ YES ☐ NO
If yes, is the Financial Questionnaire attached? ☑ YES ☐ NO

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

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

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

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
City of Blue Springs	CSandie@bluespringsgov.com	(816)-228-0110	
ADDRESS	CITY	STATE	ZIP CODE
903 W. Main Street	Blue Springs	MO	64015

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)
Jeff Butner	WWTP Supervisor	6629
EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
bbutner@bluespringsgov.com	(816) 224-2717	

6. FACILITY CONTACT

NAME	TITLE		
Jeff Mock	Operations Manager		
EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE		
Jmock@bluespringsgov.com	(816)-228-0195		
ADDRESS	CITY	STATE	ZIP CODE
500 SE Sunnyside School Rd	Blue Springs	MO	64014

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sni-A-Bar Wastewater Treat...	MO- 0028886	SIC # 4952

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 Attachment A

Process Description: Influent Pump Stations (quantity 2), Excess Flow Holding Basin, Headworks with Fine Screening and Grit Removal, Aeration Basins (quantity 3), Secondary Clarifiers (quantity 4), RAS/WAS Pump Stations (quantity 2), Tertiary Filtration, UV Disinfection, Effluent Re-aeration, Wet Weather Effluent Pump Station, Sludge Digestion Basins (quantity 2), Sludge Reed Beds (quantity 4), Sludge Storage/Digestion Lagoons (quantity 2).

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sni-A-Bar Wastewater Treatment Facility	MO-0028886	SIC # 4952

PART A – BASIC APPLICATION INFORMATION

7. FACILITY INFORMATION (continued)

7.2 **Topographic Map.** Attach to this application a topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information.

a. The area surrounding the treatment plant, including all unit processes.
b. The location of the downstream landowner(s). (See Item 10.)
c. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.
d. The actual point of discharge.
e. Wells, springs, other surface water bodies and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.
f. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.
g. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored, or disposed.

7.3	Facility SIC Code: 4952 .	Discharge SIC Code: 4952 .

7.4 Number of people presently connected or population equivalent (P.E.): 42,549 Design P.E. 98,883

7.5 Connections to the facility:

Number of units presently connected:

Homes 15,779 Trailers _____ Apartments 20 Other (including industrial) 38

Number of Commercial Establishments: 1070

7.6	Design Flow	Actual Flow
	10.0 MGD Average and 36.0 MGD Peak	4.38 MGD (Jan 2015 - Jul 2018)

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

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

7.8 Is industrial 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

See Attachment.

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, is Form I attached?	Yes ☐ Yes ☐	No ☑ 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 ☑

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sni-A-Bar Wastewater Treatment Facility	MO- 0028886	SIC # 4952

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 1,278 Actual Dry Tons/Year 528

9.3 Sludge storage provided: 4.4M Cubic feet; 3950 Days of storage; 2-4% 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) ____ Reed Beds

9.5 Sludge Treatment:

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

9.6 Sludge use or disposal:

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

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

NAME	EMAIL ADDRESS		
Third Party Hauler through Bid Procurement approximately every 5 years			
ADDRESS	CITY	STATE	ZIP CODE
CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO.	
		MO-	

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

NAME	EMAIL ADDRESS		
Facility or site selected by contractor.			
ADDRESS	CITY	STATE	ZIP CODE
CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO.	
		MO-	

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

END OF PART A

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sni-A-Bar Wastewater Treatment Facility	MO-0028886	SIC # 4952

PART B – ADDITIONAL APPLICATION INFORMATION

10. COLLECTION SYSTEM

10.1 Length of sanitary sewer collection system in miles
260

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

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.
None

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sni-A-Bar Wastewater Treatment Facility	MO- 0028886	SIC # 4952

PART B – ADDITIONAL APPLICATION INFORMATION

14. EFFLUENT TESTING DATA

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

Outfall Number

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	6.6	S.U.	7.0	S.U.	191
pH (Maximum)	7.7	S.U.	7.0	S.U.	191
Flow Rate	26	MGD	4.38	MGD	1246

*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		mg/L		mg/L			
	$CBOD_5$	39	mg/L	3.7	mg/L	325		
E. COLI		601.5	#/100 mL	52.5	#/100 mL	98		
TOTAL SUSPENDED SOLIDS (TSS)		13	mg/L	2.6	mg/L	193		
AMMONIA (as N)		3.52	mg/L	0.37	mg/L	374		
CHLORINE* (TOTAL RESIDUAL, TRC)			mg/L		mg/L			
DISSOLVED OXYGEN		9.57	mg/L	8.06	mg/L	191		
OIL and GREASE		5.5	mg/L	5.08	mg/L	35		
OTHER			mg/L		mg/L			

*Report only if facility chlorinates

END OF PART B

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sni-A-Bar Wastewater Treatment Facility	MO- 0028886	SIC # 4952

PART C – CERTIFICATION

15. ELECTRONIC DISCHARGE MONITORING REPORT (eDMR) SUBMISSION SYSTEM

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

☐ - 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. CERTIFICATION

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

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

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

PRINTED NAME	OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL)
Chris Sandie	Public Works Director

SIGNATURE

TELEPHONE NUMBER WITH AREA CODE
(816)-228-0121

DATE SIGNED
February 13, 2019

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

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.

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sni-A-Bar Wastewater Treatment Facility	MO- 0028886	SIC # 4952

PART D – EXPANDED EFFLUENT TESTING DATA

17. EXPANDED EFFLUENT TESTING DATA

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

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

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS AND HARDNESS											
ALUMINUM	ND	µg/L			ND	µg/L			3	EPA 200.8	50.0 µg/L
ANTIMONY	ND	µg/L			ND	µg/L			3	EPA 200.8	1.0 µg/L
ARSENIC	1.4	µg/L			1.2	µg/L			3	EPA 200.8	1.0 µg/L
BERYLLIUM	ND	µg/L			ND	µg/L			3	EPA 200.8	.50 µg/L
CADMIUM	ND	µg/L			ND	µg/L			3	EPA 200.8	.50 µg/L
CHROMIUM III	ND	µg/L			ND	µg/L			3	EPA 200.8	1.0 µg/L
CHROMIUM VI	ND	µg/L			ND	µg/L			3	EPA 200.8	1.0 µg/L
COPPER	2.8	µg/L			1.9	µg/L			3	EPA 200.8	1.0 µg/L
IRON	ND	µg/L			ND	µg/L			3	EPA 200.8	50.0 µg/L
LEAD	ND	µg/L			ND	µg/L			3	EPA 200.8	1.0 µg/L
MERCURY	ND	µg/L			ND	µg/L			3	EPA 200.8	.2 µg/L
NICKEL	2	µg/L			1.6	µg/L			3	EPA 200.8	1.0 µg/L
SELENIUM	ND	µg/L			ND	µg/L			3	EPA 200.8	1.0 µg/L
SILVER	ND	µg/L			ND	µg/L			3	EPA 200.8	.50 µg/L
THALLIUM	ND	µg/L			ND	µg/L			3	EPA 200.8	1.0 µg/L
ZINC	54.9	µg/L			39.8	µg/L			3	EPA 200.8	10.0 µg/L
CYANIDE	ND	mg/L			ND	mg/L			3	EPA 200.8	.005mg/L
TOTAL PHENOLIC COMPOUNDS	ND	mg/L			ND	mg/L			3	EPA 420.1	.05 mg/L
HARDNESS (as $CaCO_3$)	78000	µg/L			63367	µg/L			3	EPA 200.7	500 µg/L
VOLATILE ORGANIC COMPOUNDS											
ACROLEIN	ND	µg/L			ND	µg/L			3	EPA 624Low	100 µg/L
ACRYLONITRILE	ND	µg/L			ND	µg/L			3	EPA 624Low	20.0 µg/L
BENZENE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
BROMOFORM	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
CARBON TETRACHLORIDE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sni-A-Bar Wastewater Treat...	MO- 0028886	SIC # 4952

PART D – EXPANDED EFFLUENT TESTING DATA

17. EXPANDED EFFLUENT TESTING DATA

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
CHLOROBENZENE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
CHLORODIBROMO-METHANE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
CHLOROETHANE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
2-CHLORO-ETHYLVINYL ETHER	Not	Tested									
CHLOROFORM	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
DICHLOROBROMO-METHANE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
1,1-DICHLORO-ETHANE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
1,2-DICHLORO-ETHANE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
TRANS-1,2-DICHLOROETHYLENE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
1,1-DICHLORO-ETHYLENE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
1,2-DICHLORO-PROPANE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
1,3-DICHLORO-PROPYLENE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
ETHYLBENZENE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
METHYL BROMIDE	ND	µg/L			ND	µg/L			3	EPA 624Low	5.0 µg/L
METHYL CHLORIDE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
METHYLENE CHLORIDE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
1,1,2,2-TETRA-CHLOROETHANE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
TETRACHLORO-ETHANE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
TOLUENE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
1,1,1-TRICHLORO-ETHANE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
1,1,2-TRICHLORO-ETHANE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
TRICHLORETHYLENE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
VINYL CHLORIDE	ND	µg/L			ND	µg/L			3	EPA 624Low	1.0 µg/L
ACID-EXTRACTABLE COMPOUNDS											
P-CHLORO-M-CRESOL	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
2-CHLOROPHENOL	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
2,4-DICHLOROPHENOL	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
2,4-DIMETHYLPHENOL	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
4,6-DINITRO-O-CRESOL	ND	µg/L			ND	µg/L			3	EPA 625	25.8 µg/L
2,4-DINITROPHENOL	ND	µg/L			ND	µg/L			3	EPA 625	51.5 µg/L
2-NITROPHENOL	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
4-NITROPHENOL	ND	µg/L			ND	µg/L			3	EPA 625	55.2 µg/L

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sni-A-Bar Wastewater Treat...	MO- 0028886	SIC # 4952

PART D – EXPANDED EFFLUENT TESTING DATA

17. EXPANDED EFFLUENT TESTING DATA

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
PENTACHLOROPHENOL	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
PHENOL	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
2,4,6-TRICHLOROPHENOL	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
BASE-NEUTRAL COMPOUNDS											
ACENAPHTHENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
ACENAPHTHYLENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
ANTHRACENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
BENZIDINE	ND	µg/L			ND	µg/L			3	EPA 625	51.5 µg/L
BENZO(A)ANTHRACENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
BENZO(A)PYRENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
3,4-BENZO-FLUORANTHENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
BENZO(GH) PHERYLENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
BENZO(K) FLUORANTHENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
BIS (2-CHLOROTHOXY) METHANE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
BIS (2-CHLOROETHYL) – ETHER	ND	µg/L			ND	µg/L			3	EPA 625	6.2 µg/L
BIS (2-CHLOROISO-PROPYL) ETHER	ND	µg/L			ND	µg/L			3	EPA 625	6.2 µg/L
BIS (2-ETHYLHEXYL) PHTHALATE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
4-BROMOPHENYL PHENYL ETHER	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
BUTYL BENZYL PHTHALATE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
2-CHLORONAPH-THALENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
4-CHLORPHENYL PHENYL ETHER	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
CHRYSENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
DI-N-BUTYL PHTHALATE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
DI-N-OCTYL PHTHALATE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
DIBENZO (A,H) ANTHRACENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
1,2-DICHLORO-BENZENE	ND	µg/L			ND	µg/L			3	EPA 625	1.0 µg/L
1,3-DICHLORO-BENZENE	ND	µg/L			ND	µg/L			3	EPA 625	1.0 µg/L
1,4-DICHLORO-BENZENE	ND	µg/L			ND	µg/L			3	EPA 625	1.0 µg/L
3,3-DICHLORO-BENZIDINE	ND	µg/L			ND	µg/L			3	EPA 625	20.6 µg/L
DIETHYL PHTHALATE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
DIMETHYL PHTHALATE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sni-A-Bar Wastewater Treatmen	MO- 0028886	SIC # 4952

PART D – EXPANDED EFFLUENT TESTING DATA

17. EXPANDED EFFLUENT TESTING DATA

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
2,4-DINITRO-TOLUENE	ND	µg/L			ND	µg/L			3	EPA 625	6.2 µg/L
2,6-DINITRO-TOLUENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
1,2-DIPHENYL-HYDRAZINE	Not	Tested									
FLUORANTHENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
FLUORENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
HEXACHLOROBENZENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
HEXACHLOROBUTADIENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
HEXACHLOROCYCLO-PENTADIENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
HEXACHLOROETHANE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
INDENO (1,2,3-CD) PYRENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
ISOPHORONE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
NAPHTHALENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
NITROBENZENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
N-NITROSODI-PROPYLAMINE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
N-NITROSODI-METHYLAMINE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
N-NITROSODI-PHENYLAMINE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
PHENANTHRENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
PYRENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L
1,2,4-TRICHLOROBENZENE	ND	µg/L			ND	µg/L			3	EPA 625	5.2 µg/L

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

END OF PART D

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sni-A-Bar Wastewater Treat...	MO- 0028886	SIC # 4952

PART E – TOXICITY TESTING DATA

18. TOXICITY TESTING DATA

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

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

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

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

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years: _____chronic _____ 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	EPA 2000 & 2002	EPA 2000 & 2002	EPA 2000 & 2002
Final Report Number	16-245	17-276	18-214
Outfall Number	1 (SIC# 4952)	1 (SIC# 4952)	1 (SIC# 4952)
Dates Sample Collected	11/09/2016	12/11/2017	9/26/2018
Date Test Started	11/10/2016	12/12/2017	9/27/2018
Duration	48 Hours	48 Hours	48 Hours
B. Toxicity Test Methods Followed			
Manual Title	Measuring Acute Toxicity	Measuring Acute Toxicity	Measuring Acute Toxicity
Edition Number and Year of Publication	5th Edition	5th Edition	5th Edition
Page Number(s)	EPA-821-R-02-012	EPA-821-R-02-012	EPA-821-R-02-012
C. Sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used			
24-Hour Composite	X	X	X
Grab			
D. Indicate where the sample was taken in relation to disinfection (Check all that apply for each)			
Before Disinfection	☑	☑	☐
After Disinfection	☐	☐	☑
After Dechlorination	☐	☐	☐
E. Describe the point in the treatment process at which the sample was collected			
Sample Was Collected:	Grab	Grab	Grab
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	☑ Sni-A-Bar Creek	☑ Sni-A-Bar Creek	☑ Sni-A-Bar Creek

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sni-A-Bar Wastewater Treat...	MO- 0028886	SIC # 4952

PART E – TOXICITY TESTING DATA

18. 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	X	X	X
Salt Water			
J. Percentage of effluent used for all concentrations in the test series			
	0, 12.5, 25, 50, 75, 100	0, 12.5, 25, 50, 75, 100	0, 12.5, 25, 50, 75, 100
K. Parameters measured during the test (State whether parameter meets test method specifications)			
pH	Yes	Yes	Yes
Salinity	N/A	N/A	N/A
Temperature	Yes	Yes	Yes
Ammonia	Yes	Yes	Yes
Dissolved Oxygen	Yes	Yes	Yes
L. Test Results			
Acute:			
Percent Survival in 100% Effluent	100%	100%	100%
LC_{50}	>100%	>100%	>100%
95% C.I.			
Control Percent Survival	100%	100%	100%
Other (Describe)			
Chronic:			
NOEC			
IC_{25}			
Control Percent Survival			
Other (Describe)			
M. Quality Control/ Quality Assurance			
Is reference toxicant data available?	Yes	Yes	Yes
Was reference toxicant test within acceptable bounds?	Yes	Yes	Yes
What date was reference toxicant test run (MM/DD/YYYY)?	11/10/16	12/12/17	9/18/18
Other (Describe)			

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

If yes, describe:

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

Date Submitted (MM/DD/YYYY)

Summary of Results (See Instructions)

END OF PART E

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sni-A-Bar Wastewater Treat...	MO- 0028886	SIC # 4952

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

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

19. GENERAL INFORMATION

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

☐ Yes ☑ No

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

Number of non-categorical SIUs 0

Number of CIUs 0

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

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

NAME

MAILING ADDRESS	CITY	STATE	ZIP CODE

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

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

Principal Product(s):

Raw Material(s):

20.3 Flow Rate

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

gpd ☐ Continuous ☐ Intermittent

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

gpd ☐ Continuous ☐ Intermittent

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

a. Local Limits ☐ Yes ☐ No

b. Categorical Pretreatment Standards ☐ Yes ☐ No

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

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

☐ Yes ☐ No

If Yes, describe each episode

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL		
FACILITY NAME Sni-A-Bar Wastewater Treatment Facility	PERMIT NO. MO- 0028886	OUTFALL NO. SIC # 4952

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

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

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

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

21.3 Waste Description

EPA Hazardous Waste Number	Amount (volume or mass)	Units

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

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

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

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

22.4 Waste Treatment

a. Is this waste treated (or will it be treated) prior to entering the treatment works?
☐ 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.
Sni-A-Bar Wastewater Treatment Facility	MO- 0028886	SIC # 4952

PART G – COMBINED SEWER SYSTEMS

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

23. GENERAL INFORMATION

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

A. All CSO Discharges.
B. Sensitive Use Areas Potentially Affected by CSOs. (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems and Outstanding Natural Resource Waters.)
C. Waters that Support Threatened and Endangered Species Potentially Affected by CSOs.

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

A. Locations of Major Sewer Trunk Lines, Both Combined and Separate Sanitary.
B. Locations of Points where Separate Sanitary Sewers Feed into the Combined Sewer System.
C. Locations of In-Line or Off-Line Storage Structures.
D. Locations of Flow-Regulating Devices.
E. Locations of Pump Stations.

23.3 Percent of collection system that is combined sewer

23.4 Population served by combined sewer collection system

23.5 Name of any satellite community with combined sewer collection system

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

24.1 Description of Outfall

a. Outfall Number
b. Location

c. Distance from Shore (if applicable) _____ ft
d. Depth Below Surface (if applicable) _____ ft
e. Which of the following were monitored during the last year for this CSO?

☐ Rainfall ☐ CSO Pollutant Concentrations ☐ CSO
☐ CSO Flow Volume ☐ Receiving Water Quality

f. How many storm events were monitored last year?

24.2 CSO Events

a. Give the Number of CSO Events in the Last Year Events ☐ Actual ☐ Approximate
b. Give the Average Duration Per CSO Event
Hours ☐ Actual ☐ Approximate
c. Give the Average Volume Per CSO Event
Million Gallons ☐ Actual ☐ Approximate
d. Give the minimum rainfall that caused a CSO event in the last year _____ inches of rainfall

24.3 Description of Receiving Waters

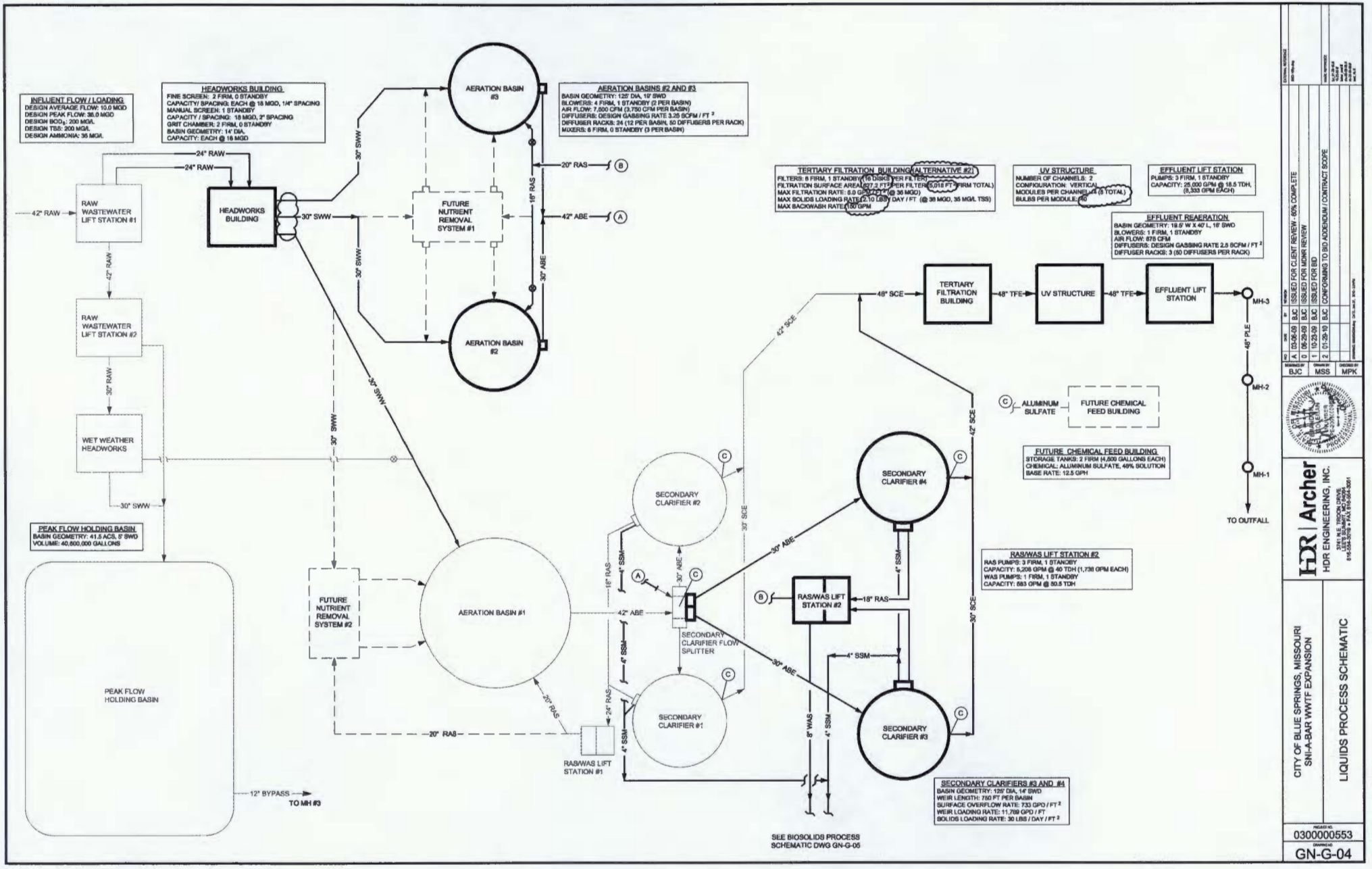
a. Name of Receiving Water
b. Name of Watershed/River/Stream System
c. U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)
d. Name of State Management/River Basin
e. U.S. Geological Survey 8- Digit Hydrologic Cataloging Unit Code (If Known)

24.4 CSO Operations

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

END OF PART G

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



NO	DATE	BY	REVISION
A	03-06-09	BJC	ISSUED FOR CLIENT REVIEW - 60% COMPLETE
0	06-29-09	BJC	ISSUED FOR MDNR REVIEW
1	10-23-09	BJC	ISSUED FOR BID
2	01-28-10	BJC	CONFORMING TO BID ADDENDUM / CONTRACT SCOPE

DESIGNED BY: BJC | DRAWN BY: MSS | CHECKED BY: MPK

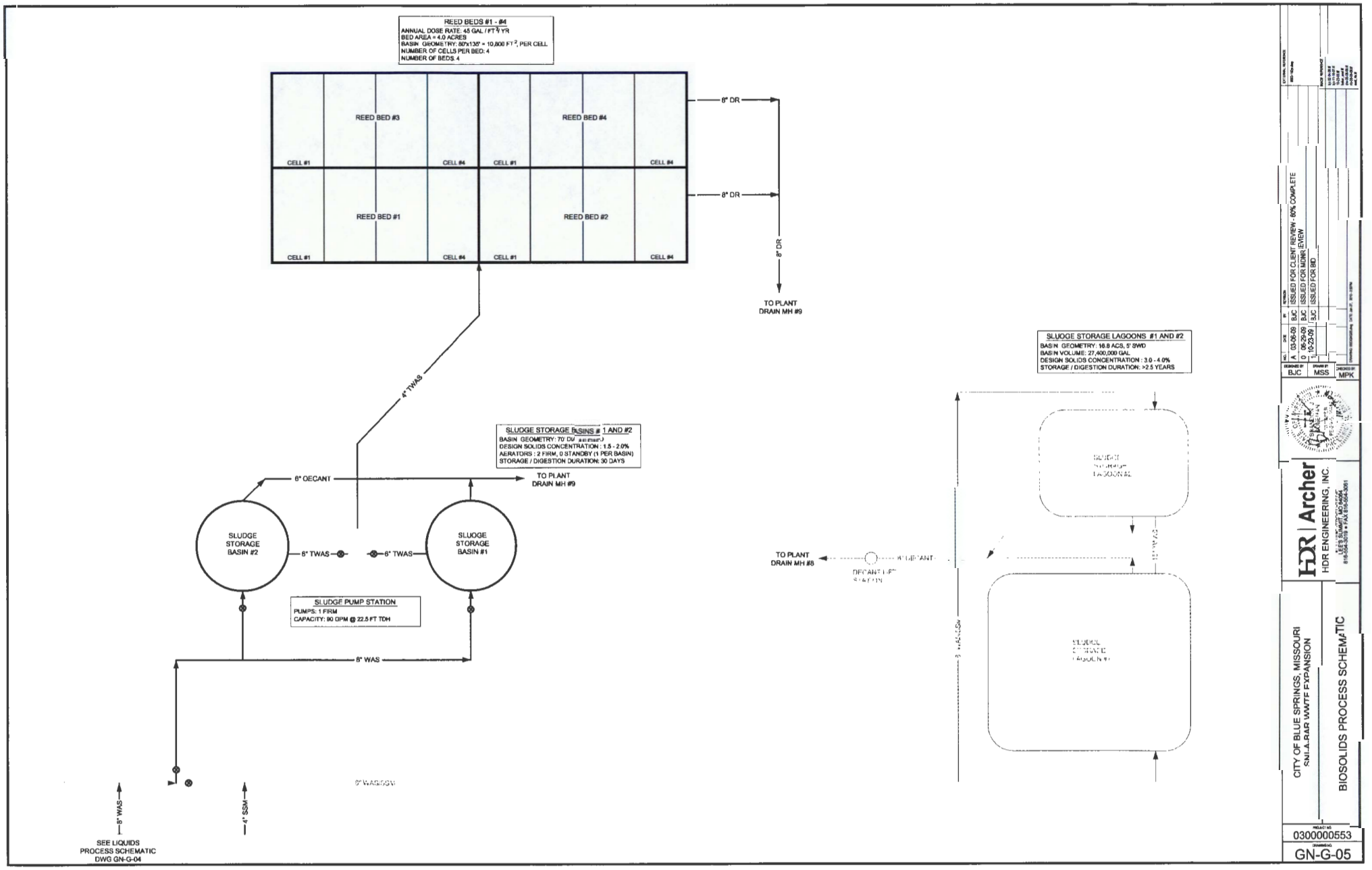
HDR | Archer
HDR ENGINEERING, INC.
2344 N.E. TROOP DRIVE
LEE'S SUMMIT, MISSOURI 64086
816-554-3018 • FAX 816-554-3081

CITY OF BLUE SPRINGS, MISSOURI
SNI-A-BAR WWTF EXPANSION

LIQUIDS PROCESS SCHEMATIC

PROJECT NO. 0300000553

DRAWING NO. GN-G-04



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DESIGNED BY: BJC | DRAWN BY: MSS | CHECKED BY: MPK

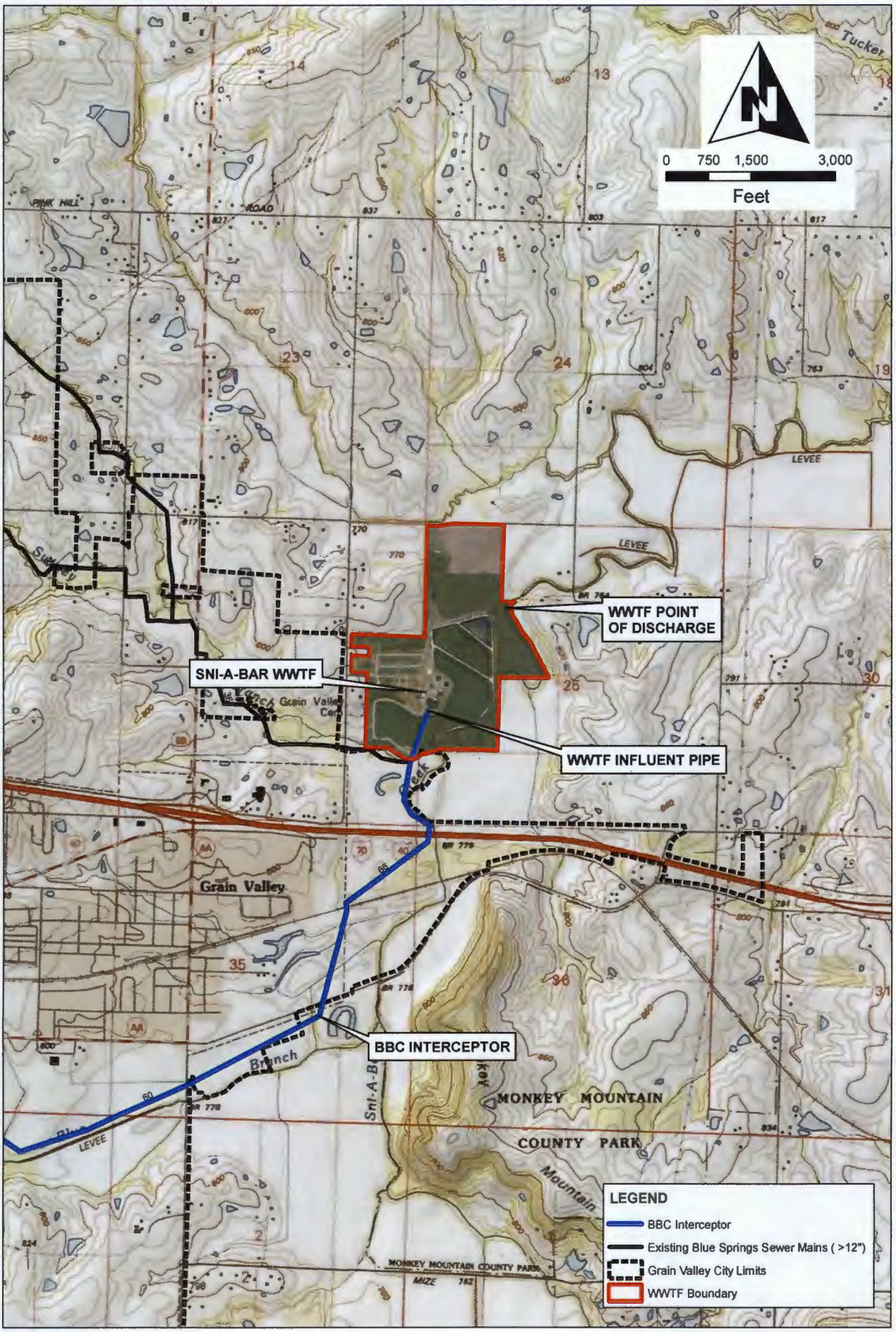
HDR | Archer
HDR ENGINEERING, INC.
LEES SUMMIT, MISSOURI 64064
816-554-3018 • FAX 816-554-3001

CITY OF BLUE SPRINGS, MISSOURI
SNI-A-RAR WWTF EXPANSION

BIOSOLIDS PROCESS SCHEMATIC

PROJECT NO. 0300000553

DRAWING NO. GN-G-05



HDR

CITY OF BLUE SPRINGS, MO

SNI-A-BAR WASTEWATER TREATMENT FACILITY

ATTACHMENT B

PATH: W:\191904\GIS\FIGURE B-1_PERMIT.MXD - USER: PIKEYHILL - DATE: 1/24/2019

PERMIT APPLICATION TOPOGRAPHIC MAP

Form B2 – Attachment A

Item 7.8

This facility does have light industrial and commercial users discharging to it. None qualify as SIU's or CIU's and do not have permitted pretreatment requirements issued from the City of Blue Springs. Most of the waste stream from these users is domestic in nature. The types of facilities include metal fabrication/machine shops, paper/card board box manufacturing, automotive/equipment repair, hospital/medical, and bulk repackaging. None of these dischargers are known to exceed or violate the City of Blue Springs Industrial User Pretreatment Requirements.

Item 10.2

The City of Blue Springs has been actively engaged in I&I Assessment and Reduction for many years beginning in the early 1990's with a complete flow monitoring of the entire system followed by the creation of the first hydraulic model. In the mid 2000's the City began performing Sanitary Sewer Evaluation Studies followed by corresponding maintenance activities to reduce identified I&I. Below are activities performed during the past 5 years by Blue Springs and Grain Valley.

The City is on schedule to substantially complete the lining of all vitrified clay pipe during the next 5-year period. The City is committed to ongoing efforts to reduce I&I in the years to come utilizing all technologies available.

Blue Springs

1. 137,141 lf of Cured in place pipe (CIPP)
2. 392,421 lf of sewer main smoke testing
3. 1673 manholes inspected
4. 20 sewer line point repairs
5. 1204 manholes rehab/lined
6. 331,044 lf of sewer line televised

Grain Valley

1. 5 sewer line point repairs
2. 36 manholes rehab/lined
3. 189,818 lf of sewer line televised
4. GrainValley has lined all their vitrified clay pipe.

Part G.

1. Not Required.

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
Sni-A-Bar Wastewater Treatment Facility	#MO- 00288886
CITY	**COUNTY**
Grain Valley	Jackson

2. GENERAL FINANCIAL INFORMATION (ALL FACILITIES)

2.1	Number of connections to the facility: Residential 15,779 Commercial 1,070 Industrial 38	
2.2	Current sewer user rate (Based on a 5,000 gallon per month usage):	BS $42.00 GV $44.04
2.3	Current annual operating costs for the facility (excludes depreciation):	$6,135,101
2.4	Bond rating (if applicable):	AA
2.5	Bonding capacity:	$169,217,125
2.6	Current outstanding debt relating to wastewater collection and treatment:	$30,119,192
2.7	Amount within the current user rate used toward payments on outstanding debt related to the current wastewater infrastructure:	$3.4
2.8	Attach any relevant financial statements.	

3. FINANCIAL INFORMATION REQUIRED FROM MUNICIPALITIES

3.1	Municipality's Full Market Property Value:	$3,810,271,981
3.2	Municipality's Overall Net Debt:	$133,993,367
3.3	Municipality's Property Tax Revenues (levied) [A]:	$8,051,212
3.4	Municipality's Property Tax Revenues (collected) [B]:	$7,881,226
3.5	Municipality's Property Tax Collection Rate ([B]/[A]):	97.9%

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):

Sludge drying facility, capacity 28,536 square feet, $1.48M, Summer 2019-Spring 2020

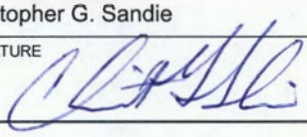
5.2 Provide a list of any other relevant local community economic conditions that may impact the ability to afford new permit requirements (attach sheets as necessary):

N/A

6. CERTIFICATION

FINANCIAL CONTACT	OFFICIAL TITLE
Karen Van Winkle	Director of Finance
EMAIL ADDRESS	**TELEPHONE NUMBER WITH AREA CODE**
kvanwinkle@bluespringsgov.com	816-228-0106

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
Christopher G. Sandie	Director of Public Works
SIGNATURE	**DATE SIGNED**
	February 06, 2019

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.