STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

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

Permit No.	MO-0040738
Owner:	City of Boonville
Address:	401 Main Street, Boonville, MO 65233
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Boonville Wastewater Treatment Plant
Facility Address:	1545 Cauthon Drive, Boonville, MO 65233
Legal Description:	See Page 2
UTM Coordinates:	See Page 2
Receiving Stream:	See Page 2
First Classified Stream and ID:	See Page 2
USGS Basin & Sub-watershed No.:	See Page 2

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

See Page 2

This permit authorizes only wastewater and stormwater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 621.250 RSMo, Section 640.013 RSMo and Section 644.051.6 of the Law.

August 1, 2020
Effective Date

May 1, 2021
Modification Date

Edward B. Galbraith, Director, Division of Environmental Quality

December 31, 2024
Expiration Date

Chris Wieberg, Director, Water Protection Program

FACILITY DESCRIPTION (continued):

Outfall #001 – POTW
The use or operation of this facility shall be by or under the supervision of a Certified B Operator.
Bar screen / grit removal / aerated flow equalization basin with lift station to reroute flow to headworks / oxidation ditch / secondary clarifiers (2) / UV disinfection / aerobic sludge digestion / sludge filter belt press / sludge sent to transfer station to be landfilled or biosolids are land applied

Design population equivalent is 20,000.
Design flow is 2.0 MGD.
Actual flow is 1.037 MGD.
Design sludge production is 1,092 dry tons/year.

Legal Description:	Land Grant 2845, Cooper County
UTM Coordinates:	X = 524050, Y = 4314618
Receiving Stream:	Lilly Branch (C)
First Classified Stream and ID:	100K Extent Remaining Streams (C) (3960)
USGS Basin & Sub-watershed No.:	(10300102-0501)

Permitted Feature INF – Influent Monitoring Location

OUTFALL #001

TABLE A-1.
FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations in **Table A-1** shall become effective on **August 1, 2020** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

Limit Set: M

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand$_5$	mg/L		45	30	once/week	composite**
Total Suspended Solids	mg/L		45	30	once/week	composite**
E. coli (**Note 1**)	#/100mL		1,030	206	once/week	grab
Total Phosphorus	mg/L	*		*	once/month	composite**
Total Kjeldahl Nitrogen	mg/L	*		*	once/month	composite**
Nitrite + Nitrate	mg/L	*		*	once/month	composite**

EFFLUENT PARAMETER(S)	UNITS	MINIMUM		MAXIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
pH – Units***	SU	6.5		9.0	once/week	grab

EFFLUENT PARAMETER(S)	UNITS	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Biochemical Oxygen Demand$_5$ – Percent Removal (**Note 2, Page 4**)	%	85	once/month	calculated
Total Suspended Solids – Percent Removal (**Note 2, Page 4**)	%	85	once/month	calculated

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

Limit Set: Q

EFFLUENT PARAMETER(S)	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Oil & Grease	mg/L	15		10	once/quarter†	grab

MONITORING REPORTS SHALL BE SUBMITTED **QUARTERLY**; THE FIRST REPORT IS DUE OCTOBER 28, 2020. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

* Monitoring requirement only.
** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.
*** pH is measured in pH units and is not to be averaged.
† See table on Page 4 for quarterly sampling requirements.

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* is expressed as a geometric mean if more than one (1) sample is collected during a calendar week (Sunday – Saturday).

Note 2 – Influent sampling for BOD_5 and TSS is not required when the facility does not discharge effluent during the reporting period. Samples are to be collected prior to any treatment process. Calculate Percent Removal by using the following formula: [(Average Influent –Average Effluent) / Average Influent] x 100% = Percent Removal. Influent and effluent samples are to be taken during the same month. The Average Influent and Average Effluent values are to be calculated by adding the respective values together and dividing by the number of samples taken during the month. Influent samples are to be collected as a 24-hour composite sample, composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

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

OUTFALL #001

TABLE A-2.
EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. In accordance with 10 CSR 20-7.031, the final effluent limitations outlined in **Table A-2** must be achieved as soon as possible but no later than **April 1, 2023**. These interim effluent limitations in **Table A-2** are effective beginning **August 1, 2020** and remain in effect through **March 31, 2023** or as soon as possible. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

Limit Set: M

EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Ammonia as N	mg/L	*		*	once/month	composite**

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

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations in **Table A-2** shall become effective on **April 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
Ammonia as N						
(January)		12.1		3.1		
(February)		12.1		3.1		
(March)		10.1		2.7		
(April)		8.4		2.1		
(May)		12.1		2.1		
(June)	mg/L	10.1		1.3	once/month	composite**
(July)		8.4		0.9		
(August)		8.4		0.9		
(September)		8.4		1.2		
(October)		8.4		1.8		
(November)		8.4		2.4		
(December)		10.1		2.7		

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

* Monitoring requirement only.

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

OUTFALL #001	TABLE A-3. WHOLE EFFLUENT TOXICITY FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations in **Table A-3** shall become effective on **August 1, 2020** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: WA						
Acute Whole Effluent Toxicity (**Note 3**)	TU_a	*			once/year	composite**
ACUTE WET TEST MONITORING REPORTS SHALL BE SUBMITTED **ANNUALLY**; THE FIRST REPORT IS DUE JANUARY 28, 2022.						
Limit Set: WC						
Chronic Whole Effluent Toxicity (**Note 4**)	TU_c	*			once/permit cycle	composite**
CHRONIC WET TEST REPORTS SHALL BE SUBMITTED **ONCE PER PERMIT CYCLE**; THE FIRST REPORT IS DUE JANUARY 28, 2021.						

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

Note 3 – The Acute WET test shall be conducted in the years 2021, 2022, 2023, and 2024. See Special Condition #16 for additional requirements.

Note 4 – The Chronic WET test shall be conducted in the year 2020. An Acute WET test is not required during the year of the Chronic test. See Special Condition #17 for additional requirements.

PERMITTED FEATURE INF	TABLE B-1. INFLUENT MONITORING REQUIREMENTS

The monitoring requirements in **Table B-1** shall become effective on **August 1, 2020** 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
Limit Set: IM						
Biochemical Oxygen $Demand_5$ (**Note 2, Page 6**)	mg/L			*	once/month	composite**
Total Suspended Solids (**Note 2, Page 6**)	mg/L			*	once/month	composite**
Ammonia as N	mg/L	*		*	once/month	composite**
Total Phosphorus	mg/L	*		*	once/month	composite**
Total Kjeldahl Nitrogen	mg/L	*		*	once/month	composite**
Nitrite + Nitrate	mg/L	*		*	once/month	composite**
MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE SEPTEMBER 28, 2020.						

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

Note 2 – Influent sampling for BOD_5 and TSS is not required when the facility does not discharge effluent during the reporting period. Samples are to be collected prior to any treatment process. Calculate Percent Removal by using the following formula: [(Average Influent –Average Effluent) / Average Influent] x 100% = Percent Removal. Influent and effluent samples are to be taken during the same month. The Average Influent and Average Effluent values are to be calculated by adding the respective values together and dividing by the number of samples taken during the month. Influent samples are to be collected as a 24-hour composite sample, composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

C. SCHEDULE OF COMPLIANCE

The permit for this facility issued on April 1, 2017 included new effluent limitations, and a 3 year schedule to attain compliance with those final effluent limitations. The permittee is working toward achieving compliance with the final effluent requirements for Ammonia and has requested a three (3) year extension of the schedule of compliance. The Department has granted the extension and compliance must be achieved by **April 1, 2023**.

1. The permittee shall submit an interim progress reports detailing progress made and attaining compliance with final effluent every 12 months from April 1, 2017.

2. The permittee shall attain compliance with the final effluent limits by April 1, 2023.

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.

E. SPECIAL CONDITIONS

1. Electronic Discharge Monitoring Report (eDMR) Submission System.
   (a) Discharge Monitoring Reporting Requirements. The permittee must electronically submit compliance monitoring data via the eDMR system. In regards to Standard Conditions Part I, Section B, #7, the eDMR system is currently the only Department approved reporting method for this permit.
   (b) Programmatic Reporting Requirements. The following reports (if required by this permit) must be electronically submitted as an attachment to the eDMR system until such a time the current or a new system is available to allow direct input of the data:
      (1) Collection System Maintenance Annual Reports;
      (2) Sludge/Biosolids Annual Reports;
         i. In addition to the annual Sludge/Biosolids report submitted to the Department, the permittee must submit Sludge/Biosolids Annual Reports electronically using EPA's NPDES Electronic Reporting Tool ("NeT") (https://cdx.epa.gov/).
      (3) Pretreatment Program Reports; and
      (4) Any additional report required by the permit excluding bypass reporting.

      After such a system has been made available by the Department, required data shall be directly input into the system by the next report due date.
   (c) Other actions. The following shall be submitted electronically after such a system has been made available by the Department:
      (1) Notices of Termination (NOTs);
      (2) No Exposure Certifications (NOEs); and
      (3) Bypass reporting, See Special Condition #11 for 24-hr. bypass reporting requirements.
   (d) Electronic Submissions. To access the eDMR system, use the following link in your web browser: https://edmr.dnr.mo.gov/edmr/E2/Shared/Pages/Main/Login.aspx.
   (e) Waivers from Electronic Reporting. The permittee must submit compliance monitoring data and reports electronically. The Department may grant a waiver to a permittee in compliance with 40 CFR Part 127. The permittee may obtain an electronic reporting waiver by first submitting an eDMR Waiver Request Form: http://dnr.mo.gov/forms/780-2692-f.pdf. The Department will either approve or deny this electronic reporting waiver request within 120 calendar days. Only permittees with an approved waiver request may submit monitoring data and reports on paper to the Department for the period that the approved electronic reporting waiver is effective.

E. SPECIAL CONDITIONS (continued)

2. On June 5, 2012, EPA published its Integrated Municipal Stormwater and Wastewater Planning Approach Framework ("Framework"). The stated purpose of the Framework is to assist municipalities on their critical paths to achieving the human health and water quality objectives of the Clean Water Act by identifying efficiencies in implementing requirements that arise from distinct wastewater and stormwater programs, including how to best prioritize capital investments. One of the six elements in the framework is "Improvements to the Plan". The City developed the "Boonville Integrated Management Plan", dated September 18, 2012. The 2012 integrated management plan was acknowledged by the Department in the Settlement Agreement dated June 6, 2013. The City has subsequently submitted updates to the plan; the latest is included in **Appendix – Integrated Management Plan**. The Department has agreed to consider the City's Integrated Management Plan and subsequent updates when making future wastewater and storm water regulatory decisions affecting the City.
   (a) The Integrated Management Plan outlines anticipated schedules for the following long-range management actions and investments:
      (1) Wastewater treatment improvements
      (2) Wastewater collection system capacity, renewal, and maintenance
      (3) Stormwater management
   (b) The Integrated Management Plan includes a 5-year action plan that guides the City's implementation activities.
   (c) The City will provide the Department with an implementation progress report annually, by **April 30th**, for the previous City fiscal year. The report shall be submitted to the Missouri Department of Natural Resources, Water Protection Program, Attn: Integrated Management Plan Coordinator, PO Box 176, Jefferson City, MO 65102. The report will include the following:
      (1) Implementation activities performed during the prior year;
      (2) Any proposed updates to the Integrated Management Plan; and
      (3) Implementation activities planned for the following year.

3. 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.

4. All outfalls must be clearly marked in the field. This does not include instream monitoring locations.

5. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(2)(B) within the timeframe allotted by the continuing authority with its notice of its availability. The permittee shall obtain Department approval for closure according to section 10 CSR 20-6.010(12) or alternate use of these facilities.

6. Report as no-discharge when a discharge does not occur during the report period. For instream samples, report as "C – No Discharge" if no stream flow occurs during the report period.

7. Reporting of Non-Detects:
   (a) An analysis conducted by the permittee or their contracted laboratory shall be conducted in such a way that the precision and accuracy of the analyzed result can be enumerated.
   (b) The permittee shall not report a sample result as "Non-Detect" without also reporting the detection limit of the test. Reporting as "Non Detect" without also including the detection limit will be considered failure to report, which is a violation of this permit.
   (c) The permittee shall provide the "Non-Detect" sample result using the less than sign and the minimum detection limit (e.g. <10).
   (d) Where the permit contains a Minimum Level (ML) and the permittee is granted authority in the permit to report zero in lieu of the < ML for a specified parameter (conventional, priority pollutants, metals, etc.), then zero (0) is to be reported for that parameter.
   (e) See Standard Conditions Part I, Section A, #4 regarding proper detection limits used for sample analysis.
   (f) When calculating monthly averages, use one-half of the method detection limit (MDL) instead of a zero. Where all data are below the MDL, the "<MDL" shall be reported as indicated in item (c).

8. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).

E. SPECIAL CONDITIONS (continued)

9. 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.

10. The permittee shall continue to implement a program for maintenance and repair of its collection system in accordance with the City's Integrated Management Plan, which was acknowledged by the Department in the Settlement Agreement dated June 6, 2013. The permittee may compare collection system performance results and other data with the benchmarks used in the Departments' Capacity, Management, Operation, And Maintenance (CMOM) Model located at http://dnr.mo.gov/env/wpp/permits/docs/cmom-template.doc. Additional information regarding the Departments' CMOM Model is available at http://dnr.mo.gov/pubs/pub2574.htm.

    The permittee shall also submit a report via the Electronic Discharge Monitoring Report (eDMR) Submission System annually, by **January 28th**, for the previous calendar year. The report shall contain the following information:
    (a) A summary of the efforts to locate and eliminate specific sources of excessive infiltration and inflow into the collection system serving the facility for the previous year.
    (b) A summary of the general maintenance and repairs to the collection system serving the facility for the previous year.
    (c) A summary of any planned maintenance and repairs to the collection system serving the facility for the upcoming calendar year. This list shall include locations (GPS, 911 address, manhole number, etc.) and actions to be taken.

11. Bypasses are not authorized at this facility unless they meet the criteria in 40 CFR 122.41(m). If a bypass occurs, the permittee shall report in accordance to 40 CFR 122.41(m)(3), and with Standard Condition Part I, Section B, subsection 2. Bypasses are to be reported to the Northeast Regional Office during normal business hours or by using the online Sanitary Sewer Overflow/Facility Bypass Application located at: https://dnr.mo.gov/mogem/ or the Environmental Emergency Response spill-line at 573-634-2436 outside of normal business hours. Once an electronic reporting system compliant with 40 CFR Part 127, the National Pollutant Discharge Elimination System (NPDES) Electronic Reporting Rule, is available all bypasses must be reported electronically via the new system. Blending, which is the practice of combining a partially-treated wastewater process stream with a fully-treated wastewater process stream prior to discharge, is not considered a form of bypass. If the permittee wishes to utilize blending, the permittee shall file an application to modify this permit to facilitate the inclusion of appropriate monitoring conditions.

12. The facility must be sufficiently secured to restrict entry by children, livestock and unauthorized persons as well as to protect the facility from vandalism.

13. An Operation and Maintenance (O & M) manual shall be maintained by the permittee and made available to the operator. The O & M manual shall include key operating procedures and a brief summary of the operation of the facility.

14. An all-weather access road to the treatment facility shall be maintained.

15. The outfall sewer shall be protected and maintained against the effects of floodwater, ice, or other hazards as to reasonably insure its structural stability, freedom from stoppage, and that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters.

16. 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:
        - The fathead minnow, *Pimephales promelas* (Acute Toxicity EPA Test Method 2000.0).
        - The daphnid, *Ceriodaphnia dubia* (Acute Toxicity EPA Test Method 2002.0).
    (b) Chemical and physical analysis of the upstream control sample and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping. Where upstream receiving water is not available or known to be toxic, other approved control water may be used.
    (c) Test conditions must meet all test acceptability criteria required by the EPA Method used in the analysis.
    (d) The laboratory shall not chemically dechlorinate the sample.
    (e) The Allowable Effluent Concentration (AEC) is 100%; the dilution series is: 6.25%, 12.5%, 25%, 50%, and 100%.

E. SPECIAL CONDITIONS (continued)

(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.

17. Chronic Whole Effluent Toxicity (WET) tests shall be conducted as follows:

(a) Freshwater Species and Test Methods: Species and short-term test methods for estimating the chronic toxicity of NPDES effluents are found in the most recent edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms (EPA/821/R-02/013; Table IA, 40 CFR Part 136).* The permittee shall concurrently conduct 7-day, static renewal toxicity tests with the following species:

- The fathead minnow, *Pimephales promelas* (Survival and Growth Test Method 1000.0).
- 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.

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

(a) The permittee shall submit to the Department via the Electronic Discharge Monitoring Report (eDMR) Submission System on or before **March 31st** of each year a report briefly describing its pretreatment activities during the previous calendar year. At a minimum, the report shall include the following:

(1) An updated list of the Permittee's Industrial Users, including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Permittee shall provide a brief explanation of each deletion. This list shall identify which Industrial Users are subject to categorical pretreatment Standards and specify which Standards are applicable to each Industrial User. The list shall indicate which Industrial Users are subject to local standards that are more stringent than the categorical Pretreatment Standards. The Permittee shall also list the Industrial Users that are subject only to local Requirements;

(2) A summary of the status of Industrial User compliance over the reporting period;

(3) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and

(4) Any other relevant information requested by the Department.

19. Stormwater Pollution Prevention Plan (SWPPP): A SWPPP must be implemented upon permit issuance. Through implementation of the SWPPP, the permittee shall minimize the release of pollutants in stormwater from the facility to the waters of the state. The SWPPP shall be developed in consultation with the concepts and methods described in the following document: Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators, (Document number EPA 833-B-09-002) published by the United States Environmental Protection Agency (USEPA) in June 2015.

(a) The SWPPP must identify any stormwater outfall from the facility and Best Management Practices (BMPs) used to prevent or reduce the discharge of contaminants in stormwater. The stormwater outfalls shall either be marked in the field or clearly marked on a map and maintained with the SWPPP.

(b) The SWPPP must include a schedule and procedures for a once per month routine site inspection.

(1) The monthly routine inspection shall be documented in a brief written report, which shall include:

i. The person(s) conducting the inspection.
ii. The inspection date and time.
iii. Weather information for the day of the inspection.

E. SPECIAL CONDITIONS (continued)

iv. Precipitation information for the entire period since the last inspection.
v. Description of the discharges observed, including visual quality of the discharges (sheen, turbid, etc.).
vi. Condition of BMPs
vii. If BMPs were replaced or repaired.
viii. Observations and evaluations of BMP effectiveness.

(2) Any deficiency observed during the routine inspection must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report.
(3) The routine inspection reports must be kept onsite with the SWPPP and maintained for a period of five (5) years.
(4) The routine inspection reports shall be made available to Department personnel upon request.

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

(2) Any deficiency observed during the comprehensive inspection must be corrected within seven (7) days and the actions taken to correct the deficiencies shall be included with the written report.
(3) The comprehensive inspection reports must be kept onsite with the SWPPP and maintained for a period of five (5) years.
(4) The comprehensive inspection reports shall be made available to Department personnel upon request.

(d) The SWPPP must be kept on-site and should not be sent to the Department unless specifically requested.
(e) The SWPPP must be reviewed and updated at a minimum once per permit cycle, as site conditions or control measures change.

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

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

Missouri Department of Natural Resources
Factsheet Addendum
For Pretreatment Program Modification
#MO-0040738
Boonville Wastewater Treatment Plant

This addendum gives pertinent information regarding minor/simple modification(s) to the above listed operating permit for a public comment process.

An addendum is not an enforceable part of a Missouri State Operating Permit.

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

Part I – Proposed Pretreatment Program Modification

☒ - The Department is not required to Public Notice this program modification.

This is a non-substantial modification of the city's pretreatment program, according to the 40 CFR 403.18(b)(1). These changes do not require public notice. The pretreatment program is hereby approved pursuant to 40 CFR 403.18 (adopted in 10 CSR 20-6.100) and the city of Boonville should proceed to implement the pretreatment program requirements upon receipt of this permit modification.

The city is adopting the U.S. Environmental Protection Agency's (EPA's) 2005 amendments to the federal General Pretreatment Regulation at 40 CFR 403. Modifications to the sewer use ordinance (SUO) and enforcement response plan (ERP) that incorporate the revisions to a federal rule are non-substantial changes, as stated in the publication of the 2005 Streamlining Rule in the Federal Registry at 70 FR 60187 and in 40 CFR 403.18(b)(1). The pretreatment program changes included updated local limits after conducting a detailed local limit analysis that is part of this program modification. These local limit changes were designated non-substantial modifications because the city's modification to its SUO, pursuant to 40 CFR 403.18(b)(2), included reallocation of Maximum Allowable Industrial Loading for all pollutants that did not increase loading of these pollutants.

Part II – Reason for the NPDES Permit Modification

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

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

Date of addendum: 04/27/2021
Completed by:

Todd Blanc,
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Water Protection Program
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MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0040738
BOONVILLE WASTEWATER TREATMENT PLANT

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

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

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

This Factsheet is for a Major facility.

Part I – Facility Information

Facility Type: POTW

Facility Description: Bar screen / grit removal / aerated flow equalization basin with lift station to reroute flow to headworks / oxidation ditch / secondary clarifiers (2) / UV disinfection / aerobic sludge digestion / sludge filter belt press / sludge sent to transfer station to be landfilled or biosolids are land applied

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

Application Date: 06/24/19
Expiration Date: 12/31/19

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
#001	3.1	Secondary	Municipal

Facility Performance History:
This facility was last inspected on May 15, 2018. The conditions of the facility at the time of inspection were found to be satisfactory.

Comments:
Changes in this permit include the addition of monthly influent monitoring for nutrients; increased monitoring frequency of nutrients in the effluent from quarterly to monthly; and the removal of Total Recoverable Chromium III, Copper, Nickel, Zinc, Total Dissolved Chromium VI, Total Hardness, and upstream nutrient monitoring. See Part VI of the Fact Sheet for further information regarding the addition, revision, and removal of effluent parameters.

The City of Boonville developed the “Boonville Integrated Management Plan” (IMP), dated September 18, 2012. One of the phases of the IMP includes relocating Outfall #001 to the Missouri River (P) (701). The revised IMP from April 27, 2018 includes the target date to begin construction as February 15, 2023.

Part II – Operator Certification Requirements

✓ This facility is required to have a certified operator.

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

Owned or operated by or for a

- ☒ - Municipalities
- ☐ - County
- ☐ - Public Sewer District
- ☐ - State agency
- ☐ - Public Water Supply Districts
- ☐ - Private Sewer Company regulated by the Public Service Commission

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

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

Operator's Name: Bernita Bright
Certification Number: 1544
Certification Level: WW-A

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

Part III – Operational Control Testing Requirements

Missouri Clean Water Commission regulation 10 CSR 20-9.010 requires certain publicly owned treatment works and privately owned facilities regulated by the Public Service Commission to conduct internal operational control monitoring to further ensure proper operation of the facility and to be a safeguard or early warning for potential plant upsets that could affect effluent quality. This requirement is only applicable if the publicly owned treatment works and privately owned facilities regulated by the Public Service Commission has a Population Equivalent greater than two hundred (200).

10 CSR 20-9.010(3) allows the Department to modify the monitoring frequency required in the rule based upon the Department's judgement of monitoring needs for process control at the specified facility.

✓ As per [10 CSR 20-9.010(4))], the facility is required to conduct operational monitoring. These operational monitoring reports are to be submitted to the Department along with the MSOP discharge monitoring reports.

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

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

Part IV – Receiving Stream Information

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

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
100K Extent Remaining Streams	C	3960	AQL, HHP, IRR, LWW, SCR, WBC-B	10300102-0501	Direct Discharge
Missouri River	P	701	AQL, DWS, HHP, IND, IRR, LWW, SCR, WBC-B		1.38

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

Uses found in the receiving streams table, above:

10 CSR 20-7.031(1)(C)1.:
AQL = Protection of aquatic life (Current narrative use(s) are defined to ensure the protection and propagation of fish shellfish and wildlife, which is further subcategorized as: WWH = Warm Water Habitat; **CDF** = Cold-water fishery (Current narrative use is cold-water habitat.); **CLF** = Cool-water fishery (Current narrative use is cool-water habitat); EAH = Ephemeral Aquatic Habitat; MAH = Modified Aquatic Habitat; LAH = Limited Aquatic Habitat. This permit uses AQL effluent limitations in 10 CSR 20-7.031 Table A for all habitat designations unless otherwise specified.)

10 CSR 20-7.031(1)(C)2.: Recreation in and on the water
WBC = Whole Body Contact recreation where the entire body is capable of being submerged;
WBC-A = Whole body contact recreation that supports swimming uses and has public access;
WBC-B = Whole body contact recreation that supports swimming;
SCR = Secondary Contact Recreation (like fishing, wading, and boating).

10 CSR 20-7.031(1)(C)3. to 7.:
HHP (formerly HHF) = Human Health Protection as it relates to the consumption of fish;
IRR = Irrigation for use on crops utilized for human or livestock consumption;
LWW = Livestock and wildlife watering (Current narrative use is defined as LWP = Livestock and Wildlife Protection);
DWS = Drinking Water Supply;
IND = Industrial water supply

10 CSR 20-7.031(1)(C)8-11.: Wetlands (10 CSR 20-7.031 Table A currently does not have corresponding habitat use criteria for these defined uses)
WSA = Storm- and flood-water storage and attenuation; WHP = Habitat for resident and migratory wildlife species;
WRC = Recreational, cultural, educational, scientific, and natural aesthetic values and uses; WHC = Hydrologic cycle maintenance.

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

RECEIVING STREAM(S) LOW-FLOW VALUES: OUTFALL #001 (INTERIM)

RECEIVING STREAM	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
100K Extent Remaining Streams (C)	0	0	0

MIXING CONSIDERATIONS TABLE: OUTFALL #001 (INTERIM)

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

Receiving Water Body's Water Quality

Currently, the Department has not conducted a stream survey for this waterbody. When a stream survey is conducted, more information may be available about the receiving stream.

Part V – Rationale and Derivation of Effluent Limitations & Permit Conditions

ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:
As per [10 CSR 20-7.015(4)(A)], discharges to losing streams shall be permitted only after other alternatives including land application, discharges to a gaining stream, and connection to a regional wastewater treatment facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons.

✓ The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(40)] & [10 CSR 20-7.031(1)(O)], or is an existing facility.

ANTI-BACKSLIDING:
A provision in the Federal Regulations [CWA §303(d)(4); CWA §402(o); 40 CFR Part 122.44(l)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

✓ Limitations in this operating permit for the reissuance of this permit conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 CFR Part 122.44.

✓ Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

- **Ammonia as N**. The City of Boonville has an Integrated Management Plan (IMP) for wastewater system improvements and compliance, which includes a plan to relocate Outfall #001 to directly discharge to Missouri River (P) (701). The previous permit included final effluent limits for Ammonia and a schedule of compliance to meet those limits, which ended February 11, 2020. This permit includes an extension of the schedule to March 31, 2023 and interim monitoring for Ammonia was reestablished. The permit is still protective of water quality and this determination will be reassessed at the time of renewal.

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

- **Metals and Total Hardness**. A Reasonable Potential Analysis was conducted and it was determined that there is no reasonable potential to cause and excursion of the water quality standards for Total Recoverable Chromium III, Total Dissolved Chromium VI, Total Recoverable Copper, Total Recoverable Nickel, and Total Recoverable Zinc in the receiving stream. As a result, monitoring requirements have been removed. Total Hardness was also removed from this permit as there are no requirements for hardness dependent metals. The permit is still protective of water quality and this determination will be reassessed at the time of renewal. Please see **Appendix – RPA Results** for more information.

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

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

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

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

AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:
As per [10 CSR 20-6.010(2)(C)], …An applicant may utilize a lower preference continuing authority by submitting, as part of the application, when a higher level authority is available, must submit information to the Department for review and approval, provided it does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the Department.

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

✓ Sludge sent to transfer station to be landfilled or biosolids are land applied. Permittee is authorized to land apply biosolids in accordance with Standard Conditions III.

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

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

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

Operational Monitoring Lagoon: http://dnr.mo.gov/forms/780-2801-f.pdf
Operational Monitoring Mechanical: http://dnr.mo.gov/forms/780-2800-f.pdf
I&I Report: http://dnr.mo.gov/forms/780-2690-f.pdf

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

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

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

NUMERIC LAKE NUTRIENT CRITERIA

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

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

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

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

- Implementation and enforcement of the program,
- Annual pretreatment report submittal,
- Submittal of list of industrial users,
- Technical evaluation of need to establish local limitations, and
- Submittal of the results of the evaluation

✓ This permittee has an approved pretreatment program in accordance with the requirements of [40 CFR Part 403] and [10 CSR 20-6.100] and is expected to implement and enforce its approved program.

REASONABLE POTENTIAL ANALYSIS (RPA):

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

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

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

REMOVAL EFFICIENCY:

Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD_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 http://dnr.mo.gov/env/wpp/permits/docs/cmom-template.doc. For additional information regarding the Departments' CMOM Model, see the CMOM Plan Model Guidance document at http://dnr.mo.gov/pubs/pub2574.htm. The CMOM identifies some of the criteria used to evaluate a collection system's management, operation, and maintenance and was intended for use by the EPA, state, regulated community, and/or third party entities. The CMOM is applicable to small, medium, and large systems; both public and privately owned; and both regional and satellite collection systems. The CMOM does not substitute for the Clean Water Act, the Missouri Clean Water Law, and both federal and state regulations, as it is not a regulation.

SCHEDULE OF COMPLIANCE (SOC):

Per 644.051.4 RSMo, a permit may be issued with a Schedule of Compliance (SOC) to provide time for a facility to come into compliance with new state or federal effluent regulations, water quality standards, or other requirements. Such a schedule is not allowed if the facility is already in compliance with the new requirement, or if prohibited by other statute or regulation. A SOC includes an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit. *See also* Section 502(17) of the Clean Water Act, and 40 CFR §122.2. For new effluent limitations, the permit may include interim monitoring for the specific parameter to demonstrate the facility is not already in compliance with the new requirement. Per 40 CFR § 122.47(a)(1), 10 CSR 20-7.031(11), and 10 CSR 20-7.015(9), compliance must occur as soon as possible. If the permit provides a schedule for meeting new water quality based effluent limits, a SOC must include an enforceable, final effluent limitation in the permit even if the SOC extends beyond the life of the permit.

A SOC is not allowed:

- For effluent limitations based on technology-based standards established in accordance with federal requirements, if the deadline for compliance established in federal regulations has passed. 40 CFR § 125.3.
- For a newly constructed facility in most cases. Newly constructed facilities must meet applicable effluent limitations when discharge begins, because the facility has installed the appropriate control technology as specified in a permit or antidegradation review. A SOC is allowed for a new water quality based effluent limit that was not included in a previously public noticed permit or antidegradation review, which may occur if a regulation changes during construction.
- To develop a TMDL, UAA, or other study that may result in site-specific criteria or alternative effluent limits. A facility is not prohibited from conducting these activities, but a SOC may not be granted for conducting these activities.

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

✓ The facility was previously granted a three (3) year SOC to achieve compliance with final effluent requirements for Ammonia. The City of Boonville Integrated Management Plan (IMP) details the schedule to achieve compliance. The IMP includes a plan to relocate Outfall #001 to the Missouri River. The revised IMP from April 27, 2018 updated the target date for outfall construction to be February 15, 2023. The extension of the schedule of compliance until March 31, 2023 should provide adequate time to secure easements from property owners, complete a facility plan and anti-degradation reevaluation, and construct the new outfall. The final effluent limits in this permit are reflective of the current outfall location and are subject to change with outfall relocation and mixing considerations.

SEWER EXTENSION AUTHORITY SUPERVISED PROGRAM:

In accordance with [10 CSR 20-6.010(6)(A)], the Department may grant approval of a permittee's Sewer Extension Authority Supervised Program. These approved permittees regulate and approve construction of sanitary sewers and pump stations, which are tributary to this wastewater treatment facility. The permittee shall act as the continuing authority for the operation, maintenance, and modernization of the constructed collection system. See http://dnr.mo.gov/env/wpp/permits/sewer-extension.htm.

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

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

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

In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in June 2015], BMPs are

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

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

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

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

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

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

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

VARIANCE:
As per the Missouri Clean Water Law § 644.061.4, variances shall be granted for such period of time and under such terms and conditions as shall be specified by the commission in its order. The variance may be extended by affirmative action of the commission. In no event shall the variance be granted for a period of time greater than is reasonably necessary for complying with the Missouri Clean Water Law §§644.006 to 644.141 or any standard, rule or regulation promulgated pursuant to Missouri Clean Water Law §§644.006 to 644.141.

✓ This operating permit is not drafted under premises of a petition for variance.

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

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

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

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

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

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

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

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

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

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

Under the federal Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System (NPDES). WET testing is also required by 40 CFR 122.44(d)(1). WET testing ensures that the provisions in the 10 CSR 20-6.010(8)(A) and the Water Quality Standards 10 CSR 20-7.031(4)(D),(F),(G),(J)2.A & B are being met. Under [10 CSR 20-6.010(8)(B)], the Department may require other terms and conditions that it deems necessary to assure compliance with the Clean Water Act and related regulations of the Missouri Clean Water Commission. In addition the following MCWL apply: §§§644.051.3 requires the Department to set permit conditions that comply with the MCWL and CWA; 644.051.4 specifically references toxicity as an item we must consider in writing permits (along with water quality-based effluent limits, pretreatment, etc…); and 644.051.5 is the basic authority to require testing conditions. WET test will be required by facilities meeting the following criteria:

☒ Facility is a designated Major.
☐ Facility continuously or routinely exceeds its design flow.
☐ Facility that exceeds its design population equivalent (PE) for BOD_5 whether or not its design flow is being exceeded.
☐ Facility (whether primarily domestic or industrial) that alters its production process throughout the year.
☐ Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
☒ Facility has Water Quality-based Effluent Limitations for toxic substances (other than NH_3)
☐ Facility is a municipality with a Design Flow ≥ 22,500 gpd.
☐ Other – please justify.

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

40 CFR 122.41(M) - BYPASSES:

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

✓ This facility does not anticipate bypassing.

303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):

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

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

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

Part VI – Effluent Limits Determination

OUTFALL #001 – MAIN FACILITY OUTFALL

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

EFFLUENT LIMITATIONS TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
Flow	MGD	1	*		*	*/*	1/day	monthly	T
BOD_5	mg/L	1		45	30	45/30	1/week	monthly	C
TSS	mg/L	1		45	30	45/30	1/week	monthly	C
*Escherichia coli***	#/100mL	1, 3		1,030	206	1,030/206	1/week	monthly	G
Ammonia as N January February March April May June July August September October November December	mg/L	2, 3	 12.1 12.1 10.1 8.4 12.1 10.1 8.4 8.4 8.4 8.4 8.4 10.1		 3.1 3.1 2.7 2.1 2.1 1.3 0.9 0.9 1.2 1.8 2.4 2.7	*/*	1/week	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
Oil & Grease	mg/L	1, 3	15		10	15/10	1/quarter	quarterly	G
Acute Whole Effluent Toxicity	TUa	1, 9	*			*	1/year	annually	C
Chronic Whole Effluent Toxicity	TUc	1, 9	*			*	1/permit cycle	1/permit cycle	C

PARAMETER	Unit	Basis for Limits	Minimum		Maximum	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
pH	SU	1	6.5		9.0	6.5-9.0	1/week	monthly	G

PARAMETER	Unit	Basis for Limits	Daily Minimum		Monthly Avg. Min	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
BOD_5 Percent Removal	%	1			85	85	1/month	monthly	M
TSS Percent Removal	%	1			85	85	1/month	monthly	M

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

**** - C = 24-hour composite
G = Grab
T = 24-hr. total
M = Measured/calculated

Basis for Limitations Codes:

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

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

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

- **Biochemical Oxygen Demand (BOD_5)**. Operating permit retains 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average from the previous permit. Effluent limits were established in accordance with 10 CSR 20-7.015(2) for discharges to the Missouri or Mississippi Rivers.

- **Total Suspended Solids (TSS)**. Operating permit retains 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average from the previous permit. Effluent limits were established in accordance with 10 CSR 20-7.015(2) for discharges to the Missouri or Mississippi Rivers.

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

- **Oil & Grease**. Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

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

- **pH**. 6.5-9.0 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.

- **Total Ammonia Nitrogen**. Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(5)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.01 mg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion.

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

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

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

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

Month	Temp (˚C)*	pH (SU)*	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
January	2.7	7.8	3.1	12.1
February	4.5	7.8	3.1	12.1
March	9.5	7.9	2.7	10.1
April	16.1	8.0	2.1	8.4
May	21.1	7.8	2.1	12.1
June	26.0	7.9	1.3	10.1
July	29.4	8.0	0.9	8.4
August	29.3	8.0	0.9	8.4
September	25.6	8.0	1.2	8.4
October	19.1	8.0	1.8	8.4
November	12.0	8.0	2.4	8.4
December	6.9	7.9	2.7	10.1

* Ecoregion Data (Interior River Valleys and Hills)

January
Chronic WLA:
C_e = ((3.1 + 0.0)3.1 – (0.0 * 0.01))/3.1 = 3.1 mg/L

Acute WLA:
C_e = ((3.1 + 0.0)12.1 – (0.0 * 0.01))/3.1 = 12.1 mg/L

Chronic WLA = AML = **3.1** mg/L
Acute WLA = MDL = **12.1** mg/L

February
Chronic WLA:
C_e = ((3.1 + 0.0)3.1 – (0.0 * 0.01))/3.1 = 3.1 mg/L

Acute WLA:
C_e = ((3.1 + 0.0)12.1 – (0.0 * 0.01))/3.1 = 12.1 mg/L

Chronic WLA = AML = **5.0** mg/L
Acute WLA = MDL = **12.1** mg/L

March
Chronic WLA:
C_e = ((3.1 + 0.0)2.7 – (0.0 * 0.01))/3.1 = 2.7 mg/L

Acute WLA:
C_e = ((3.1 + 0.0)10.1 – (0.0 * 0.01))/3.1 = 10.1 mg/L

Chronic WLA = AML = **2.7** mg/L
Acute WLA = MDL = **10.1** mg/L

April
Chronic WLA:
C_e = ((3.1 + 0.0)2.1 – (0.0 * 0.01))/3.1 = 2.1 mg/L

Acute WLA:
C_e = ((3.1 + 0.0)8.4 – (0.0 * 0.01))/3.1 = 8.4 mg/L

Chronic WLA = AML = **2.1** mg/L
Acute WLA = MDL = **8.4** mg/L

May
Chronic WLA:
C_e = ((3.1 + 0.0)2.1 – (0.0 * 0.01))/3.1 = 2.1 mg/L

Acute WLA:
C_e = ((3.1 + 0.0)12.1 – (0.0 * 0.01))/3.1 = 12.1 mg/L

Chronic WLA = AML = **2.1** mg/L
Acute WLA = MDL = **12.1** mg/L

June
Chronic WLA:
C_e = ((3.1 + 0.0)1.3 – (0.0 * 0.01))/3.1 = 1.3 mg/L

Acute WLA:
C_e = ((3.1 + 0.0)10.1 – (0.0 * 0.01))/3.1 = 10.1 mg/L

Chronic WLA = AML = **1.3** mg/L
Acute WLA = MDL = **10.1** mg/L

July
Chronic WLA:
C_e = ((3.1 + 0.0)0.9 – (0.0 * 0.01))/3.1 = 0.9 mg/L

Acute WLA:
C_e = ((3.1 + 0.0)8.4 – (0.0 * 0.01))/3.1 = 8.4 mg/L

Chronic WLA = AML = **0.9** mg/L
Acute WLA = MDL = **8.4** mg/L

August
Chronic WLA:
C_e = ((3.1 + 0.0)0.9 – (0.0 * 0.01))/3.1 = 0.9 mg/L

Acute WLA:
C_e = ((3.1 + 0.0)8.4 – (0.0 * 0.01))/3.1 = 8.4 mg/L

Chronic WLA = AML = **0.9** mg/L
Acute WLA = MDL = **8.4** mg/L

September
Chronic WLA:
C_e = ((3.1 + 0.0)1.2 – (0.0 * 0.01))/3.1 = 1.2 mg/L

Acute WLA:
C_e = ((3.1 + 0.0)8.4 – (0.0 * 0.01))/3.1 = 8.4 mg/L

Chronic WLA = AML = **1.2** mg/L
Acute WLA = MDL = **8.4** mg/L

October
Chronic WLA:
C_e = ((3.1 + 0.0)1.8 – (0.0 * 0.01))/3.1 = 1.8 mg/L

Acute WLA:
C_e = ((3.1 + 0.0)8.4 – (0.0 * 0.01))/3.1 = 8.4 mg/L

Chronic WLA = AML = **1.8** mg/L
Acute WLA = MDL = **8.4** mg/L

November
Chronic WLA:
C_e = ((3.1 + 0.0)2.4 – (0.0 * 0.01))/3.1 = 2.4 mg/L

Acute WLA:
C_e = ((3.1 + 0.0)8.4 – (0.0 * 0.01))/3.1 = 8.4 mg/L

Chronic WLA = AML = **2.4** mg/L
Acute WLA = MDL = **8.4** mg/L

December
Chronic WLA:
C_e = ((3.1 + 0.0)2.7 – (0.0 * 0.01))/3.1 = 2.7 mg/L

Acute WLA:
C_e = ((3.1 + 0.0)10.1 – (0.0 * 0.01))/3.1 = 10.1 mg/L

Chronic WLA = AML = **2.7** mg/L
Acute WLA = MDL = **10.1** mg/L

- **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.

Whole Effluent Toxicity

- **Acute Whole Effluent Toxicity**. Monitoring requirement only. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards.
  - ✓ Acute Allowable Effluent Concentrations (AECs) for facilities that discharge to Class C streams are 100%, 50%, 25%, 12.5%, & 6.25%.

- **Chronic Whole Effluent Toxicity**. Monitoring requirement only. Monitoring is required to determine if reasonable potential exists for this facility's discharge to exceed water quality standards.
  - Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to Class C streams are 100%, 50%, 25%, 12.5%, & 6.25%.

Parameters Removed.

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

- **Metals and Total Hardness**. A Reasonable Potential Analysis was conducted and it was deterred that there is no reasonable potential to cause and excursion of the water quality standards for Total Recoverable Chromium III, Total Dissolved Chromium VI, Total Recoverable Copper, Total Recoverable Nickel, and Total Recoverable Zinc in the receiving stream. As a result, monitoring requirements have been removed. The permit is still protective of water quality and this determination will be reassessed at the time of renewal. Please see **Appendix – RPA Results** for more information.

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

Sampling Frequency Justification: Sampling and Reporting Frequency was retained from previous permit, with the exception of nutrients, which were increased from quarterly to monthly. Weekly sampling is required for *E. coli*, per 10 CSR 20-7.015(9)(D)7.A.

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

Acute Whole Effluent Toxicity

✓ No less than **ONCE/YEAR**:

- Facility is designated as a Major facility or has a design flow ≥ 1.0 MGD.
- Facility incorporates a pretreatment program.

Chronic Whole Effluent Toxicity

✓ No less than **ONCE/PERMIT CYCLE**:

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

PERMITTED FEATURE INF – INFLUENT MONITORING

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

INFLUENT MONITORING TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
BOD_5	mg/L	1			*	***	1/month	monthly	C
TSS	mg/L	1			*	***	1/month	monthly	C
Ammonia as N	mg/L	1	*		*	***	1/month	monthly	C
Total Phosphorus	mg/L	1	*		*	***	1/month	monthly	C
Total Kjeldahl Nitrogen	mg/L	1	*		*	***	1/month	monthly	C
Nitrite + Nitrate	mg/L	1	*		*	***	1/month	monthly	C

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

Basis for Limitations Codes:

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

Influent Parameters

- **Biochemical Oxygen Demand (BOD_5) and Total Suspended Solids (TSS)**. An influent sample is required to determine the removal efficiency. In accordance with 40 CFR Part 133, removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to BOD_5 and TSS for Publicly Owned Treatment Works (POTWs)/municipals.

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

Sampling Frequency Justification: The sampling and reporting frequencies for Total Phosphorus and Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia parameters were established to match the required sampling frequency of these parameters in the effluent, per [10 CSR 20-7.015(9)(D)8.]. The sampling and reporting frequencies for influent BOD_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 May 15, 2018, no evidence of an excursion of this criterion has been observed by the Department in the past and the facility has not disclosed any other information related to the characteristics of the discharge on their permit application which has the potential to cause or contribute to an excursion of this narrative criterion. Additionally, this facility utilizes secondary treatment technology and is currently in compliance with secondary treatment technology based effluent limits established in this permit and there has been no indication to the Department that the stream has had issues maintaining beneficial uses as a result of this discharge. Based on the information reviewed during the drafting of this permit, these final effluent limitations appear to have protected against the excursion of this criterion in the past. Therefore, the discharge does not have the reasonable potential to cause or contribute to an excursion of this criterion.

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

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

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

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

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

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

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

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

Part VII – Cost Analysis for Compliance

Pursuant to Section 644.145, RSMo, when issuing permits under this chapter that incorporate a new requirement for discharges from publicly owned combined or separate sanitary or storm sewer systems or publicly owned treatment works, or when enforcing provisions of this chapter or the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., pertaining to any portion of a publicly owned combined or separate sanitary or storm sewer system or [publicly owned] treatment works, the Department of Natural Resources shall make a "finding of affordability" on the costs to be incurred and the impact of any rate changes on ratepayers upon which to base such permits and decisions, to the extent allowable under this chapter and the Federal Water Pollution Control Act. This process is completed through a cost analysis for compliance. Permits that do not include new requirements may be deemed affordable.

- ✓ The Department is required to determine "findings of affordability" because the permit applies to a combined or separate sanitary sewer system for a publicly-owned treatment works.

Cost Analysis for Compliance - The Department has made a reasonable search for empirical data indicating the permit is affordable. The search consisted of a review of Department records that might contain economic data on the community, a review of information provided by the applicant as part of the application, and public comments received in response to public notices of this draft permit. If the empirical cost data was used by the permit writer, this data may consist of median household income, any other ongoing projects that the Department has knowledge, and other demographic financial information that the community provided as contemplated by Section 644. 145.3.

The following table summarizes the results of the cost analysis. See **Appendix – Cost Analysis for Compliance** for detailed information.

Summary Table. Cost Analysis for Compliance Summary for the City of Boonville

New Permit Requirements			
Effluent sampling for Total Phosphorus, Total Kjeldahl Nitrogen, and Nitrite + Nitrate (increased from quarterly to monthly); Monthly influent sampling for Total Phosphorus, Total Kjeldahl Nitrogen, Nitrite + Nitrate, and Ammonia as N			
Estimated Annual Cost	Annual Median Household Income (MHI)	Estimated Monthly User Rate	User Rate as a Percent of MHI
$2,180	$38,028	$58.81	1.86%

Part VIII – Administrative Requirements

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

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

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

PERMIT SYNCHRONIZATION:

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

PUBLIC NOTICE:

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

- ✓ The Public Notice period for this operating permit was from May 1, 2020 to June 1, 2020. The City of Boonville submitted one comment regarding a typographical error, which was addressed in the final draft of this permit.

  Following the Public Notice period, the permit writer discovered a technical error in the Reasonable Potential Analysis for Ammonia which changed the assumptions from “Early Life Stages Present” to “Early Life Stages Absent”, resulting in less stringent limits for January, February, March, November, and December. The final effluent limits for Ammonia were recalculated with the “Early Life Stages Present” assumption, which resulted in more stringent limits for these months. This permit is still protective of water quality.

DATE OF FACT SHEET: MARCH 5, 2020

COMPLETED BY:

ASHLEY KEELY, ENVIRONMENTAL SPECIALIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT
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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.)	2
Design Flow (avg. day) or peak month's flow (avg. day) whichever is larger	1 pt. / MGD or major fraction thereof. (Max 10 pts.)	2
Effluent Discharge		
Missouri or Mississippi River	0	
All other stream discharges except to losing streams and stream reaches supporting whole body contact recreation	1	
Discharge to lake or reservoir outside of designated whole body contact recreational area	2	
Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation	3	3
Direct reuse or recycle of effluent	6	
Land Application/Irrigation		
Drip Irrigation	3	
Land application/irrigation	5	
Overland flow	4	
Variation in Raw Wastes (highest level only)		
Variations do not exceed those normally or typically expected	0	
Reoccurring deviations or excessive variations of 100 to 200 percent in strength and/or flow	2	2
Reoccurring deviations or excessive variations of more than 200 percent in strength and/or flow	4	
Department-approved pretreatment program	6	6
Preliminary Treatment		
STEP systems (operated by the permittee)	3	
Screening and/or comminution	3	3
Grit removal	3	3
Plant pumping of main flow	3	
Flow equalization	5	5
Primary Treatment		
Primary clarifiers	5	
Chemical addition (except chlorine, enzymes)	4	
Secondary Treatment		
Trickling filter and other fixed film media with or without secondary clarifiers	10	
Activated sludge (including aeration, oxidation ditches, sequencing batch reactors, membrane bioreactors, and contact stabilization)	15	15
Stabilization ponds without aeration	5	
Aerated lagoon	8	
Advanced Lagoon Treatment – Aerobic cells, anaerobic cells, covers, or fixed film	10	
Biological, physical, or chemical	12	
Carbon regeneration	4	
Total from page **ONE (1)**	----	41

APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Solids Handling		
Sludge Holding	5	
Anaerobic digestion	10	
Aerobic digestion	6	6
Evaporative sludge drying	2	
Mechanical dewatering	8	8
Solids reduction (incineration, wet oxidation)	12	
Land application	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)**	----	31
Total from page **ONE (1)**	---	41
Grand Total	---	66

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

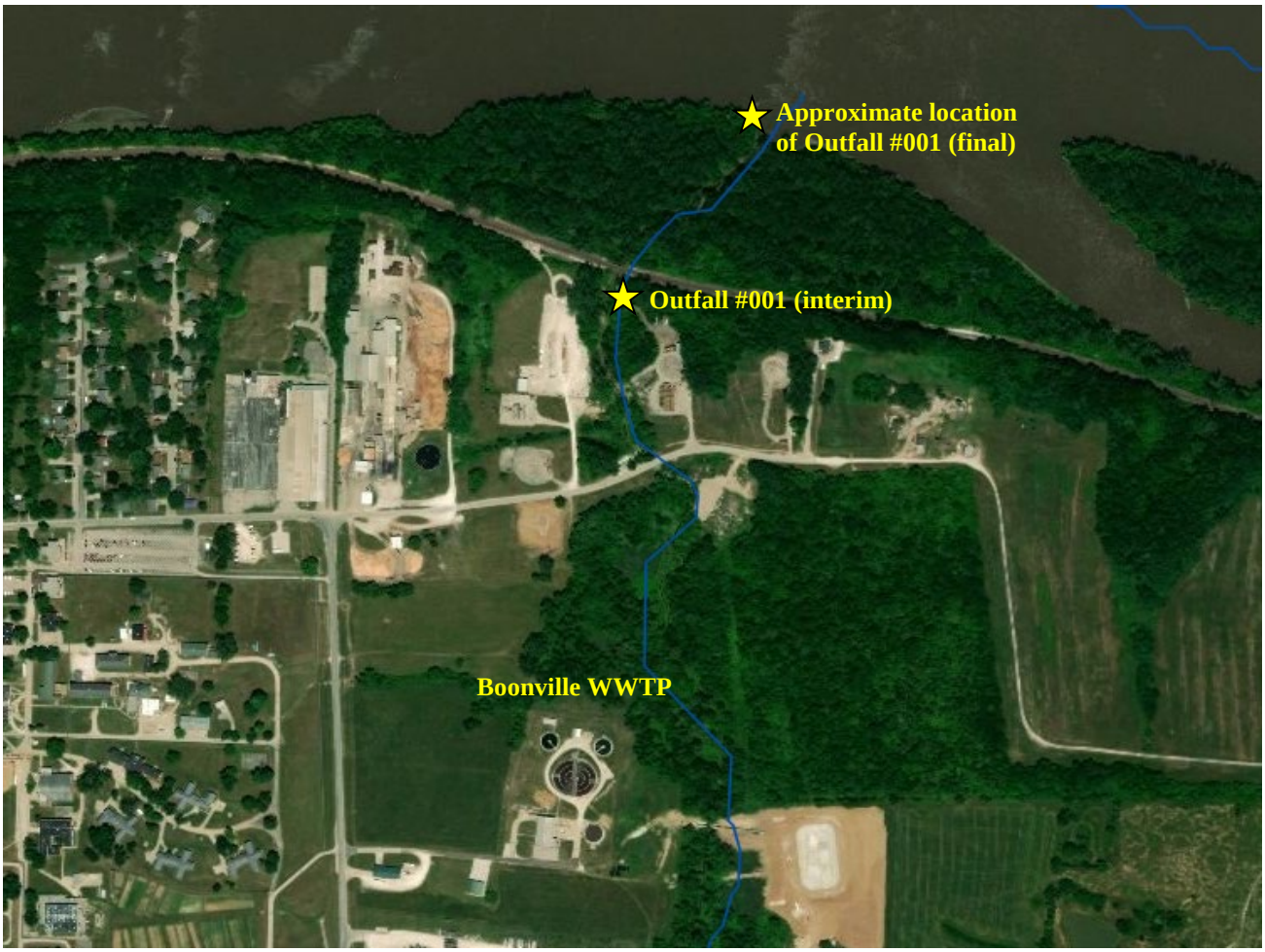
APPENDIX – RPA RESULTS:

Parameter	CMC*	RWC Acute*	CCC*	RWC Chronic*	n**	Range max/min	CV***	MF	RP Yes/No
Ammonia as N – January (mg/L)	12.1	18.35	3.1	18.354	5	4.37/0.1	0.60	4.2	YES
Ammonia as N – February (mg/L)	12.1	20.79	3.1	20.79	5	4.95/0.1	0.60	4.2	YES
Ammonia as N – March (mg/L)	10.1	34.44	2.7	34.44	5	8.2/0.253	0.60	4.2	YES
Ammonia as N – April (mg/L)	8.4	17.26	2.1	17.262	5	4.11/0.127	0.60	4.2	YES
Ammonia as N – May (mg/L)	12.1	15.08	2.1	15.078	5	3.59/0.118	0.60	4.2	YES
Ammonia as N – June (mg/L)	10.1	9.41	1.3	9.408	5	2.24/0.58	0.60	4.2	YES
Ammonia as N – July (mg/L)	8.4	16.17	0.9	16.17	5	3.85/0.326	0.60	4.2	YES
Ammonia as N – August (mg/L)	8.4	15.20	0.9	15.204	5	3.62/0.05	0.60	4.2	YES
Ammonia as N – September (mg/L)	8.4	8.36	1.2	8.358	5	1.99/0.276	0.60	4.2	YES
Ammonia as N – October (mg/L)	8.4	11.55	1.8	11.55	5	2.75/0.061	0.60	4.2	YES
Ammonia as N – November (mg/L)	8.4	14.24	2.4	14.238	5	3.39/0.108	0.60	4.2	YES
Ammonia as N – December (mg/L)	10.1	23.74	2.7	23.735	4	5.05/0.038	0.60	4.7	YES
Chromium III, Total Recoverable (µg/L)	4349.11	24.89	207.89	24.89	10	<10/<3	0.60	2.49	NO
Chromium VI, Dissolved (µg/L)	16	4.49	11	4.49	11	4/3	0.098	1.12	NO
Copper, Total Recoverable (µg/L)	38.53	15.27	23.38	15.27	13	9/3.7	0.301	1.70	NO
Nickel, Total Recoverable (µg/L)	1165.7	33.35	129.52	33.35	24	20/4	0.39	1.67	NO
Zinc, Total Recoverable (µg/L)	298.52	73.97	296.1	73.97	24	49/16	0.303	1.51	NO

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

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

APPENDIX – ALTERNATIVE:



APPENDIX – COST ANALYSIS FOR COMPLIANCE:

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

Boonville WWTP, Permit Renewal
City of Boonville
Missouri State Operating Permit #MO-0040738

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

New Permit Requirements

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

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

Connection Type	Number
Residential	2,732
Commercial & Industrial	340
Total	**3,072**

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

Eight Criteria of 644.145 RSMo
The Department must consider the eight (8) criteria presented in subsection 644.145 RSMo to evaluate the cost associated with new permit requirements.

(1) A community's financial capability and ability to raise or secure necessary funding;

Criterion 1 Table. Current Financial Information for the City of Boonville	
Current Monthly User Rates per 5,000 gallons*	$58.75
Median Household Income (MHI)[1]	$38,028
Current Annual Operating Costs (excludes depreciation)	$2,570,000

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

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

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

Criterion 2A Table. Estimated Cost Breakdown of New Permit Requirements			
New Requirement	Frequency	Estimated Cost	Estimated Annual Cost
Total Phosphorus – Effluent	Monthly (Increased from Quarterly)	$24	$192
Total Kjeldahl Nitrogen – Effluent	Monthly (Increased from Quarterly)	$33	$264
Nitrate + Nitrite – Effluent	Monthly (Increased from Quarterly)	$40	$320
Total Phosphorus – Influent	Monthly	$24	$288
Total Kjeldahl Nitrogen – Influent	Monthly	$33	$396
Nitrate + Nitrite – Influent	Monthly	$40	$480
Ammonia – Influent	Monthly	$20	$240
Total Estimated Annual Cost of New Permit Requirements			$2,180

Criterion 2B Table. Estimated Costs for New Permit Requirements		
(1)	Estimated Annual Cost	$2,180
(2)	Estimated Monthly User Cost for New Requirements [2]	$0.06
	Estimated Monthly User Cost for New Requirements as a Percent of MHI [3]	0.002%
(3)	Total Monthly User Cost*	$58.81
	Total Monthly User Cost as a Percent of MHI [4]	1.86%

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

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

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

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

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

(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 $2,467,500. The community reported that each user pays $58.75 monthly, of which, 4% is used toward payments on the current outstanding debt.

(5) An inclusion of ways to reduce economic impacts on distressed populations in the community, including but not limited to low and fixed income populations. This requirement includes but is not limited to:

(a) Allowing adequate time in implementation schedules to mitigate potential adverse impacts on distressed populations resulting from the costs of the improvements and taking into consideration local community economic considerations.
(b) Allowing for reasonable accommodations for regulated entities when inflexible standards and fines would impose a disproportionate financial hardship in light of the environmental benefits to be gained.

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

Criterion 5 Table. Socioeconomic Data [1, 5-9] for the City of Boonville

No.	Administrative Unit	Boonville City	Missouri State	United States
1	Population (2017)	8,388	6,075,300	321,004,416
2	Percent Change in Population (2000-2017)	2.3%	8.6%	14.1%
3	2017 Median Household Income (in 2018 Dollars)	$38,028	$52,801	$59,060
4	Percent Change in Median Household Income (2000-2017)	-24.6%	-7.7%	-6.7%
5	Median Age (2017)	36.9	38.4	37.8
6	Change in Median Age in Years (2000-2017)	7.0	2.3	2.5
7	Unemployment Rate (2017)	3.1%	5.8%	6.6%
8	Percent of Population Below Poverty Level (2017)	13.8%	14.6%	14.6%
9	Percent of Household Received Food Stamps (2017)	15.1%	12.2%	12.6%
10	(Primary) County Where the Community Is Located	Cooper County		

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

The community reported ongoing upgrades and projects to lift stations, cured-in-place-pipe-lining, and the collection system. The community also reported the recent addition of the flow equalization basin and upcoming plans to extend the discharge location in fiscal year 2022/2023.

(7) An assessment of factors set forth in the United States Environmental Protection Agency's guidance, including but not limited to the "Combined Sewer Overflow Guidance for Financial Capability Assessment and Schedule Development" that may ease the cost burdens of implementing wet weather control plans, including but not limited to small system considerations, the attainability of water quality standards, and the development of wet weather standards;

The new requirements associated with this permit will not impose a financial burden on the community, nor will they require the City of Boonville to seek funding from an outside source.

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

The Department contracted with Wichita State University to complete an assessment tool that would allow for predictions on rural Missouri community populations and future sustainability. The purpose of the study is to use a statistical modeling analysis in order to determine factors associated with each rural Missouri community that would predict the future population changes that could occur in each community. A stepwise regression model was applied to 19 factors which were determined as predictors of rural population change in Missouri. The model established a hierarchy of the predicting factors which allowed the model to place a weighted value on

each of the factors. A total of 745 rural towns and villages in Missouri received a weighted value for each of the predicting factors. The weighted values for each town / village were then added together to determine an overall decision score. The overall decision scores were then divided into five categories and each town was assigned to a different categorical group based on the overall decision score. The categorical groups were developed from the range of overall scores across all rural towns and villages within Missouri.

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

Conclusion and Finding

As a result of new regulations, the Department is proposing modifications to the current operating permit that may require the permittee to increase monitoring. The Department has considered the eight (8) criteria presented in subsection 644.145 RSMo to evaluate the cost associated with the new permit requirements.

This analysis examined whether the new sampling requirements affect the ability of an individual customer or household to pay a utility bill without undue hardship or unreasonable sacrifice in the essential lifestyle or spending patterns of the individual or household. After reviewing the above criteria, the Department finds that the new sampling requirements may result in a low burden with regard to the community's overall financial capability and a low financial impact for most individual customers/households; therefore, the new permit requirements are affordable.

References

1. (A) 2017 MHI in 2017 Dollar: United States Census Bureau. United States Census Bureau. 2013-2017 American Community Survey 5-Year Estimates, Table B19013: Median Household Income in the Past 12 Months (in 2017 Inflation-Adjusted Dollars). http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B19013&prodType=table.
   (B) 2000 MHI in 1999 Dollar: (1) For United States, United States Census Bureau (2003) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-2-1 Part 1. United States Summary, Table 5. Work Status and Income in 1999: 2000, Washington, DC. https://www.census.gov/prod/cen2000/phc-2-1-pt1.pdf. (2) For Missouri State, United States Census Bureau (2003) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-2-27, Missouri, Table 10. Work Status and Income in 1999: 2000, Washington, DC. https://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf.
   (C) 2018 CPI, 2017 CPI and 1999 CPI: U.S. Department of Labor Bureau of Labor Statistics (2018) Consumer Price Index - All Urban Consumers, U.S. City Average. All Items. 1982-84=100. http://data.bls.gov/timeseries/CUUR0000SA0?data_tool=Xgtable.
   (D) 2017 MHI in 2018 Dollar = 2017 MHI in 2017 Dollar x 2018 CPI /2017 CPI; 2000 MHI in 2018 Dollar = 2000 MHI in 1999 Dollar x 2018 CPI /1999 CPI.
   (E) Percent Change in Median Household Income (2000-2017) = (2017 MHI in 2018 Dollar - 2000 MHI in 2018 Dollar) / (2000 MHI in 2018 Dollar).
2. ($2,180/3,072)/12 = $0.06 (Estimated Monthly User Cost for New Requirements)
3. ($0.06/($38,028/12))100% = 0.002% (New Sampling Only)
4. ($58.81/($38,028/12))100% = 1.856% (Total User Cost)
5. (A) Total Population in 2017: United States Census Bureau. 2013-2017 American Community Survey 5-Year Estimates, Table B01003: Total Population - Universe: Total Population. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B01003&prodType=table. (B) Total Population in 2000: (1) For United States, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-1-1 Part 1. United States Summary, Table 1. Age and Sex: 2000, Washington, DC. https://www.census.gov/prod/cen2000/phc-1-1-pt1.pdf. (2) For Missouri State, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Population and Housing Characteristics, PHC-1-27, Missouri, Table 2. Age and Sex: 2000, Washington, DC. http://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf.
   (C) Percent Change in Population (2000-2017) = (Total Population in 2017 - Total Population in 2000) / (Total Population in 2000).
6. (A) Median Age in 2017: United States Census Bureau. 2013-2017 American Community Survey 5-Year Estimates, Table B01002: Median Age by Sex - Universe: Total population. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B01002&prodType=table.
   (B) Median Age in 2000: (1) For United States, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-1-1 Part 1. United States Summary, Table 1. Age and Sex: 2000, Washington, DC., Page 2. https://www.census.gov/prod/cen2000/phc-1-1-pt1.pdf. (2) For Missouri State, United States Census Bureau (2002) 2000 Census of Population and Housing, Summary Population and Housing Characteristics, PHC-1-27, Missouri, Table 2. Age and Sex: 2000, Washington, DC., Pages 64-92. http://www.census.gov/prod/cen2000/phc-2-27-pt1.pdf.
   (C) Change in Median Age in Years (2000-2017) = (Median Age in 2017 - Median Age in 2000).
7. United States Census Bureau. 2013-2017 American Community Survey 5-Year Estimates, B23025: Employment Status for the Population 16 Years and Over - Universe: Population 16 years and Over. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B23025&prodType=table.
8. United States Census Bureau. 2013-2017 American Community Survey 5-Year Estimates, Table S1701: Poverty Status in the Past 12 Months. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_S1701&prodType=table.
9. United States Census Bureau. 2013-2017 American Community Survey 5-Year Estimates, Table B22003: Receipt of Food Stamps/SNAP in the Past 12 Months by Poverty Status in the Past 12 Months for Households - Universe: Households. http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_B22003&prodType=table

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: Boonville Wastewater Plant

PERMIT NO.: MO-0040738

COUNTY: Cooper

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

AP32909

RECEIVED
JUN 24 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
6-24-19	400
JET PAY CONFIRMATION NUMBER	

PART A – BASIC APPLICATION INFORMATION

1. THIS APPLICATION IS FOR:

- ☐ An operating permit for a new or unpermitted facility. Construction Permit # _____
  (Include completed Antidegradation Review or request to conduct an Antidegradation Review, see instructions)
- ☒ An operating permit renewal: Permit #MO- 0040738 Expiration Date 12-31-19
- ☐ 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	
City of Boonville Wastewater Plant		660-882-4024	
ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE
1545 Cauthon Drive	Boonville	MO	65233

2.1 LEGAL DESCRIPTION (Facility Site): Sec. 36 , T 49N , R 17W COUNTY Cooper

2.2 UTM Coordinates Easting (X): ____ Northing (Y): ____ N38°58'28.4" W092°43'23.7"
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

2.3 Name of receiving stream: Lilly Branch

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

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

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
City of Boonville		660-882-2332	
ADDRESS	CITY	STATE	ZIP CODE
401 Main Street	Boonville	MO	65233

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

3.2 Are you a Publically Owned Treatment Works (POTW)? ☒ YES ☐ NO
If yes, is the Financial Questionnaire attached? ☒ YES ☐ NO See: [illegible]

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 Boonville		660-882-2332	
ADDRESS	CITY	STATE	ZIP CODE
401 Main Street	Boonville	MO	65233

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)
Bernita Bright	Chief Operator	1544
EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
wwtp@boonville-mo.org	660-882-4024	

6. FACILITY CONTACT

NAME	TITLE		
Bernita Bright	Chief Operator		
EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE		
wwtp@boonville-mo.org	660-882-4024		
ADDRESS	CITY	STATE	ZIP CODE
1545 Cauthon Dr. (Physical) 1200 Locust St. (mailing)	Boonville	MO	65233

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Boonville Wastewater Plant	MO-0040738	001

PART A – BASIC APPLICATION INFORMATION

7. FACILITY INFORMATION

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

Oxidation ditch, two clarifiers, aerobic digester, sludge sent to landfill, UV disinfection of effluent, Flow EQ Basin

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Boonville Wastewater Plant	MO-0040738	001

PART A – BASIC APPLICATION INFORMATION

7. FACILITY INFORMATION (continued)

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

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

7.3 Facility SIC Code:	Discharge SIC Code:
4952	

7.4 Number of people presently connected or population equivalent (P.E.): 3,400 Design P.E. 20,000

7.5 Connections to the facility:

Number of units presently connected:

Residential: 2,732 Commericial: 340 Industrial _____

7.6 Design Flow	Actual Flow
2.0 MGD	average flow for April 2019 was 1.206 MGD

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

Caterpillar

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

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

8. LABORATORY CONTROL INFORMATION

LABORATORY WORK CONDUCTED BY PLANT PERSONNEL

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

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Bonville Wastewater Plant	MO- 0040738	001

PART A – BASIC APPLICATION INFORMATION

9. SLUDGE HANDLING, USE AND DISPOSAL

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

9.2 Sludge production (Including sludge received from others): Design Dry Tons/Year Actual Dry Tons/Year 265.03 (for 2018)

9.3 Sludge storage provided: _____ Cubic feet; _____ Days of storage; 1.3 Average percent solids of sludge;

☐ No sludge storage is provided. ☐ Sludge is stored in lagoon. Digester 370,000 gallons

9.4 Type of storage:
☐ Holding Tank ☐ Building
☐ Basin ☐ Lagoon
☐ Concrete Pad ☒ Other (Describe) Digester

9.5 Sludge Treatment:
☐ Anaerobic Digester ☐ Storage Tank ☐ Lime Stabilization ☐ Lagoon
☒ Aerobic Digester ☐ Air or Heat Drying ☐ Composting ☐ Other (Attach Description)

9.6 Sludge use or disposal:
☐ Land Application ☐ Contract Hauler ☐ Hauled to Another Treatment Facility ☒ Solid Waste Landfill
☐ Surface Disposal (Sludge Disposal Lagoon, Sludge Held For More Than Two Years) ☐ Incineration
☐ Other (Attach Explanation Sheet) _____

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

NAME	EMAIL ADDRESS
Lueke Farms / Advanced Disposal	

ADDRESS	CITY	STATE	ZIP CODE
P.O. Box 402 / P.O. Box 247	St. Peters / Macon	MO	63376 / 63552

CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO.
Jake Luecks / Dan Buckley	660-833-5941 / 800-569-1598	MO-

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

NAME	EMAIL ADDRESS
Maple Hill Landfill	

ADDRESS	CITY	STATE	ZIP CODE
31226 Intrepid Dr. P.O. Box 247	Macon	Mo	63552

CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO.
Tim Carey	800-778-7652	MO- 0117471

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.
Boonville Wastewater Plant	MO-0040738	001

PART B – ADDITIONAL APPLICATION INFORMATION

10. COLLECTION SYSTEM

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

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

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

10.2 Length of sanitary sewer collection system in miles (If available, include totals from satellite collection systems) 51.7 miles

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

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

ON GOING CURED-IN-PLACE PIPE REHAB AND MANHOLE LINING PROGRAM

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.

THE DNR SANCTIONED INTEGRATED MANAGEMENT PLAN FOR WASTE WATER SYSTEM IMPROVEMENTS IS AN INTEGRAL COMPONENT OF THE CURRENT PERMIT. A COPY OF THE PLAN WITH UPDATES IS ATTACHED.

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Boonville Wastewater Plant	MO- 0040738	001

PART B – ADDITIONAL APPLICATION INFORMATION

14. EFFLUENT TESTING DATA

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

Outfall Number 001

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum) April 2019	7.6	S.U.	7.8	S.U.	6
pH (Maximum) April 2019	7.9	S.U.	7.8	S.U.	6
Flow Rate April 2019	2.370	MGD	1.206	MGD	30

*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) April 2019 BOD_5	5.18	mg/L	4.12	mg/L	5	SM5210B	
$CBOD_5$		mg/L		mg/L			
E. COLI	24.1	#/100 mL	8.79	#/100 mL	5	Idexx	
TOTAL SUSPENDED SOLIDS (TSS)	4	mg/L	3	mg/L	5	SM2540D	
TOTAL PHOSPHORUS	5.25	mg/L	3.54	mg/L	4	EPA 200.7	
TOTAL KJELDAHL NITROGEN	1.07	mg/L	.63	mg/L	4	SM4500-NH3D	
NITRITES + NITRATES	24.7	mg/L	18.95	mg/L	4		
AMMONIA AS N 3-6-18	0.282	mg/L	.142	mg/L	5	SM4500-NH3.B,D	
CHLORINE* (TOTAL RESIDUAL, TRC)	———	mg/L	———	mg/L	———	———	
DISSOLVED OXYGEN	7.2	mg/L	7.1	mg/L	3	D.O. Meter	
OIL and GREASE	<5	mg/L	<5	mg/L	5	EPA 1664B	
OTHER: _____		mg/L		mg/L			

*Report only if facility chlorinates

END OF PART B

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Bonnots Wastewater Plant	MO- 0040738	001

PART C – CERTIFICATION

15. ELECTRONIC DISCHARGE MONITORING REPORT (eDMR) SUBMISSION SYSTEM

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

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

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

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

16. JETPAY

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

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

17. CERTIFICATION

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

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

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

PRINTED NAME	OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL)
M.L. Authon III	DIRECTOR OF PUBLIC WORKS
SIGNATURE	
TELEPHONE NUMBER WITH AREA CODE	
660 882 5257	
DATE SIGNED	
06/17/2019	

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.
Boonville Wastewater Plant	MO- 0040738	001

PART D – EXPANDED EFFLUENT TESTING DATA

18. EXPANDED EFFLUENT TESTING DATA

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

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

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS AND HARDNESS											
ALUMINUM	See Inovatia Laboratory Results										
ANTIMONY	15-1233										
ARSENIC	18-0212										
BERYLLIUM	18-0980										
CADMIUM	18-1186										
CHROMIUM III	19-0263										
CHROMIUM VI											
COPPER											
IRON											
LEAD											
MERCURY											
NICKEL											
SELENIUM											
SILVER											
THALLIUM											
ZINC											
CYANIDE											
TOTAL PHENOLIC COMPOUNDS											
HARDNESS (as $CaCO_3$)											
VOLATILE ORGANIC COMPOUNDS											
ACROLEIN											
ACRYLONITRILE											
BENZENE											
BROMOFORM											
CARBON TETRACHLORIDE											

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Boonville Wastewater Plant	MO- 0040738	001

PART D – EXPANDED EFFLUENT TESTING DATA

18. EXPANDED EFFLUENT TESTING DATA

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

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

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Boonville Wastewater Plant	MO-0040738	001

PART D – EXPANDED EFFLUENT TESTING DATA

18. EXPANDED EFFLUENT TESTING DATA

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

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

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Boonville Wastewater Plant	MO-0040738	001

PART D – EXPANDED EFFLUENT TESTING DATA

18. EXPANDED EFFLUENT TESTING DATA

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	No. of Samples		
2,4-DINITRO-TOLUENE											
2,6-DINITRO-TOLUENE											
1,2-DIPHENYL-HYDRAZINE											
FLUORANTHENE											
FLUORENE											
HEXACHLOROBENZENE											
HEXACHLOROBUTADIENE											
HEXACHLOROCYCLO-PENTADIENE											
HEXACHLOROETHANE											
INDENO (1,2,3-CD) PYRENE											
ISOPHORONE											
NAPHTHALENE											
NITROBENZENE											
N-NITROSODI-PROPYLAMINE											
N-NITROSODI-METHYLAMINE											
N-NITROSODI-PHENYLAMINE											
PHENANTHRENE											
PYRENE											
1,2,4-TRICHLOROBENZENE											

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

END OF PART D

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Boonville Wastewater Plant	MO- 0040738	001

PART E – TOXICITY TESTING DATA

19. TOXICITY TESTING DATA

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

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

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

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

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years: 0 chronic 4 acute

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

	Most Recent	2ND Most Recent	3RD Most Recent
A. Test Information			
Test Method Number	See attached test summaries		
Final Report Number	City of Boonville Letter Reports Dated		
Outfall Number	Oct. 29, 2015		
Dates Sample Collected	May 19, 2016		
Date Test Started	Inovatia Laboratories Reports Dated		
Duration	June 22, 2017		
B. Toxicity Test Methods Followed	June 20, 2018		
Manual Title			
Edition Number and Year of Publication			
Page Number(s)			
C. Sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used			
24-Hour Composite			
Grab			
D. Indicate where the sample was taken in relation to disinfection (Check all that apply for each)			
Before Disinfection	☐	☐	☐
After Disinfection	☐	☐	☐
After Dechlorination	☐	☐	☐
E. Describe the point in the treatment process at which the sample was collected			
Sample Was Collected:			
F. Indicate whether the test was intended to assess chronic toxicity, acute toxicity, or both			
Chronic Toxicity	☐	☐	☐
Acute Toxicity	☐	☐	☐
G. Provide the type of test performed			
Static	☐	☐	☐
Static-renewal	☐	☐	☐
Flow-through	☐	☐	☐
H. Source of dilution water. If laboratory water, specify type; if receiving water, specify source			
Laboratory Water	☐	☐	☐
Receiving Water	☐	☐	☐

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Boonville Wastewater Plant	MO- 0040738	001

PART E – TOXICITY TESTING DATA

19. TOXICITY TESTING DATA (continued)

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

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

If yes, describe:

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

Date Submitted (MM/DD/YYYY)

Summary of Results (See Instructions)

END OF PART E

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Boonville Wastewater Plant	MO-0040738	001

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

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

20. GENERAL INFORMATION

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

☒ Yes ☐ No

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

Number of non-categorical SIUs 0

Number of CIUs 1

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

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

NAME: Caterpillar

MAILING ADDRESS	CITY	STATE	ZIP CODE
2416 Mid America Industrial Drive	Boonville	MO	65233

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

N/A CIU

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

Principal Product(s): Rubber molded products + engine seals

Raw Material(s): Rubber, plastic, adhesives, & solvents

21.3 Flow Rate

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

257,306 ~~gpd~~ gpmonth ☐ 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.

310 gpd ☐ Continuous CIU ☒ Intermittent

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

a. Local Limits ☒ Yes ☐ No

b. Categorical Pretreatment Standards ☒ Yes ☐ No

If subject to categorical pretreatment standards, which category and subcategory? Metal Finishing Point Source Category, Part 433 + Rubber manufacturing Point Source Category (Part 428, Subpart E - Small and General molded, Extruded, & Fabricated Rubber Plants Subcategory) pretreatment standards

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

☐ Yes ☒ No

If Yes, describe each episode

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Boonville Wastewater Plant	MO-0040738	001

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

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

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

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

☐ Truck ☐ Rail ☐ Dedicated Pipe

22.3 Waste Description

EPA Hazardous Waste Number	Amount (volume or mass)	Units

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

23.1 Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?

☐ Yes ☒ No

Provide a list of sites and the requested information for each current and future site.

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

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

23.4 Waste Treatment

a. Is this waste treated (or will it be treated) prior to entering the treatment works?

☐ Yes ☐ No

If Yes, describe the treatment (provide information about the removal efficiency):

b. Is the discharge (or will the discharge be) continuous or intermittent?

☐ Continuous ☐ Intermittent

If intermittent, describe the discharge schedule:

END OF PART F

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL		
FACILITY NAME Boonville Wastewater Plant	PERMIT NO. MO-0104038	OUTFALL NO. 001

PART G – COMBINED SEWER SYSTEMS

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

24. GENERAL INFORMATION

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

A. All CSO Discharges.

B. Sensitive Use Areas Potentially Affected by CSOs. (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems and Outstanding Natural Resource Waters.)

C. Waters that Support Threatened and Endangered Species Potentially Affected by CSOs.

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

A. Locations of Major Sewer Trunk Lines, Both Combined and Separate Sanitary.

B. Locations of Points where Separate Sanitary Sewers Feed into the Combined Sewer System.

C. Locations of In-Line or Off-Line Storage Structures.

D. Locations of Flow-Regulating Devices.

E. Locations of Pump Stations.

24.3 Percent of collection system that is combined sewer

24.4 Population served by combined sewer collection system

24.5 Name of any satellite community with combined sewer collection system

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

25.1 Description of Outfall

a. Outfall Number

b. Location

c. Distance from Shore (if applicable) _____ ft

d. Depth Below Surface (if applicable) _____ ft

e. Which of the following were monitored during the last year for this CSO?

☐ Rainfall ☐ CSO Pollutant Concentrations ☐ CSO

☐ CSO Flow Volume ☐ Receiving Water Quality

f. How many storm events were monitored last year?

25.2 CSO Events

a. Give the Number of CSO Events in the Last Year Events ☐ Actual ☐ Approximate

b. Give the Average Duration Per CSO Event Hours ☐ Actual ☐ Approximate

c. Give the Average Volume Per CSO Event Million Gallons ☐ Actual ☐ Approximate

d. Give the minimum rainfall that caused a CSO event in the last year _____ inches of rainfall

25.3 Description of Receiving Waters

a. Name of Receiving Water

b. Name of Watershed/River/Stream System

c. U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)

d. Name of State Management/River Basin

e. U.S. Geological Survey 8- Digit Hydrologic Cataloging Unit Code (If Known)

25.4 CSO Operations

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

END OF PART G

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

INSTRUCTIONS FOR COMPLETING FORM B2
APPLICATION FOR OPERATING PERMIT FOR FACILITIES THAT RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY, Form 780-1805
(Facilities less than or equal to 100,000 gallons per day of domestic waste must use Form B, 780-1512.)

PART A – BASIC APPLICATION INFORMATION

1. Check the appropriate box. **Do not check more than one item.** Operating permits refer to permits issued by the Department of Natural Resources, Water Protection Program. If an Antidegradation Review has not been conducted, submit the application located at the following link, to the Missouri Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, MO 65102: dnr.mo.gov/forms/780-1893-f.pdf.

1.1 **Fees Information:**

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

Annual operating permit fees are based on flow.

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

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

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

PUBLICLY OWNED SEWER SYSTEM OPERATING PERMIT FEES (City, public sewer district, public water district, or other publicly owned treatment works) Annual fee is based on number of service connections. Fees listings are found in 10 CSR 20-6.011 which is available at http://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c20-6.pdf. New public sewer system facilities should not submit any fee as the department will invoice the permittee.

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

a. Publicly Owned Treatment Works (POTWs) - $200 each.
b. Non-POTWs – $100 each for a minor modification (name changes, address changes, other non-substantive changes) or a fee equal to 25 percent of the facility's annual operating fee for a major modification.

2. Name of Facility – Include the name by which this facility is locally known. Example: Southwest Sewage Treatment Plant, Country Club Mobile Home Park, etc. Provide the street address or location of the facility. If the facility lacks a street name or route number, provide the names of the closest intersection, highway, country road, etc.

2.1 Self-explanatory.

2.2 Global Positioning System, or GPS, is a satellite-based navigation system. The department prefers that a GPS receiver is used and the displayed coordinates submitted. If access to a GPS receiver is not available, use a mapping system to approximate the coordinates; the department's mapping system is available at https://modnr.maps.arcgis.com/apps/webappviewer/index.html?id=1d81212e0854478ca0dae87c33c8c5ce.

2.3-2.4 Self-explanatory. For the No Exposure Certification for Exclusion Application: https://dnr.mo.gov/forms/780-2828-f.pdf

3. Owner – Provide the legal name, mailing address, phone number, and email address of the owner. The owner identified in this section and subsequently reflected on the certificate page of the operating permit, is the owner of the regulated activity/discharge being applied for and is not necessarily the owner of the real property on which the activity or discharge is occurring.

3.1 Prior to submitting a permit to public notice, the Department of Natural Resources shall provide the permit applicant 10 days to review the draft permit for nonsubstantive drafting errors. In the interest of expediting permit issuance, permit applicants may waive the opportunity to review draft permits prior to public notice.

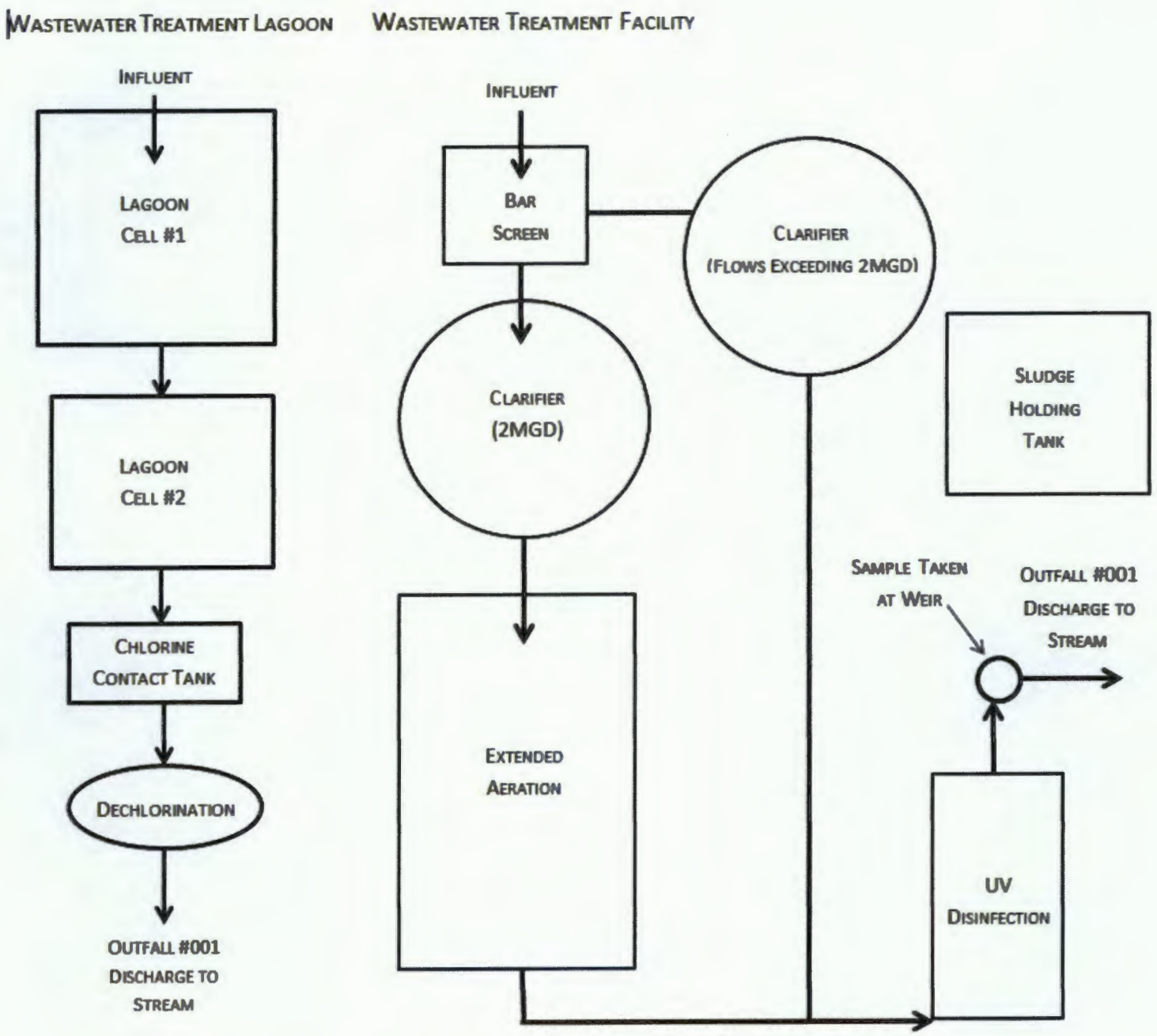
3.2-3.4 Self-explanatory. See the following link for Financial Questionnaire: https://dnr.mo.gov/forms/780-2511-f.pdf

4. Continuing Authority – A continuing authority is a company, business, entity or person(s) that will be operating the facility and/or ensuring compliance with the permit requirements. A continuing authority is not, however, an entity or individual that is contractually hired by the permittee to sample or operate and maintain the system for a defined time period, such as a certified operator or analytical laboratory. To access the regulatory requirement regarding continuing authority, 10 CSR 20-6.010(2), please visit https://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c20-6.pdf. If the continuing authority is not an individual(s), government, or otherwise required to register with the Missouri Secretary of State (SoS), then the business name must be listed exactly as it appears on the SoS's webpage: https://bsd.sos.mo.gov/BusinessEntity/BESearch.aspx?SearchType=0

5. Operator – Provide the name, certificate number, title, mailing address, primary phone number, and email address of the operator of the facility.

6. Provide the name, title, mailing address, primary phone number, and email address of a person who is thoroughly familiar with the operation of the facility and with the facts reported in this application and who can be contacted by the department.

7.1 Process Flow Diagram Examples



7.2 A map is available on the web at https://modnr.maps.arcgis.com/apps/webappviewer/index.html?id=1d81212e0854478ca0dae87c33c8c5ce or from the Department of Natural Resources' Geological Survey in Rolla at 573-368-2125.

7.3 For Standard Industrial Codes visit www.osha.gov/pls/imis/sicsearch.html and for the North American Industry Classification System, visit www.census.gov/naics or contact the Department of Natural Resources' Water Protection Program.

7.4-7.8 Self – explanatory.

7.9 If wastewater is land-applied submit Form I: www.dnr.mo.gov/forms/780-1686-f.pdf.

7.10-8. Self-explanatory

9.1 A copy of 10 CSR 25 is available at www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp#10-25.

9.2-9.9 Self – explanatory.

PART B – ADDITIONAL APPLICATION INFORMATION

10.-14. Self-explanatory

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

PART C – CERTIFICATION

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

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

a. members of religious communities that choose not to use certain technologies or
b. permittees located in areas with limited broadband access. The National Telecommunications and Information Administration (NTIA) in collaboration with the Federal Communications Commission (FCC) have created a broadband internet availability map: https://broadbandmap.fcc.gov/#/. Please contact the Department if you need assistance.

16. JetPay

Applicants can pay fees online by credit card or eCheck through a system called JetPay.

a. Per Section 37.001, RSMo, a transaction fee will be included. The transaction fee is paid to the third party vendor JetPay, not the Department of Natural Resources.
b. Be sure to select the correct fee type and corresponding URL to ensure your payment is applied appropriately. If you are unsure what type of fee to pay, please contact the Water Protection Program's Budget, Fees, and Grants Management Unit by phone at (573) 522-1485 for assistance.
c. Upon successful completion of your payment, JetPay provides a payment confirmation. Submit this form with a copy of the payment confirmation if requesting a new permit or a permit modification. For permit renewals of active permits, the Department will invoice fees annually in a separate request.
d. If you are unable to make your payment online, but want to pay with credit card, you may email your name, phone number, and invoice number, if applicable, to **WPPFees@dnr.mo.gov**. The Budget, Fees, and Grants Management Unit will contact you to assist with the credit card payment. **Please do not include your credit card information in the email.**
e. Applicants can find fee rates in 10 CSR 20-6.011 (https://dnr.mo.gov/pubs/pub2564.htm).

17. Signature – All applications must be signed as follows and the signatures must be original:

a. For a corporation, by an officer having responsibility for the overall operation of the regulated facility or activity or for environmental matters.
b. For a partnership or sole proprietorship, by a general partner or the proprietor.
c. For a municipal, state, federal or other public facility, by either a principal executive officer or by an individual having overall responsibility for environmental matters at the facility.

PART D – EXPANDED EFFLUENT TESTING DATA

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

PART E – TOXICITY TESTING DATA

19. Self- explanatory.

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

20. Federal regulations are available through the U.S. Government Printing Office at https://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR.

20.1 Self – explanatory

20.2 A noncategorical significant industrial user is an industrial user that is not a CIU and meets one or more of the following:

i. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions).
ii. Contributes a process waste stream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the treatment plant.
iii. Is designated as an SIU by the control authority.

21.-23.4 Self-explanatory.

PART G – COMBINED SEWER SYSTEMS

24.-25.4 Self-explanatory.

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

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

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

Map of regional offices with addresses and phone numbers are available on the web at http://dnr.mo.gov/regions/. If there are any questions concerning this form, contact the appropriate regional office or the Department of Natural Resources, Water Protection Program, Operating Permits Section at 800-361-4827 or 573-522-4502.

BOONVILLE
MISSOURI

CITY SERVICES • 1200 LOCUST STREET • BOONVILLE, MISSOURI 65233-1358 • 660-882-5257 • FAX 660-882-8218

June 20, 2019

RECEIVED
JUN 24 2019
Water Protection Program

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

Boonville Wastewater Treatment Plant; MO-0040738, Permit Renewal Application

An application to renew Missouri State Operating Permit MO-0040738 is enclosed.

If you have any questions, please contact me at 660-882-5257, mcauthon@boonville-mo.org or Bernita Bright at 660-882-4024, wwtp@boonville-mo.org.

Sincerely,

M. L. Cauthon III
Director of Public Works

Enclosure

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

FINANCIAL QUESTIONNAIRE

RECEIVED
JUN 24 2019
Water Protection Program

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
Boonville Wastewater Treatment Plant	#MO- 0040738
CITY	**COUNTY**
Boonville	Cooper

2. GENERAL FINANCIAL INFORMATION (ALL FACILITIES)

2.1	Number of connections to the facility: Residential 2732 Commercial 340 Industrial _____	
2.2	Current sewer user rate (Based on a 5,000 gallon per month usage):	$58.75
2.3	Current annual operating costs for the facility (excludes depreciation):	$2,570,000
2.4	Bond rating (if applicable):	n/a
2.5	Bonding capacity:	NO G.O. Debt Outstanding
2.6	Current outstanding debt relating to wastewater collection and treatment:	2, 467,500
2.7	Amount within the current user rate used toward payments on outstanding debt related to the current wastewater infrastructure:	4%- $102,200 P&I
2.8	Attach any relevant financial statements.	

3. FINANCIAL INFORMATION REQUIRED FROM MUNICIPALITIES

3.1	Municipality's Full Market Property Value:	99,275,399
3.2	Municipality's Overall Net Debt:	19,000,120
3.3	Municipality's Property Tax Revenues (levied) [A]:	760,000
3.4	Municipality's Property Tax Revenues (collected) [B]:	728,000
3.5	Municipality's Property Tax Collection Rate ([B]/[A]):	96%

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):

WWTP Flow EQ Basin, May '18 - June '19, $2,195,000; Extend WWTP Discharge, Fy 22 /23, $2,000,000; cured-in-place-pipe-lining, ongoing, $130,000 (current fy); I & I abatement, ongoing, $20,000 (current fy); Lift Station upgrades, ongoing, $154,000 (current fy)

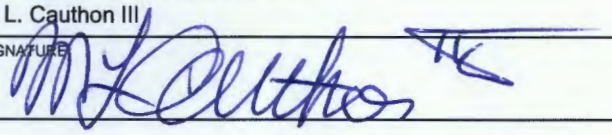
5.2 Provide a list of any other relevant local community economic conditions that may impact the ability to afford new permit requirements (attach sheets as necessary):

Upwards to 1500 jobs, mostly manufacturing, lost in the past 10 years. Those affected by the job loss have found some substitute, but often at a lower economic level. Housing inventory is deteriorating because of lack of investment.

6. CERTIFICATION

FINANCIAL CONTACT	OFFICIAL TITLE
Kate Fjell	Assistant to the City Admininstrator
EMAIL ADDRESS	**TELEPHONE NUMBER WITH AREA CODE**
kate.fjell@boonville-mo.org	660-882-4003

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
M. L. Cauthon III	Director of Public Works
SIGNATURE	**DATE SIGNED**
	06/17/2019

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.

1200 Locust Street | Boonville, MO 65233

City Of BOONVILLE
PUBLIC WORKS

660-822-5257 | Fax: 660-882-8218

RECEIVED
JUN 24 2019
Water Protection Program

April 11, 2019

Missouri Department of Natural Resources
Northeast Regional Office
Attn: Irene Crawford
1709 Prospect Drive
Macon, MO 63552

Boonville Wastewater Treatment Plant; MO-0040738, Integrated Management Plan Annual Review

Ms. Crawford:

Attached is the Integrated Management Plan Annual Review as required by the Boonville Waste Water Treatment Plant permit.

If you have any questions or comments, please contact me at 660-882-5257, mcauthon@boonville-mo.org.

Sincerely,

M. L. Cauthon III
Director of Public Works

Enclosure

CITY OF BOONVILLE, MISSOURI
ANNUAL INTEGRATED MANAGEMENT PLAN REVIEW
COVERING TIME PERIOD APRIL 2018 TO APRIL 2019
APRIL 11, 2019

I. WWTP PERMIT NO. MO-0040738

II. KEY REFERENCE DATES

Integrated Management Plan submitted to DNR on September 19, 2012
Accepted as part of WWTP Permit Renewal on May 20, 2013
Plan Revision submitted April 26, 2018
Current permit effective April 1, 2017 with expiration December 31, 2019
City's budget planning January to March with fiscal year beginning April 1st

III. REPORTS SUBMITTED UNDER PERMIT AND PLAN

I/I Compliance Report
Annual Pretreatment Report
Chromium VI and Ammonia Effluent Limit Progress Report

IV. PLAN REVIEW BY SECTION

After review of the Plan, the City submitted a plan revision April 26, 2018. That revision modified the text of the plan to reflect accumulated changes that have occurred in these reviews since inception. The revision reflected the City's diminishing aspirations for a relocated outfall, revised perspective on growth and a new outlook on existing treatment modifications.

V. IMPROVEMENTS MADE IN COMPLIANCE WITH THE PLAN

A. Sewer Collection System Improvements and Engineering Evaluations/Reports:

1. The cured in place pipe lining project was continued in 2018 with 708 feet of 8" and 293 feet of 6" VCP sanitary sewer main lined. Three brick and one concrete block manholes were rehabilitated with 40.9 vertical feet, grouted, sealed and lined.
2. Two wet wells at JD Lift Station and the wet well at Woodland Park Lift Station were clad lined and grouted.
3. Sanitary sewer main of various lengths were treated with chemical degreaser and root killer.
4. Systematic program for grease, debris and clean-up at the lift stations wet wells continue with contracted outside service.

B. Missouri River Outfall Planning and Engineering Evaluations/Reports

1. The final mixing zone report was approved by DNR on November 26, 2014 with agreement to place the Missouri River outfall at the edge of bank upstream of the Wing Dike near the Lilly Branch confluence.

2. Access objection by Union Pacific Railroad has forced a reconsideration of the route of the outfall line. Design of new route is on hold until, at least, the Flow EQ basin is fully operational.

C. Waste Water Treatment Plant Addition

1. A plant expansion is not currently being considered.

VI. MILESTONES

1. Upgraded one VFD at lift station #1.
2. Started trough concrete resurfacing and completed rebuilt drive unit on clarifier #1.
3. Completed belt filter press PLC upgrade.
4. Completed scum pit / digester valve rebuild
5. Construction of the WWTP Flow Equalization Basin is substantially completed. Currently start-up and warranty work are underway.

VII. TASKS PLANNED IN THE NEXT YEAR

A. Projects Budgeted for April 2019/20:

1. Sewer collection system **improvements**:

a. Cured-in-place pipe and manhole lining	$130,000
b. General I/I abatement operational fund	20,000

2. Sewer collection system **significant maintenance**:

a. Lift station maintenance	$135,000
b. Lift station repair and upgrades	154,000
c. Collection system maintenance	21,000

B. The City will continue implementation of the **Code Enforcement Initiative** on fats, oils and grease reduction. 36 inspections conducted from April 2018 to April 2019 with all in compliance.

C. Evaluate and make necessary revisions to the **CMOM plan**.

1200 Locust Street | Boonville, MO 65233

City Of est 1839
BOONVILLE
PUBLIC WORKS

660-822-5257 | Fax: 660-882-8218

April 26, 2018

RECEIVED
JUN 24 2019
Water Protection Program

Missouri Department of Natural Resources
Northeast Regional Office
Attn: Irene Crawford
1709 Prospect Drive
Macon, MO 63552

Boonville Wastewater Treatment Plant; MO-0040738, Integrated Management Plan Annual Review and Plan Revision

Ms. Crawford:

Attached is the is Integrated Management Plan Annual Review as required by the Boonville Waste Water Treatment Plant permit.

Also submitted for your review and approval is a revision of the Integrated Management Plan.

If you have any questions or comments, please contact me at 660-882-5257, mcauthon@boonville-mo.org.

Sincerely,

M. L. Cauthon III
Director of Public Works

Enclosure

CITY OF BOONVILLE, MISSOURI
ANNUAL INTEGRATED MANAGEMENT PLAN REVIEW
COVERING TIME PERIOD APRIL 2017 TO APRIL 2018
APRIL 28, 2018

I. WWTP PERMIT NO. MO-0040738

II. KEY REFERENCE DATES

Integrated Management Plan submitted to DNR on September 19, 2012
Accepted as part of WWTP Permit Renewal on May 20, 2013
Current permit effective April 1, 2017 with expiration December 31, 2019
City's budget planning January to March and fiscal year starts April 1st

III. REPORTS SUBMITTED UNDER PERMIT AND PLAN

I/I Compliance Report
Annual Pretreatment Report

IV. PLAN REVIEW BY SECTION

In review of the Plan, the City has decided to modify the text of the plan to reflect accumulated changes that have occurred in these reviews since inception. These modifications are indicated on the attached, marked-up version of the original. The modifications will reflect the City's diminishing aspirations for a relocated outfall, revised perspective on growth and a new outlook on existing treatment modifications.

V. IMPROVEMENTS MADE IN COMPLIANCE WITH THE PLAN

A. Sewer Collection System Improvements and Engineering Evaluations/Reports:

1. The cured in place pipe lining project was continued in 2017 with 640 feet of 8" VCP sanitary sewer main lined.
2. Sanitary sewer main of various lengths were again continued to be treated with chemical degreaser and root killer.
3. Systematic program for grease, debris and clean-up at the lift stations has been implemented under contract with outside service – Mid Mo Environmental.

B. Missouri River Outfall Planning and Engineering Evaluations/Reports

1. The final mixing zone report was approved by DNR on November 26, 2014 with agreement to place the Missouri River outfall at the edge of bank upstream of the Wing Dike near the Lilly Branch confluence.
2. Access objection by Union Pacific Railroad has forced a reconsideration of the route of the outfall line. Additional land surveying currently for design reevaluation is in progress.

C. Waste Water Treatment Plant Addition

1. MECO Engineering has considered the current growth potential of the city and believes that modifications to the existing plant maybe all that is necessary for the foreseeable future.

VI. MILESTONES

1. Upgraded three pumps, one each in lift stations #1, #2 and Bobber, to more efficient equipment.

2. Began construction of WWTP Flow Equalization Basin on February 5, 2018.

VII. TASKS PLANNED IN THE NEXT YEAR

A. Projects Budgeted for April 2018/19:

1. Sewer collection system **improvements**:

a. Instituform cured-in-place pipe and manhole lining	$23,400
b. General I/I abatement operational fund	20,000

2. Sewer collection system **significant maintenance**:

a. Lift station cleaning/grease removal	$25,000
b. Lift station maintenance	94,000
c. Lift station pump replacement (carryover)	8,500

3. Plant **significant maintenance**

a. Clarifier #1 trough resurfacing	$23,000
b. Clarifier #1 drive unit repair	35,000
c. Headworks concrete	5,000
d. PLC upgrade	24,000

B. The City will continue implementation of the **Code Enforcement Initiative** on fats, oils and grease reduction. 38 inspections conducted from April 2017 to April 2018 with all in compliance.

C. Evaluate and make necessary revisions to the **CMOM plan**.

BOONVILLE INTEGRATED MANAGEMENT PLAN FOR WASTE WATER SYSTEM IMPROVEMENTS AND COMPLIANCE

SEPTEMBER 18, 2012
REVISED ON APRIL 27, 2018

PURPOSE AND SCOPE

The City of Boonville through its City Council has developed and approved this waste water improvement plan in consultation with its engineer and the Missouri Department of Natural Resources. This integrated management approach provides the parties a defined schedule with the flexibility necessary to accomplish working within public sector financing and legislative requirements and to re-assess the impact after each major phase against the compliance standards. This plan defines the improvements and expenditures over the next ten (10) years to achieve compliance with state and national water quality standards as follows:

1. Comprehensively address infiltration and inflow with sewer system via collection system evaluations, pump status analysis, and opportunities for volume control.
2. Coordinate analysis of discharge waters during a significant change in regulatory landscape including the classification of unclassified waters of the State of Missouri and modification to discharge requirements to the Missouri River relating to nutrient removal to support reduction of Gulf hypoxia.
3. Evaluate, design, and construct a revised wastewater treatment plant to meet water quality standards of the receiving stream selected based on a comprehensive analysis of discharge options including, but not limited to, plant replacement or major modification.
4. Provide for adequate capacity to meet water quality requirements while providing economic opportunity for community growth throughout any discharge transitions.
5. Leverage existing and short-term sewer rate increases, private and public financing opportunities (including Missouri SRF program) and available public bond capability to construct necessary improvements while limiting "rate shock" to users of the system.
6. Resolve pending appeals of current NPDES permits.

COMMUNITY PROFILE AND KEY FINANCIAL FACTORS

The City of Boonville is a third class statutory city incorporated in 1839 with a population of 8,319* persons. There are fifty-two (52) miles of sewer line, one thousand, sixty (1,160) manholes, ~~fourteen (14)~~ **fifteen (15)** lift stations and a waste water treatment plant that was built in 1998 on a new site outside of the flood plain following the 1993 flood of the Missouri River. The largest water and sewer user is the Boonville Correctional Facility housing 1,282* inmates. The cost of operating and maintaining the current sewer system is ~~$1,915,000~~ **$1,236,200** for the ~~2012/13~~ **2017/18** fiscal year. This amount provides for staffing, operations, debt service, minor capital improvements and monitoring and engineering services. The user charges for the sewer system fund have routinely been increased over the last five years as follows:

Historic Rate Increases:

May 1, 2008	2.77 %	**April 2013**	**4.8 %**
December 1, 2008	1.04 %	**April 2014**	**8.4 %**
June 1, 2009	2.84 %	**April 2015**	**5.8 %**
October 1, 2010	7.6 %	**May 2016**	**6.4 %**
June 1, 2011	5.05 %	**April 2017**	**7.5 %**
April 1, 2012	17.15 %	**April 2018**	**3.0 %**

This has resulted in an average current household sewer user charge of ~~$35.74~~ **$50.00** /month. The median household income in Boonville is $36,625.00.*

There are 10 entities that account for 29% of the total water revenue (and usage) which then translates to the sewer user charge and revenues with one exception. These entities include the correctional facility as stated above, one rural water district (this entity is a water user only and does not contribute to the waste water revenue or usage), one casino, three manufacturers, two truck stops, one long term care facility and two trailer parks. There are variable community and financial risks over a ten year period that could have significant impact on financing the improvement plan and must be recognized in the planning time line including, but not limited to: 1) the loss of a large customer that is not replaced, 2) broad based water conservation by citizenry at large, 3) variability in cost of long term and integrated construction projects, 4) variability in gaming revenue stream that has historically supported some capital improvements to the waste water system at approximately four hundred thousand ($400,000.00) annually (this translates to approximately $10/month/user) and 5) lack of predictability of voter response to proposed new taxes.

The City's history on borrowing has been positive.

*Based on 2010 Census

TARGET PLANNING ELEMENTS

This plan represents an accelerated effort to move Boonville's waste water system forward to achieve a myriad of system performance standards by year 2022. The process consists of the following elements:

1. **Phase I - Sewer collection system improvements**. A sewer collection system evaluation has been ongoing with rehabilitation funded at annual levels. ~~The evaluation and improvements will be accelerated to determine the extent of continued rehabilitation, transport and treatment analysis, pump station sizing, extension options, and plant capacity.~~ **This rehabilitation will continue, resulting in reductions in system wide inflow and infiltration. Force main piping from the City's largest lift stations have been doubled, resulting in increased flow capacity. A 1.8 million gallon equalization basis is currently being constructed. This basin will take in all of the City's anticipated I/I surge coming into the WWTP. Only under the most extreme weather conditions, will any possibility of bypass at the plant exist. In addition, changes to the operational procedures at the plant, which will take place upon completion of the basin project, are anticipated to result in decreased levels of ammonia in the plant's effluent.**

Funding for these improvements have already been allocated from normal revenues and debt streams. Therefore, no addition discussion concerning financing is conducted in this revision. A schedule of tasks by flow chart for this element is attached as Appendix A. ~~and the financing plan is described in Paragraph 4 below.~~

2. **Phase II - Outfall analysis**. Treated wastewater for the City of Boonville is currently discharged to Lily Branch. ~~, an unclassified stream.~~ For over 20 years, this location ~~has been~~ **was** considered a Missouri River discharge. ~~Both~~ Lilly Branch ~~and the Missouri River are going~~ **has gone** through "re-designation" regarding ~~their~~ **it's** discharge standards. ~~This requires an analysis of all options in order to determine wastewater treatment plant design.~~ This element will review all ~~discharge~~ **treatment** and outfall options, ~~select an ultimate discharge location~~ based upon best knowledge of future regulatory ~~options~~ requirements, design a new outfall or solution, and implement its construction. A schedule of tasks by flow chart for this element is attached as Appendix B and the financing plan is described in Paragraph 4 below.

The analysis of the option to relocate the outfall to the Missouri River (MR) has been ongoing since the conception of the Plan. A mixing study has been conducted, potential effluent limits have been estimated, preliminary designs have been carried out, and draft

plans have been drawn. The change in outfall location would result in less of an impact on the habitat of the receiving body of water, and would correspondingly allow for numerically higher monitoring limits. However, practical considerations continue to make the feasibility of a M.R. outfall dubious. The main issue continues to be the lack of maintenance access to pipeline components on the north side of the railroad tracks. The focus of the analysis at this time is whether locating the major components to the south side of the tracks is possible.

The option to relocate the outfall also presents a significant financial cost, not only in an initial capital expenditure, estimated to be over two million dollars, but in an increased annual maintenance cost, estimated to be tens of thousands of dollars.

3. **Phase III - Wastewater treatment plant ~~upgrade~~ *modifications*. Expansion of the WWTP in order to handle a higher volume of ordinary wastewater, is no longer considered necessary. The average daily flows have decreased since 2009 by 40 percent. The average daily flows have stabilized for years 2016 through 2018 at around 1.0 MGD.**

The wastewater treatment plant, **as a whole,** requires an upgrade to meet anticipated discharge requirements ~~of~~ **at** the ~~selected~~ **current** outfall **location.** ~~volume expectations, and design improvements.~~ **The EQ basin project will indirectly impact the ammonia treatment techniques at the plant. Should these resulting increases in efficiency not be sufficient to meet the new requirements, then additional modifications will be undertaken under this option. The most obvious of the potential modifications at this time, would be to add aeration capacity to the existing aeration ditches. Functionality will be built into any additional equipment that will allow for future de-nitrification of process constituents. Such an endeavor could be completed in short order.** A schedule of tasks by flow chart for this element is attached as Appendix C and the financing plan is described in Paragraph 4 below.

4. **Financing Plan**. The following financial analysis has been completed to schedule and communicate the interim rate and financing strategies to assure the plan can be implemented with a final completion date anticipated on 2022.

2012 Base Figures:

Revenue for wastewater operations and maintenance = $1,850,000

Average monthly household sewer charge = $35.74

Financial Analysis Assumptions:

1) Based upon average household water usage of 4,400 gallons per month with approximately 3,300 customers;
2) No aggregate population growth or decline;
3) Stable and continuing demand for water and sewer, no loss of a larger user;
4) No significant increase in cost of borrowed money;
5) Cost of engineering and construction with reasonable inflation pricing;
6) No additional taxes
7) Continuing gaming revenue at approximately $400,000 annually for major operational capital improvements, separate and apart from new capital improvements anticipated in 3 phases above; and
8) The references to a debt service mode of financing in this plan are based upon 100% debt financing. It is the City's desire to achieve some (modest) level of pay-as-you-go (cash) for Phases I and II from accelerated user charge increases or alternative financing methods which would reduce the amount of debt and associated debt service requirements.

~~Contingent Financial Analysis: If the voters approve the current sales tax proposition scheduled for the November 2012 ballot, the rate of increase will be mitigated. The degree of mitigation will depend on the strength of the assumptions including variability in demand, timing, construction scope and costs and cost of financing. If the Council changes the gaming revenue allocation (increases or decreases) that has historically been used to cover some of the existing major wastewater system capital improvements, the rate of increase beginning in 2013 would be affected. The degree of change in the fee structure will depend on the amount of increase or decrease of the gaming subsidy. The gaming subsidy to the major capital improvements in wastewater has averaged $400,000 per year for the past 10 years.~~

~~PHASE I~~

~~Fiscal Year~~	~~Base Revenue~~	~~% Increase~~	~~Additional Revenue~~	~~Monthly Rate~~
~~April 2012~~	~~$1,580,000~~	~~17.15%~~	~~$270,000~~ ~~$30,000 P1DS~~ ~~(Phase I debt service)~~	~~$35.74~~
~~April 2013~~	~~$1,850,000~~	~~8.75%~~	~~$161,875~~ ~~$130,000 P1DS~~ ~~$30,000 O/M~~ ~~(operations/maintenance)~~	~~$53.37~~

~~***Phase I at $2,000,000 now able to be financed with long term debt instrument - debt service of $160,000 per year for 20 years covered in rate structure ***~~

~~PHASE II~~

~~Fiscal Year~~	~~Base Revenue~~	~~% Increase~~	~~Additional Revenue~~	~~Monthly Rate~~
~~April 2014~~	~~$2,011,875~~	~~8.00%~~	~~$160,950~~ ~~$120,000 P2DS~~ ~~$40,950 O/M~~	~~$41.98~~
~~April 2015~~	~~$2,172,825~~	~~7.00%~~	~~$152,098~~ ~~$40,000 P2DS~~ ~~$70,000 P3DS~~ ~~$42,098 O/M~~	~~$44.92~~

~~***Phase II at $2,000,000 now able to be financed with long term debt instrument - debt service of $160,000 per year for 20 years covered in rate structure AND $70,000 towards Phase III project debt service***~~

APPROX. INCREASES IN REVENUE STREAM FOR DEBT SERVICE - ALL PHASES

Fiscal Year	Base Revenue	% Increase	Additional Revenue	Ave. Monthly Rate
April 2012	**$1,208,000**	**17.15%**	**$207,000**	**$35.74**
April 2013	**$1,408,000**	**4.8%**	**$149,000**	**$39.52**
April 2014	**$1,549,000**	**8.4%**	**$259,000**	**$46.14**
April 2015	**$1,799,000**	**5.8%**	**$178,000**	**$50.71**
April 2016	**$1,967,000**	**6.4%**	**$196,000**	**$55.76**
April 2017	**$2,151,000**	**7.5%**	**$228,000**	**$61.67**
April 2018	**$2,366,000**	**3.0%**	**$ 91,000**	**$64.03**
****April 2019***	***$2,444,000***	***1.5%***	***$ 45,000***	***$65.21***
****April 2020***	***$2,476,000***	***1.5%***	***$ 45,000***	***$66.39***
****April 2021***	***$2,507,000***	***1.5%***	***$ 45,000***	***$67.58***

*** = Projected numbers**

Financial Planning Models for Twelve Versus Fifteen Million Dollar Plant

From MECO's ~~preliminary~~ **follow-up** engineering consultation and reflection on national discussions of additional and more rigorous clean water standards, **as well as observations related to the lack of significant growth for the City,** it is **no longer** anticipated that a new waste water treatment plan will be needed ~~after 2019~~ **before the end of 2022 in order** to meet the regulatory standards for waste water discharge. ~~For financial planning purposes, a twelve million dollar plant on the low end and a fifteen million dollar plant on the high end have been shown. A fifteen million dollar plant will take the monthly user charge rate over $60.00 per month for the average user and take three more years to get the level of revenue to meet the debt service level.~~ **The existing plant is capable of meeting the anticipated standards, either with treatment modifications, or a change in outfall location.**

~~PHASE III - New WWTP at Projected Cost of $12,000,000~~

~~Fiscal Year~~	~~Base Revenue~~	~~% Increase~~	~~Additional Revenue~~	~~Monthly Rate~~
~~April 2016~~	~~$2,324,923~~	~~9.0%~~	~~$209,243~~ ~~$164,243 P3DS~~ ~~$45,000 O/M~~	~~$48.96~~
~~April 2017~~	~~$2,534,166~~	~~9.0%~~	~~$228,075~~ ~~$180,075 P3DS~~ ~~$48,000 O/M~~	~~$53.37~~
~~April 2018~~	~~$2,762,241~~	~~9.0%~~	~~$248,602~~ ~~$198,602 P3DS~~ ~~$50,000 O/M~~	~~$58.17~~

~~***Phase III at $12,000,000 now able to be financed with bond issue debt service of $600,000 per year AND pay off of previous WWTP debt of $350,000 per year totaling $950,000 per year for 20 years ***~~

~~PHASE III - New WWTP at Projected Cost of $15,000,000~~

~~Fiscal Year~~	~~Base Revenue~~	~~% Increase~~	~~Additional Revenue~~	~~Monthly Rate~~
~~April 2019~~	~~$3,010,843~~	~~4.5%~~	~~$135,488~~ ~~$82,488 P3DS~~ ~~$53,000 O/M~~	~~$60.78~~
~~April 2020~~	~~$3,146,331~~	~~4.5%~~	~~$141,585~~ ~~$86,585 P3DS~~ ~~$55,000 O/M~~	~~$63.52~~
~~April 2021~~	~~$3,287,916~~	~~4.0%~~	~~$131,517~~ ~~$73,517 P3DS~~ ~~$58,000 O/M~~	~~$66.06~~

~~***Phase III at $15,000,000 now able to be financed with bond issue debt service of $850,000 per year AND pay off of previous WWTP debt of $350,000 per year totaling $1,200,000 per year for 20 years ***~~

5. **Computer enhancements and staffing**. Technology enhancements will be included in each element to assure maintenance and system analysis. Personnel requirements will also be evaluated.

6. **Green initiatives**. The upgrades to the oxidation ditch to be considered include adding instrumentation to allow the oxidation ditch to operate more energy efficient. This includes operating each cell of the ditch at optimum Dissolved Oxygen levels to maximize oxygen transfer rates and to maximize oxygen credit for de-nitrification. This may involve adding oxygen sensors and variable frequency drive motors. A net energy savings ~~of approximately 25%~~ would be realized by operating the oxidation ditch in these modes.

Among the upgrades to the oxidation ditch to be considered is to automate the operation of the slide gates to allow high flows to be treated without the washout of suspended solids. This may allow higher flows to be treated without increasing the footprint of the oxidation ditch or clarifiers or to build smaller equalization basins.

The option of changing the outfall location to the Missouri River channel could result in less energy use due to less nitrification of ammonia required. Due to mixing zone credits, end of pipe limits for metals, ammonia and dissolved oxygen demand may require a reduced footprint of the treatment facility. These facility reductions may include less chemical addition, elimination of polishing filters and elimination of an anaerobic basin due to less removal of nutrients required.

The ongoing inflow and infiltration reductions within the sewer collection system will result in lower collection system flows to the lift stations resulting in energy savings due to less pumping energy used.

PERMITS

~~Assuming this Integrated Management Plan is accepted, the existing~~ **The earlier** permit under appeal ~~and attached as Exhibit ____ shall be~~ **was** accepted by the City and issued incorporating this plan. ~~after thirty (30) days' notice. The issuance date will be upon completion of the notice period.~~

~~The current appeal will be dismissed.~~

Provided the outfall and discharge analysis has been completed and actions taken for its implementation, the subsequent permit shall be issued incorporating this plan and its schedules as modified to reflect progress under each element for completion of all elements by the year 2022. **It is anticipated that this updated Plan will be incorporated into the next issued permit, expected to be issued around January 2020. Subsequent permits are not expected to contain the Plan, since by that date the goals will have been met and, the Plan will have served its purpose.**

Boonville, Missouri: Wastewater Treatment Application Appendix A: Inflow/Infiltration Initiatives and Short Term WWTP Capacity Improvement Plan
Estimated Cost: $2,000,000

PLANNING AND STAFFING PHASE	TARGET DATE	COMPLETED
1. Complete maintenance and repair plan		Yes
2. Complete sewer map updates		Yes
3. Hire new employee (I/I technician)		Yes
~~4. Complete reduction plan~~		
~~5~~ 4. Complete WWTP rerating and secure DNR approval		Yes
~~6~~ 5. Complete wastewater treatment plant related anti-degradation evaluation and Secure DNR approval		Yes

DESIGN PHASE	TARGET DATE	COMPLETED
~~7. Complete storm water mode demonstration and secure DNR approval~~	~~4th Quarter 2012~~	
~~8. Complete facility plan~~	~~8/1/2013~~	
~~9. Re-evaluate time line: adjustments negotiated with DNR as necessary; secure DNR approval of facility plan~~	~~3rd Quarter 2013~~	
~~10. Obtain financing~~	~~9/30/2014~~	
~~11. Complete engineering design for lift stations 1 and 2 upgrades and existing WWTP modifications and secure DNR approval~~	~~8/1/2015~~	
~~12. Obtain easements and property~~	~~2/1/2016~~	
6. Complete EQ basin facility plan		**May 21, 2014**
7. Complete design of parallel forcemains from LS1&2		**Sept. 17, 2015**
8. Complete design of EQ basin		**June 28, 2017**

BID AND BUILD PHASE	TARGET DATE	COMPLETED
~~13. Bid Upgrades to lift stations 1 and 2 and WWTP modifications~~	~~8/1/2016~~	

~~14. Re-evaluate time line; adjustments negotiated with DNR as necessary~~	~~3rd Quarter 2016~~	
~~15. Build upgrades to lift station 1 and 2, WWTP modifications~~	~~10/1/2017~~	
9. Construct parallel forcemains from LS1&2		**Feb. 24, 2017**
10. Bid EQ basin project		**Sept. 27, 2017**
11. Construct EQ basin project	**August 2018**	
12. Fine tune operating parameters of EQ basin to eliminate plant I/I flows greater than plant capacity.	**August 2018**	
13. Initiate a storm water mode test during a high influent condition, submit results to DNR	**Fall 2018**	

Boonville, Missouri: Wastewater Treatment Application Appendix B: Missouri River Outfall Planning
Estimated Cost: $2,000,000

STUDY AND PLANNING PHASE	TARGET DATE	COMPLETED
1. Determine mixing zone study criteria-DNR	12/31/2012	**Prior to Nov. 2013**
2. Complete mixing study report	6/30/2013	**Nov. 7, 2013**
3. Secure DNR approval for mixing study	3rd Quarter of 2013	**Nov. 26, 2013**
4. Complete analysis of new outfall feasibility	**Jan 2019**	
~~4~~ **5.** Complete preliminary engineering report of outfall	~~6/30/2014~~ **Fall 2019**	
~~5~~ **6.** Secure DNR approval for preliminary engineering report	~~3rd Quarter 2014~~ **1st Quarter 2020**	

DESIGN PHASE	TARGET DATE	COMPLETED
~~6~~ **7.** Complete facility plan; anti-degradation reevaluation and environmental report	~~4/1/2017~~ **4th Quarter 2020**	
~~7~~ **8.** Secure DNR approval for facility plan, environmental report and anti-degradation reevaluation	~~2nd Quarter 2017~~ **1st Quarter 2021**	
~~8~~ **9.** Complete engineering design for Missouri River outfall	~~10/1/2018~~ **4th Quarter 2021**	
~~9~~ **10.** Secure DNR approval for Missouri River outfall **plans and specs**	~~4th Quarter 2018~~ **1st Quarter 2022**	
~~10. Re-evaluate timeline; adjustments negotiated with DNR as necessary~~	~~4th Quarter 2018~~	

BID AND BUILD PHASE	TARGET DATE	COMPLETED
11. Bid Missouri River outfall ~~Phase 1 (pipe to edge of river)~~	~~1/1/2019~~ **5/1/2022**	
12. Construct ~~Phase 1~~ **outfall**	~~10/10/2019~~ **2/15/2023**	
~~13. Bid Missouri River outfall Phase 2 (pipe from bank to mid-channel)~~	~~7/1/2019~~	
~~14. Construct Phase 2~~	~~1/1/2020~~	

Boonville, Missouri: Wastewater Treatment Application Appendix C: Wastewater Treatment Plant ~~Addition~~ **Modification**
Estimated Cost: $350,000- $400,000

PLANNING PHASE	TARGET DATE	COMPLETED
~~1. Complete preliminary engineering report addressing long term plant capacity~~	~~6/30/2015~~	
1. Evaluate operating performance of plant once EQ basin bought on line	**September 2018**	

DESIGN AND FINANCING PHASE	TARGET DATE	COMPLETED
~~2. Complete anti-degradation re-evaluation~~	~~6/302016~~	
~~3~~ **2.** Complete facility plan for plant ~~expansion~~ **modification**	~~1/1/2019~~ **Nov. 2018**	
~~4~~ **3.** Secure DNR approval for facility plan on plant ~~expansion~~ **modification**	~~1st Quarter 2019~~ **Feb. 2019**	
~~5~~ **4.** ~~Develop city wide communication strategy for voters on bond~~ **Secure City funding**	~~6/30/2019~~ **March 2019**	
~~6. Conduct City election for wastewater treatment plant expansion funding~~	~~8/1/2019~~	
~~7. Re-evaluate timeline; negotiate with DNR as needed~~	~~4th Quarter 2019~~	
~~8~~ **5.** Complete final design for wastewater treatment plant ~~expansion~~ **modification**	~~3/1/2021~~ **April 2019**	

BID AND BUILD PHASE	TARGET DATE	COMPLETED
~~9~~ **6.** Bid treatment plant ~~expansion~~ **modifications**	~~6/1/2021~~ **June 2019**	
~~10. Re-evaluate timeline; negotiate with DNR as needed~~		
~~11~~ **7.** Complete wastewater treatment plant ~~expansion~~ **modifications**	~~1/1/2023~~ **Dec 2019**	
~~12. Complete rehabilitation on existing wastewater treatment plant~~	~~6/30/2023~~	

INOVATIA® LABORATORIES, LLC

120 East Davis Street
Fayette, MO 65248-1405
(660) 248-1911
www.inovatia.com

10/29/2015

RECEIVED
JUN 24 2019
Water Protection Program

City of Boonville Waste Water Plant
1200 Locust Street
Boonville, MO 65233
Bernita Bright

RE: Project Name/Number: City of Boonville/N/A
Chain of Custody Number: 15-1233

Date Received: October 8, 2015
Time Received: 9:58
Relinquished by: Bernita Bright
Sampler: Bernita Bright

Enclosed please find analytical results for sample(s) received as described above. The values reported are in conformance with internal and method quality control guidelines, unless otherwise noted. If you have questions or need more information, please contact us.

Thank you for your interest in working with Inovatia Laboratories.

Sincerely,

Jennifer Vandelicht

Jennifer Vandelicht
Quality Assurance

Enclosures: Chain of Custody Record(s)

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Fayette, MO 65248-0030

Phone: (660) 248-1911
Fax: (660) 248-1921
www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 15-1233
Project Name / Number: City of Boonville / N/A
Date Collected: 10/08/15
Time Collected: 8:45

Sample Number: Effluent
Lab Number: 154575
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Cyanide, Total	< 0.02	mg/L	0.02	SM 4500 CN E	10/12/2015 - MWL
Phenolics	0.7	mg/L	0.2	EPA 9065A (MOD)	10/14/2015 - MWL
Nitrogen, Ammoniacal	< 0.10	mg/L	0.10	SM 4500-NH3 C	10/14/2015 - MWL
Nitrogen, Total Kjeldahl	1.66	mg/L	1.00	EPA 351.2	10/15/2015- MWL
Nitrogen, Nitrate-Nitrite	25.9	mg/L	1.00	EPA 353.2	10/14/2015 - DS
Hexane Extractable Material (HEM)	< 5	mg/L	5	EPA 1664 A	10/14/2015 - RL/RT
Total Dissolved Solids (TDS)	889	mg/L	5.0	EPA 160.1	10/15/2015 - RL/RT
Hardness	278	mg eq CaCO3/L	9.92	SM 2340 B	10/20/2015 - DS
Beryllium, Total	< 0.015	mg/L	0.015	EPA 200.8	10/20/2015 - DS
Phosphorus, Total	6.27	mg/L	0.250	EPA 200.8	10/20/2015 - DS
Chromium, Total	< 0.015	mg/L	0.015	EPA 200.8	10/20/2015 - DS
Chromium, Hexavalent	< 0.025	mg/L	0.025	SM 3500 Cr B	10/8/2015 - BD
Chromium, Trivalent	< 0.25	mg/L	0.25	Calculation	10/26/2015 - JV
Nickel, Total	< 0.015	mg/L	0.015	EPA 200.8	10/20/2015 - DS
Copper, Total	< 0.015	mg/L	0.015	EPA 200.8	10/20/2015 - DS
Zinc, Total	0.031	mg/L	0.015	EPA 200.8	10/20/2015 - DS
Arsenic, Total	< 0.015	mg/L	0.015	EPA 200.8	10/20/2015 - DS
Selenium, Total	< 0.015	mg/L	0.015	EPA 200.8	10/20/2015 - DS
Silver, Total	< 0.015	mg/L	0.015	EPA 200.8	10/20/2015 - DS
Cadmium, Total	< 0.015	mg/L	0.015	EPA 200.8	10/20/2015 - DS
Antimony, Total	< 0.10	mg/L	0.10	EPA 200.7	10/13/2015 - MWL
Mercury, Total	< 0.0008	mg/L	0.0008	EPA 245.1	10/19/2015 - MWL
Thallium, Total	< 0.015	mg/L	0.015	EPA 200.8	10/20/2015 - DS
Lead, Total	< 0.015	mg/L	0.015	EPA 200.8	10/20/2015 - DS

Notes:

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Phone: (660) 248-1911
Fax: (660) 248-1921
www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 15-1233
Project Name / Number: City of Boonville / N/A
Date Collected: 10/08/15
Time Collected: 8:45

Sample Number: Effluent
Lab Number: 154575
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Acrolein	< 20	ug/L	20	EPA 624	10/20/2015 - MWL
Acrylonitrile	< 20	ug/L	20	EPA 624	10/20/2015 - MWL
Benzene	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
Bromodichloromethane	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
Bromoform	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
Bromomethane	< 10	ug/L	10	EPA 624	10/20/2015 - MWL
Carbon tetrachloride	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
Chlorobenzene	< 10	ug/L	10	EPA 624	10/20/2015 - MWL
Chlorodibromomethane	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
Chloroethane	< 10	ug/L	10	EPA 624	10/20/2015 - MWL
2-Chloroethyl vinyl ether	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
Chloroform	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
Chloromethane	< 10	ug/L	10	EPA 624	10/20/2015 - MWL
1,1-Dichloroethane	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
1,2-Dichloroethane	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
trans-1,2-Dichloroethene	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
trans-1,3-Dichloropropene	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
cis-1,3-Dichloropropene	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
1,1-Dichloroethene	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
Tetrachloroethene	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
1,2-Dichlorpropane	< 10	ug/L	10	EPA 624	10/20/2015 - MWL
Ethylbenzene	< 10	ug/L	10	EPA 624	10/20/2015 - MWL
Methylene chloride	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
1,1,2,2-Tetrachloroethane	< 10	ug/L	10	EPA 624	10/20/2015 - MWL

Notes:

Report Date: 10/29/15

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www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 15-1233
Project Name / Number: City of Boonville / N/A
Date Collected: 10/08/15
Time Collected: 8:45

Sample Number: Effluent
Lab Number: 154575
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Toluene	< 10	ug/L	10	EPA 624	10/20/2015 - MWL
1,1,1-Trichloroethane	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
1,1,2-Trichloroethane	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
Trichloroethene	< 5	ug/L	5	EPA 624	10/20/2015 - MWL
Vinyl chloride	< 10	ug/L	10	EPA 624	10/20/2015 - MWL

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ANALYSIS REPORT

Chain of Custody Number: 15-1233
Project Name / Number: City of Boonville / N/A
Date Collected: 10/08/15
Time Collected: 8:45

Sample Number: Effluent
Lab Number: 154575
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
bis(2-Chloroethyl)ether	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
1,3-Dichlorobenzene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
1,4-Dichlorobenzene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
1,2-Dichlorobenzene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
bis(2-Chloroisopropyl)ether	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
N-Nitrosodimethylamine	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
N-Nitroso-di-n-propylamine	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Hexachloroethane	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Nitrobenzene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Isophorone	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
bis(2-Chloroethoxy)methane	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
1,2,4-trichlorobenzene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Naphthalene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Diethyl phthalate	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
N-Nitrosodiphenylamine	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
4-Bromophenyl phenyl ether	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Hexachlorobenzene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
3,3'-Dichlorobenzidine	< 20	ug/L	20	EPA 625	10/28/2015 - MWL
Chrysene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Benzo(a)anthracene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Benzo(k)fluoranthene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Indeno(1,2,3-cd)pyrene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Benzidine	< 51	ug/L	51	EPA 625	10/28/2015 - MWL
Benzo(g,h,i)perylene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL

Notes:

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ANALYSIS REPORT

Chain of Custody Number: 15-1233
Project Name / Number: City of Boonville / N/A
Date Collected: 10/08/15
Time Collected: 8:45

Sample Number: Effluent
Lab Number: 154575
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Hexachlorobutadiene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
2-Chloronaphthalene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Dimethyl phthalate	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Acenaphthylene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
2,6-Dinitrotoluene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Acenaphthene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
2,4-Dinitrotoluene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
4-Chlorophenyl phenyl ether	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Fluorene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Phenanthrene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Anthracene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Di-n-butyl phthalate	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Fluoranthene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Pyrene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Butyl benzyl phthalate	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
bis(2-ethylhexyl)phthalate	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Di-n-octyl phthalate	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Benzo(b)fluoranthene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Benzo(a)pyrene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Dibenz(a,h)anthracene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
1,2-Diphenylhydrazine	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Hexachlorocyclopentadiene	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
Phenol	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
2-Chlorophenol	< 10	ug/L	10	EPA 625	10/28/2015 - MWL

Notes:

Report Date: 10/29/15

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www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 15-1233
Project Name / Number: City of Boonville / N/A
Date Collected: 10/08/15
Time Collected: 8:45

Sample Number: Effluent
Lab Number: 154575
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
2-Nitrophenol	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
2,4-Dichlorophenol	< 51	ug/L	51	EPA 625	10/28/2015 - MWL
2,4-Dimethylphenol	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
4-Chloro-3-methylphenol	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
2,4,6-Trichlorophenol	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
2,4-Dinitrophenol	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
4-Nitrophenol	< 10	ug/L	10	EPA 625	10/28/2015 - MWL
4,6-Dinitro-2-methylphenol	< 25	ug/L	25	EPA 625	10/28/2015 - MWL
Pentachlorophenol	< 10	ug/L	10	EPA 625	10/28/2015 - MWL

Notes:

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CHAIN OF CUSTODY RECORD

INOVATIA LABORATORIES, LLC
120 EAST DAVIS STREET • P.O. BOX 30
FAYETTE, MO 65248-0030

PHONE: (660) 248-1911
FAX: (660) 248-1921
IL_CustServ@inovatia.com

FOR OFFICE USE ONLY

CHAIN NUMBER: 15-1233
DATE REPORTED: 10-29-2015
INVOICE NUMBER: 18139

Contact Name: Bernita Bright
Company Name: City of Boonville
Address: 1200 Locust
City, State, Zip: Boonville, MO 65233
E-Mail: wwtp@boonville-mo.org

Phone Number: 660-882-4024
Fax Number: 660-882-3325
Project Name / Number: City of Boonville
Quote Number:
Purchase Order Number: 4067

Project Due Date:
Comments:
Sampler's Name: Chris Riley (please print)
Sampler's Signature: CRiley

DISPOSITION INFORMATION

- ☐ STORE WITHIN HOLD TIME
- ☐ STORE LONG TERM
- ☐ RETURN AT CUSTOMER EXPENSE
- ☐ DISPOSE OF SAMPLE AT INOVATIA
- ☐ OTHER

NOTES:

DELIVERY METHOD: hand
CUSTODY SEALS: ☐ YES ☒ NO ☐ INTACT ☐ BROKEN
COOLANT: ☑ ICE ☐ ICE PACK ☐ NONE
PACKAGE TYPE: Cooler
ARRIVAL TEMPERATURE: 17.8 °C
MEASURED BY: ☐ TEMPERATURE BLANK ☒ SAMPLE ☐ COOLER / CONTAINER

REQUESTED ANALYSES

LAB NUMBER	Customer Sample Number	Date Collected	Time Collected	Matrix (Soil / Water / Sludge / Other)	G=grab / C=composite	No. of Containers	Method Number →	NUMBER PER REPRESENTATIVE: HCl	HNO_3	NaOH	H_2SO_4	TSP	Other: Iced Sample	Other:
1	154575	Boonville Wastewater Effluent Sample	10-9-15	08:45	WW	G	9						✓	
2														
3														
4														
5														
6														
7														
8														
9														
10														

Please see attached papers for tests that need to be ran.

Please include any information that may be useful in the analysis of the sample, such as: expected concentrations, sensitive detection limits and method of preservation

Comments:

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
CRiley			Denny Goff	10 8 15	958

Unless otherwise governed under separate contract, by signing this form, the client accepts Inovatia's standard terms and conditions for service, pricing, and payment as published on the reverse side of this form
Prior, written notification of regulatory compliance requirements (GLP/cGMP) is mandatory and may result in additional fees

When You Want Innovation, Think Inovatia™

INVOICE

INOVATIA® LABORATORIES, LLC

Remit To:
Inovatia Laboratories, LLC
Attn: Accounts Receivable
P.O. Box 456
Fayette, MO 65248-0456

Bill To	Project Information	Date
City of Boonville Wastewater Plant 1200 Locust Street Boonville, MO 65233 USA		10/29/2015

Invoice #
18139

Due Date
11/28/2015

P.O. Number	Terms	COC Number
4067	NET 30 Days	15-1233

Quantity	Description	Price Each	Amount
	Expanded Effluent Testing		
1	TTO Volatiles by EPA 624	130.00	130.00
1	TTO Semi-Volatiles (BNA) by EPA 625	255.00	255.00
1	Metals Suite: Sb, As, Be, Cd, Cr, Cu, P, Pb, Ni, Se, Ag, Tl, Zn	156.00	156.00
1	Digest Fee - Liquid Matrix	10.00	10.00
1	Hexavalent Chromium - Liquid Matrix by SM 3500 Cr B	32.50	32.50
1	Mercury (Hg) with Digestion	42.50	42.50
1	Hardness (Total Ca and Mg by ICP)	25.00	25.00
1	Nitrogen Series (Ammonia, Kjeldahl, and Nitrate-Nitrite Nitrogen)	75.00	75.00
1	Hexane Extractable Material (HEM) - Water and Wastewater Matrix - by EPA 1664	42.50	42.50
1	Total Dissolved Solids by SM 2540 C	17.50	17.50
1	Total Cyanide in Water/Wastewater	42.00	42.00
1	Phenolics (EPA 9065A)	46.00	46.00

Original Invoice - Please Route to Accounts Payable Department

MasterCard and VISA Accepted
Past Due Accounts will be Assessed a 0.75% per Month Service Fee

Total $874.00

www.inovatia.com
120 East Davis Street | P.O. Box 30 | Fayette, MO 65248
p: 660-248-1911 | f: 660-248-1921

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4/6/2018

RECEIVED
JUN 24 2019
Water Protection Program

City of Boonville Waste Water Plant
1200 Locust Street
Boonville, MO 65233
Bernita Bright

Project Name/Number: City of Boonville / N/A
Chain of Custody Number: 18-0212

Date Received: March 6, 2018
Time Received: 10:24
Relinquished by: Graham Powers
Sampler: Graham Powers

Enclosed please find analytical results for sample(s) received as described above. The values reported are in conformance with internal and method quality control guidelines, unless otherwise noted. If you have questions or need more information, please contact us.

Thank you for your interest in working with Inovatia Laboratories.

Sincerely,

Jennifer Vandelicht

Jennifer Vandelicht
Quality Assurance

Enclosures: Chain of Custody Record(s)

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Fayette, MO 65248-0030

Phone: (660) 248-1911
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www.inovatia.com

ANALYSIS REPORT

Chain of Custody Number: 18-0212
Project Name / Number: City of Boonville / N/A
Date Collected: 03/06/18
Time Collected: 09:30

Sample Number: Effluent Sample
Lab Number: 180795
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Cyanide, Total	< 0.032	mg/L	0.032	SM 4500 CN E	3/14/2018 - SET
Hardness	320	mg eq CaCO3/L	16.5	SM 2340 B	3/8/2018 - DS
Nitrogen, Ammonia	0.282	mg/L	0.1	SM4500-NH3.B,D	3/8/2018 - DS
Hexane Extractable Material (HEM)	< 5	mg/L	5	EPA 1664 B	3/9/2018 - BD
Phenolics	< 0.05	mg/L	0.05	EPA 420.1	3/15/2018 - SET
Beryllium, Total	< 0.015	mg/L	0.015	EPA 200.8	3/20/2018 - DS
Aluminum, Total	< 0.015	mg/L	0.015	EPA 200.8	3/20/2018 - DS
Chromium, Hexavalent	< 0.025	mg/L	0.025	SM 3500 Cr B	3/6/2018 - CD
Chromium, Trivalent	< 0.025	mg/L	0.025	Calculation	3/20/2018 - DS
Iron, Total	< 0.250	mg/L	0.250	EPA 200.8	3/20/2018 - DS
Nickel, Total	< 0.015	mg/L	0.015	EPA 200.8	3/20/2018 - DS
Copper, Total	0.005	mg/L	0.001	EPA 200.8	4/2/2018 - DS
Zinc, Total	0.049	mg/L	0.015	EPA 200.8	3/20/2018 - DS
Arsenic, Total	< 0.015	mg/L	0.015	EPA 200.8	3/20/2018 - DS
Selenium, Total	< 0.015	mg/L	0.015	EPA 200.8	3/20/2018 - DS
Silver, Total	< 0.015	mg/L	0.015	EPA 200.8	3/20/2018 - DS
Cadmium, Total	< 0.015	mg/L	0.015	EPA 200.8	3/20/2018 - DS
Antimony, Total	< 0.108	mg/L	0.108	EPA 200.7	3/15/2018 - SET
Mercury, Total	< 0.0005	mg/L	0.0005	EPA 245.1	3/16/2018 - SET
Thallium, Total	< 0.015	mg/L	0.015	EPA 200.8	3/20/2018 - DS
Lead, Total	< 0.015	mg/L	0.015	EPA 200.8	3/20/2018 - DS
Acrolein	< 0.05	mg/L	0.05	EPA 624	3/10/2018 - SET
Acrylonitrile	< 0.05	mg/L	0.05	EPA 624	3/10/2018 - SET
Benzene	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
Bromodichloromethane	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET

Notes:

Report Date: 04/06/18

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Phone: (660) 248-1911
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ANALYSIS REPORT

Chain of Custody Number: 18-0212
Project Name / Number: City of Boonville / N/A
Date Collected: 03/06/18
Time Collected: 09:30

Sample Number: Effluent Sample
Lab Number: 180795
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Bromoform	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
Bromomethane	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
Carbon tetrachloride	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
Chlorobenzene	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
Chlorodibromomethane	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
Chloroethane	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
2-Chloroethyl vinyl ether	< 0.01	mg/L	0.01	EPA 624	3/10/2018 - SET
Chloroform	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
Chloromethane	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
1,2-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
1,3-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
1,4-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
1,1-Dichloroethane	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
1,2-Dichloroethane	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
trans-1,2-Dichloroethene	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
trans-1,3-Dichloropropene	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
cis-1,3-Dichloropropene	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
1,1-Dichloroethene	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
Tetrachloroethene	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
1,2-Dichlorpropane	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
Ethylbenzene	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
Methylene chloride	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
1,1,2,2-Tetrachloroethane	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
Toluene	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET

Notes:

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ANALYSIS REPORT

Chain of Custody Number: 18-0212
Project Name / Number: City of Boonville / N/A
Date Collected: 03/06/18
Time Collected: 09:30

Sample Number: Effluent Sample
Lab Number: 180795
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
1,1,1-Trichloroethane	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
1,1,2-Trichloroethane	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
Hexachloroethane	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
Trichloroethene	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
Vinyl chloride	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET
Hexachlorobutadiene	< 0.005	mg/L	0.005	EPA 624	3/10/2018 - SET

Notes:

Report Date: 04/06/18

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ANALYSIS REPORT

Chain of Custody Number: 18-0212
Project Name / Number: City of Boonville / N/A
Date Collected: 03/06/18
Time Collected: 09:30

Sample Number: Effluent Sample
Lab Number: 180795
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
bis(2-Chloroethyl) ether	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
1,3-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
1,4-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
1,2-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
bis(2-Chloroisopropyl) ether	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
N-Nitrosodimethylamine	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
N-Nitroso-di-n-propylamine	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Hexachloroethane	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Nitrobenzene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Isophorone	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
bis(2-Chloroethoxy) methane	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
1,2,4-trichlorobenzene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Naphthalene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Diethyl phthalate	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
N-Nitrosodiphenylamine	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
4-Bromophenyl phenyl ether	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Hexachlorobenzene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
3,3'-Dichlorobenzidine	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Chrysene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Benzo (a) anthracene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Benzo (k) fluoranthene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Indeno (1,2,3-cd) pyrene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Benzidine	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Benzo (g,h,i) perylene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET

Notes:

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ANALYSIS REPORT

Chain of Custody Number: 18-0212
Project Name / Number: City of Boonville / N/A
Date Collected: 03/06/18
Time Collected: 09:30

Sample Number: Effluent Sample
Lab Number: 180795
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Hexachlorobutadiene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
2-Chloronaphthalene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Dimethyl phthalate	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Acenaphthylene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
2,6-Dinitrotoluene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Acenaphthene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
2,4-Dinitrotoluene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
4-Chlorophenyl phenyl ether	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Fluorene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Phenanthrene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Anthracene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Di-n-butyl phthalate	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Fluoranthene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Pyrene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Butyl benzyl phthalate	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
bis(2-ethylhexyl) phthalate	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Di-n-octyl phthalate	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Benzo (b) fluoranthene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Benzo (a) pyrene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Dibenz (a,h) anthracene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
1,2-Diphenylhydrazine	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Hexachlorocyclopentadiene	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Phenol	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
2-Chlorophenol	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET

Notes:

Report Date: 04/06/18

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ANALYSIS REPORT

Chain of Custody Number: 18-0212
Project Name / Number: City of Boonville / N/A
Date Collected: 03/06/18
Time Collected: 09:30

Sample Number: Effluent Sample
Lab Number: 180795
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
2-Nitrophenol	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
2,4-Dichlorophenol	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
2,4-Dimethylphenol	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
4-Chloro-3-methylphenol	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
2,4,6-Trichlorophenol	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
2,4-Dinitrophenol	< 0.025	mg/L	0.025	EPA 625	3/14/2018 - SET
4-Nitrophenol	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
4,6-Dinitro-2-methylphenol	< 0.005	mg/L	0.005	EPA 625	3/14/2018 - SET
Pentachlorophenol	< 0.025	mg/L	0.025	EPA 625	3/14/2018 - SET

Notes:

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CHAIN OF CUSTODY RECORD

INOVATIA LABORATORIES, LLC
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FAX: (660) 248-1921
IL_CustServ@inovatia.com

FOR OFFICE USE ONLY:
CHAIN NUMBER: 18-0212
DATE REPORTED: 4-6-18
INVOICE NUMBER: 21681

Contact Name: Bernita Bright
Company Name: City of Boonville
Address: 1200 Locust
City, State, Zip: Boonville, Mo 65233
E-Mail: wwtp@boonville-mo.org
Phone Number: 660-882-4024
Fax Number: 660-882-3385
Project Name / Number: City of Boonville
Quote Number: 120759
Purchase Order Number: 4407
Project Due Date:
Comments:
Sampler's Name: Graham Powers (please print)
Sampler's Signature: Graham Powers

DISPOSITION INFORMATION
- ☐ STORE WITHIN HOLD TIME
- ☐ STORE LONG TERM
- ☐ RETURN AT CUSTOMER EXPENSE
- ☐ DISPOSE OF SAMPLE AT INOVATIA
- ☐ OTHER

NOTES:

FOR OFFICE USE ONLY:
DELIVERY METHOD: hand
CUSTODY SEALS: ☐ YES ☑ NO ☐ INTACT ☐ BROKEN
COOLANT: ☑ ICE ☐ ICE PACK ☐ NONE
PACKAGE TYPE: Cooler
ARRIVAL TEMPERATURE: 9.8 °C
MEASURED BY: ☐ TEMPERATURE BLANK ☑ SAMPLE ☐ COOLER / CONTAINER

Method Number →

REQUESTED ANALYSES

NUMBER PER REPRESENTATIVE

	LAB NUMBER	Customer Sample Number	Date Collected	Time Collected	Matrix (Soil / Water / Sludge / Other)	G=grab / C=composite	No. of Containers	HCl	HNO_3	NaOH	H_2SO_4	TSP	Other: Iced Sample	Other:
1	180795	Boonville Wastewater Effluent Sample	3-6-18	09:30	WW	G	10						✓	
2														
3														
4														
5														
6														
7														
8														
9														
10														

Please see attached papers for tests that need to be ran.

Please include any information that may be useful in the analysis of the sample, such as: expected concentrations, required detection limits, and method of collection.

Comments:
Note: Do low detection limit on ~~[illegible]~~ ~~[illegible]~~ ~~[illegible]~~ on copper.

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Graham Powers	3-6-18	10:25	Penny Goff	3-6-18	1024

Unless otherwise governed under separate contract, by signing this form, the client accepts Inovatia's standard terms and conditions for service, pricing, and payment as published on the reverse side of this form. Prior, written notification of regulatory compliance requirements (GLP/cGMP) is mandatory and may result in additional fees.

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9/28/2018

RECEIVED
JUN 24 2019
Water Protection Program

City of Boonville Waste Water Plant
1200 Locust Street
Boonville, MO 65233
Bernita Bright

Project Name/Number: City of Boonville / N/A
Chain of Custody Number: 18-0980

Date Received: September 12, 2018
Time Received: 09:09
Relinquished by: Graham Powers
Sampler: Graham Powers

Enclosed please find analytical results for sample(s) received as described above. The values reported are in conformance with internal and method quality control guidelines, unless otherwise noted. If you have questions or need more information, please contact us.

Thank you for your interest in working with Inovatia Laboratories.

Sincerely,

Jennifer Vandelicht
Jennifer Vandelicht
Quality Assurance

Enclosures: Chain of Custody Record(s)

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ANALYSIS REPORT

Chain of Custody Number: 18-0980
Project Name / Number: City of Boonville / N/A
Date Collected: 09/12/18
Time Collected: 8:50

Sample Number: Effluent Sample
Lab Number: 183669
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Cyanide, Total	< 0.032	mg/L	0.032	SM 4500 CN E	9/20/2018 - SET
Hardness	264	mg eq CaCO3/L	16.5	SM 2340 B	9/21/2018 - DS
Nitrogen, Ammonia	0.124	mg/L	0.1	SM4500-NH3.B,D	9/20/2018 - DS
Hexane Extractable Material (HEM)	< 5	mg/L	5	EPA 1664 B	9/14/2018 - BD
Phenolics	< 0.05	mg/L	0.05	EPA 420.1	9/21/2018 - SET
Beryllium, Total	< 0.001	mg/L	0.001	EPA 200.8	9/26/2018 - DS
Aluminum, Total	0.013	mg/L	0.001	EPA 200.8	9/26/2018 - DS
Chromium, Hexavalent	< 0.025	mg/L	0.025	SM 3500 Cr B	9/12/2018 - HM
Chromium, Trivalent	< 0.025	mg/L	0.025	Calculation	9/26/2018 - DS
Iron, Total	0.194	mg/L	0.050	EPA 200.8	9/26/2018 - DS
Nickel, Total	0.005	mg/L	0.001	EPA 200.8	9/26/2018 - DS
Copper, Total	0.007	mg/L	0.001	EPA 200.8	9/26/2018 - DS
Zinc, Total	0.023	mg/L	0.001	EPA 200.8	9/26/2018 - DS
Arsenic, Total	0.002	mg/L	0.001	EPA 200.8	9/26/2018 - DS
Selenium, Total	< 0.001	mg/L	0.001	EPA 200.8	9/26/2018 - DS
Silver, Total	< 0.002	mg/L	0.002	EPA 200.8	9/26/2018 - DS
Cadmium, Total	< 0.001	mg/L	0.001	EPA 200.8	9/26/2018 - DS
Antimony, Total	< 0.108	mg/L	0.108	EPA 200.7	9/19/2018 - SET
Mercury, Total	< 0.0005	mg/L	0.0005	EPA 245.1	9/17/2018 - SET
Thallium, Total	< 0.020	mg/L	0.020	EPA 200.7	9/19/2018 - SET
Lead, Total	< 0.001	mg/L	0.001	EPA 200.8	9/26/2018 - DS
Acrolein	< 0.05	mg/L	0.05	EPA 624	9/21/2018 - SET
Acrylonitrile	< 0.05	mg/L	0.05	EPA 624	9/21/2018 - SET
Benzene	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
Bromodichloromethane	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET

Notes:

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ANALYSIS REPORT

Chain of Custody Number: 18-0980
Project Name / Number: City of Boonville / N/A
Date Collected: 09/12/18
Time Collected: 8:50

Sample Number: Effluent Sample
Lab Number: 183669
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Bromoform	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
Bromomethane	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
Carbon tetrachloride	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
Chlorobenzene	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
Chlorodibromomethane	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
Chloroethane	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
2-Chloroethyl vinyl ether	< 0.01	mg/L	0.01	EPA 624	9/21/2018 - SET
Chloroform	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
Chloromethane	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
1,2-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
1,3-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
1,4-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
1,1-Dichloroethane	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
1,2-Dichloroethane	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
trans-1,2-Dichloroethene	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
trans-1,3-Dichloropropene	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
cis-1,3-Dichloropropene	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
1,1-Dichloroethene	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
Tetrachloroethene	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
1,2-Dichlorpropane	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
Ethylbenzene	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
Methylene chloride	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
1,1,2,2-Tetrachloroethane	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
Toluene	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET

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ANALYSIS REPORT

Chain of Custody Number: 18-0980
Project Name / Number: City of Boonville / N/A
Date Collected: 09/12/18
Time Collected: 8:50

Sample Number: Effluent Sample
Lab Number: 183669
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
1,1,1-Trichloroethane	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
1,1,2-Trichloroethane	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
Hexachloroethane	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
Trichloroethene	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
Vinyl chloride	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET
Hexachlorobutadiene	< 0.005	mg/L	0.005	EPA 624	9/21/2018 - SET

Notes:

Report Date: 09/28/18

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ANALYSIS REPORT

Chain of Custody Number: 18-0980
Project Name / Number: City of Boonville / N/A
Date Collected: 09/12/18
Time Collected: 08:15

Sample Number: Effluent Sample
Lab Number: 183669
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
bis(2-Chloroethyl) ether	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
1,3-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
1,4-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
1,2-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
bis(2-Chloroisopropyl) ether	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
N-Nitrosodimethylamine	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
N-Nitroso-di-n-propylamine	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Hexachloroethane	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Nitrobenzene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Isophorone	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
bis(2-Chloroethoxy) methane	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
1,2,4-trichlorobenzene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Naphthalene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Diethyl phthalate	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
N-Nitrosodiphenylamine	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
4-Bromophenyl phenyl ether	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Hexachlorobenzene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
3,3'-Dichlorobenzidine	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Chrysene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Benzo (a) anthracene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Benzo (k) fluoranthene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Indeno (1,2,3-cd) pyrene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Benzidine	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Benzo (g,h,i) perylene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET

Notes:

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ANALYSIS REPORT

Chain of Custody Number: 18-0980
Project Name / Number: City of Boonville / N/A
Date Collected: 09/12/18
Time Collected: 08:15

Sample Number: Effluent Sample
Lab Number: 183669
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Hexachlorobutadiene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
2-Chloronaphthalene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Dimethyl phthalate	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Acenaphthylene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
2,6-Dinitrotoluene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Acenaphthene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
2,4-Dinitrotoluene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
4-Chlorophenyl phenyl ether	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Fluorene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Phenanthrene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Anthracene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Di-n-butyl phthalate	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Fluoranthene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Pyrene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Butyl benzyl phthalate	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
bis(2-ethylhexyl) phthalate	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Di-n-octyl phthalate	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Benzo (b) fluoranthene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Benzo (a) pyrene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Dibenz (a,h) anthracene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
1,2-Diphenylhydrazine	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Hexachlorocyclopentadiene	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Phenol	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
2-Chlorophenol	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET

Notes:

Report Date: 09/28/18

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ANALYSIS REPORT

Chain of Custody Number: 18-0980
Project Name / Number: City of Boonville / N/A
Date Collected: 09/12/18
Time Collected: 08:15

Sample Number: Effluent Sample
Lab Number: 183669
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
2-Nitrophenol	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
2,4-Dichlorophenol	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
2,4-Dimethylphenol	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
4-Chloro-3-methylphenol	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
2,4,6-Trichlorophenol	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
2,4-Dinitrophenol	< 0.025	mg/L	0.025	EPA 625	9/20/2018 - SET
4-Nitrophenol	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
4,6-Dinitro-2-methylphenol	< 0.005	mg/L	0.005	EPA 625	9/20/2018 - SET
Pentachlorophenol	< 0.025	mg/L	0.025	EPA 625	9/20/2018 - SET

Notes:

Report Date: 09/28/18

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CHAIN OF CUSTODY RECORD

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IL_CustServ@inovatia.com

FOR OFFICE USE ONLY:
CHAIN NUMBER: 18-0980
DATE REPORTED: 9-28-2018.
INVOICE NUMBER: 22433

Contact Name: Bernita Bright
Company Name: City of Boonville
Address: 1206 Locust
City, State, Zip: Boonville, Mo 65233
E-Mail: wwtp@boonville-mo.org

Phone Number: 660-882-4624
Fax Number: 660-882-3385
Project Name / Number: City of Boonville
Quote Number:
Purchase Order Number: 4458

Project Due Date:
Comments:
Sampler's Name: (please print) Bernita Bright
Sampler's Signature: Bernita Bright

DISPOSITION INFORMATION

- ☐ STORE WITHIN HOLD TIME
- ☐ STORE LONG TERM
- ☐ RETURN AT CUSTOMER EXPENSE
- ☐ DISPOSE OF SAMPLE AT INOVATIA
- ☐ OTHER

NOTES:

FOR OFFICE USE ONLY:
DELIVERY METHOD: hand
CUSTODY SEALS: ☐ YES ☑ NO ☐ INTACT ☐ BROKEN
COOLANT: ☑ ICE ☐ ICE PACK ☐ NONE
PACKAGE TYPE: Cooler
ARRIVAL TEMPERATURE: 2.6 °C
MEASURED BY: ☐ TEMPERATURE BLANK ☑ SAMPLE ☐ COOLER / CONTAINER

REQUESTED ANALYSES

LAB NUMBER	Customer Sample Number	Date Collected	Time Collected	Matrix (Soil / Water / Sludge / Other)	G=grab / C=composite	No. of Containers	Method Number →	NUMBER PER REPRESENTATIVE: HCl	HNO_3	NaOH	H_2SO_4	TSP	Other: Final Sample	Other:	Please see attached papers for tests that need to be ran.
1	183669	Boonville Wastewater Effluent Sample	9-12-18	08:15	WW	G	10						✓		
2															
3															
4															
5															
6															
7															
8															
9															
10															

Please include any information that may be useful in the analysis of the sample, such as: expected concentrations, required detection limits, and method of collection.

Comments:

Note: Do have detection limit on copper

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Graham Powers	9-12-18	09:09	Penny Gatt	9-12-18	905

Unless otherwise governed under separate contract, by signing this form, the client accepts Inovatia's standard terms and conditions for service, pricing, and payment as published on the reverse side of this form.
Prior, written notification of regulatory compliance requirements (GLP/cGMP) is mandatory and may result in additional fees.

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10/29/2018

RECEIVED
JUN 24 2019
Water Protection Program

City of Boonville Waste Water Plant
1200 Locust Street
Boonville, MO 65233
Bernita Bright

Project Name/Number: City of Boonville / N/A
Chain of Custody Number: 18-1186

Date Received: October 9, 2018
Time Received: 10:06
Relinquished by: Graham Powers
Sampler: Graham Powers

Enclosed please find analytical results for sample(s) received as described above. The values reported are in conformance with internal and method quality control guidelines, unless otherwise noted. If you have questions or need more information, please contact us.

Thank you for your interest in working with Inovatia Laboratories.

Sincerely,

Jennifer Vandelicht

Jennifer Vandelicht
Quality Assurance

Enclosures: Chain of Custody Record(s)

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ANALYSIS REPORT

Chain of Custody Number: 18-1186
Project Name / Number: City of Boonville / N/A
Date Collected: 10/09/18
Time Collected: 09:10

Sample Number: Effluent Sample
Lab Number: 184255
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Cyanide, Total	< 0.02	mg/L	0.02	SM 4500 CN E	10/17/2018 - SET
Hardness	278	mg eq CaCO3/L	16.5	SM 2340 B	10/15/2018 - DS
Nitrogen, Ammonia	0.113	mg/L	0.1	SM4500-NH3.B,D	10/17/2018 - DS
Hexane Extractable Material (HEM)	< 5	mg/L	5	EPA 1664 B	10/16/2018 - BD
Phenolics	< 0.05	mg/L	0.05	EPA 420.1	10/23/2018 - SET
Beryllium, Total	< 0.005	mg/L	0.005	EPA 200.8	10/15/2018 - DS
Aluminum, Total	0.013	mg/L	0.005	EPA 200.8	10/15/2018 - DS
Chromium, Total	< 0.005	mg/L	0.005	EPA 200.8	10/9/2018 - BD
Chromium, Hexavalent	< 0.003	mg/L	0.003	SM 3500 Cr B	10/9/2018 - BD
Iron, Total	< 0.250	mg/L	0.250	EPA 200.8	10/15/2018 - DS
Nickel, Total	0.006	mg/L	0.005	EPA 200.8	10/15/2018 - DS
Copper, Total	0.004	mg/L	0.001	EPA 200.8	10/15/2018 - DS
Zinc, Total	0.023	mg/L	0.005	EPA 200.8	10/15/2018 - DS
Arsenic, Total	< 0.005	mg/L	0.005	EPA 200.8	10/15/2018 - DS
Selenium, Total	< 0.005	mg/L	0.005	EPA 200.8	10/15/2018 - DS
Silver, Total	< 0.005	mg/L	0.005	EPA 200.8	10/15/2018 - DS
Cadmium, Total	< 0.005	mg/L	0.005	EPA 200.8	10/15/2018 - DS
Antimony, Total	< 0.108	mg/L	0.108	EPA 200.7	10/16/2018 - SET
Mercury, Total	< 0.0005	mg/L	0.001	EPA 245.1	10/15/2018 - SET
Thallium, Total	< 0.020	mg/L	0.020	EPA 200.7	10/16/2018 - SET
Lead, Total	< 0.005	mg/L	0.005	EPA 200.8	10/15/2018 - DS
Acrolein	< 0.050	mg/L	0.050	EPA 624	10/18/2018 - SET
Acrylonitrile	< 0.050	mg/L	0.050	EPA 624	10/18/2018 - SET
Benzene	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET

Notes:

Report Date: 10/29/18

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ANALYSIS REPORT

Chain of Custody Number: 18-1186
Project Name / Number: City of Boonville / N/A
Date Collected: 10/09/18
Time Collected: 09:10

Sample Number: Effluent Sample
Lab Number: 184255
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Bromodichloromethane	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
Bromoform	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
Bromomethane	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
Carbon tetrachloride	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
Chlorobenzene	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
Chlorodibromomethane	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
Chloroethane	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
2-Chloroethyl vinyl ether	< 0.01	mg/L	0.01	EPA 624	10/18/2018 - SET
Chloroform	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
Chloromethane	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
1,2-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
1,3-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
1,4-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
1,1-Dichloroethane	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
1,2-Dichloroethane	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
trans-1,2-Dichloroethene	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
trans-1,3-Dichloropropene	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
cis-1,3-Dichloropropene	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
1,1-Dichloroethene	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
Tetrachloroethene	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
1,2-Dichlorpropane	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
Ethylbenzene	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
Methylene chloride	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
1,1,2,2-Tetrachloroethane	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET

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ANALYSIS REPORT

Chain of Custody Number: 18-1186
Project Name / Number: City of Boonville / N/A
Date Collected: 10/09/18
Time Collected: 09:10

Sample Number: Effluent Sample
Lab Number: 184255
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Toluene	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
1,1,1-Trichloroethane	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
1,1,2-Trichloroethane	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
Trichlorofluoromethane	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
Trichloroethene	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
Vinyl chloride	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET
Xylene	< 0.005	mg/L	0.005	EPA 624	10/18/2018 - SET

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ANALYSIS REPORT

Chain of Custody Number: 18-1186
Project Name / Number: City of Boonville / N/A
Date Collected: 10/09/18
Time Collected: 09:10

Sample Number: Effluent Sample
Lab Number: 184255
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
bis(2-Chloroethyl) ether	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
1,3-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
1,4-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
1,2-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
bis(2-Chloroisopropyl) ether	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
N-Nitrosodimethylamine	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
N-Nitroso-di-n-propylamine	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Hexachloroethane	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Nitrobenzene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Isophorone	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
bis(2-Chloroethoxy) methane	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
1,2,4-trichlorobenzene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Naphthalene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Diethyl phthalate	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
N-Nitrosodiphenylamine	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
4-Bromophenyl phenyl ether	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Hexachlorobenzene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
3,3'-Dichlorobenzidine	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Chrysene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Benzo (a) anthracene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Benzo (k) fluoranthene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Indeno (1,2,3-cd) pyrene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Benzidine	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Benzo (g,h,i) perylene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET

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ANALYSIS REPORT

Chain of Custody Number: 18-1186
Project Name / Number: City of Boonville / N/A
Date Collected: 10/09/18
Time Collected: 09:10

Sample Number: Effluent Sample
Lab Number: 184255
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Hexachlorobutadiene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
2-Chloronaphthalene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Dimethyl phthalate	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Acenaphthylene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
2,6-Dinitrotoluene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Acenaphthene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
2,4-Dinitrotoluene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
4-Chlorophenyl phenyl ether	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Fluorene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Phenanthrene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Anthracene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Di-n-butyl phthalate	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Fluoranthene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Pyrene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Butyl benzyl phthalate	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
bis(2-ethylhexyl) phthalate	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Di-n-octyl phthalate	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Benzo (b) fluoranthene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Benzo (a) pyrene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Dibenz (a,h) anthracene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
1,2-Diphenylhydrazine	< 0.020	mg/L	0.020	EPA 625	10/18/2018 - SET
Hexachlorocyclopentadiene	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Phenol	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
2-Chlorophenol	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET

Notes:

Report Date: 10/29/18

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ANALYSIS REPORT

Chain of Custody Number: 18-1186
Project Name / Number: City of Boonville / N/A
Date Collected: 10/09/18
Time Collected: 09:10

Sample Number: Effluent Sample
Lab Number: 184255
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
2-Nitrophenol	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
2,4-Dichlorophenol	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
2,4-Dimethylphenol	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
4-Chloro-3-methylphenol	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
2,4,6-Trichlorophenol	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
2,4-Dinitrophenol	< 0.025	mg/L	0.025	EPA 625	10/18/2018 - SET
4-Nitrophenol	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
4,6-Dinitro-2-methylphenol	< 0.005	mg/L	0.005	EPA 625	10/18/2018 - SET
Pentachlorophenol	< 0.025	mg/L	0.025	EPA 625	10/18/2018 - SET
Cresols, Total	< 0.025	mg/L	0.025	EPA 625	10/18/2018 - SET

Notes:

Report Date: 10/29/18

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FOR OFFICE USE ONLY:
CHAIN NUMBER: 181186
DATE REPORTED: 10/26/18
INVOICE NUMBER: 22577

Contact Name: Barnita Bright
Company Name: City of Boonville
Address: 1200 Locust St.
City, State, Zip: Boonville, Mo 65233
E-Mail: wwtp@boonville-mo.org
Phone Number: 660-882-4024
Fax Number: 660-882-3385
Project Name / Number: City of Boonville
Quote Number:
Purchase Order Number: 4543
Project Due Date:
Comments:
Sampler's Name: Graham Powers (please print)
Sampler's Signature: Graham Powers

DISPOSITION INFORMATION
- ☐ STORE WITHIN HOLD TIME
- ☐ STORE LONG TERM
- ☐ RETURN AT CUSTOMER EXPENSE
- ☐ DISPOSE OF SAMPLE AT INOVATIA
- ☐ OTHER

NOTES:

FOR OFFICE USE ONLY:
DELIVERY METHOD: hand
CUSTODY SEALS: ☐ YES ☑ NO ☐ INTACT ☐ BROKEN
COOLANT: ☑ ICE ☐ ICE PACK ☐ NONE
PACKAGE TYPE: Cooler
ARRIVAL TEMPERATURE: 21.2 °C
MEASURED BY: ☐ TEMPERATURE BLANK ☑ SAMPLE ☐ COOLER / CONTAINER

Method Number →

REQUESTED ANALYSES

NUMBER PER REPRESENTATIVE

	LAB NUMBER	Customer Sample Number	Date Collected	Time Collected	Matrix Soil / Water / Sludge / Other	G=grab / C=composite	No. of Containers	HCl	HNO_3	NaOH	H_2SO_4	TSP	Other: Iced Samples	Other:	Please see attached papers for tests that need to be ran.	Comments:
1	184255	Boonville Wastewater Effluent Sample	10-9-18	09:10	WW	G	10						✓			Note: Do low-dection limit on copper & chromium VI
2																
3																
4																
5																
6																
7																
8																
9																
10																

Please include any information that may be useful in the analysis of the sample, such as: expected concentrations, required detection limits, and method of collection.

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Graham Powers	10-9-18	10:07	Penny Goff	10-9-18	10 06

Unless otherwise governed under separate contract, by signing this form, the client accepts Inovatia's standard terms and conditions for service, pricing, and payment as published on the reverse side of this form. Prior, written notification of regulatory compliance requirements (GLP/cGMP) is mandatory and may result in additional fees.

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RECEIVED
JUN 24 2019
Water Protection Program

4/18/2019

City of Boonville Waste Water Plant
1200 Locust Street
Boonville, MO 65233
Bernita Bright

Project Name/Number: N/A / N/A
Chain of Custody Number: 19-0263

Date Received: April 1, 2019
Time Received: 10:29
Relinquished by: Graham Powers
Sampler: Graham Powers

Enclosed please find analytical results for sample(s) received as described above. The values reported are in conformance with internal and method quality control guidelines, unless otherwise noted. If you have questions or need more information, please contact us.

Thank you for your interest in working with Inovatia Laboratories.

Sincerely,

Jennifer Vandelicht

Jennifer Vandelicht
Quality Assurance

Enclosures: Chain of Custody Record(s)

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ANALYSIS REPORT

Chain of Custody Number: 19-0263
Project Name / Number: N/A / N/A
Date Collected: 04/01/19
Time Collected: 09:45

Sample Number: Effluent Sample
Lab Number: 191160
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Cyanide, Total	< 0.02	mg/L	0.02	SM 4500 CN E	4/07/2019 - SET
Hardness	289	mg eq CaCO3/L	10.0	SM 2340 B	4/08/2019 - SET
Nitrogen, Ammonia	0.109	mg/L	0.1	SM4500-NH3.B,D	4/02/2019 - HM
Hexane Extractable Material (HEM)	< 5	mg/L	5	EPA 1664 B	4/11/2019 - HM
Phenolics	< 0.05	mg/L	0.05	EPA 420.1	4/04/2019 - SET
Beryllium, Total	< 0.004	mg/L	0.004	EPA 200.7	4/08/2019 - SET
Aluminum, Total	< 0.500	mg/L	0.500	EPA 200.7	4/08/2019 - SET
Chromium, Total	< 0.020	mg/L	0.020	EPA 200.7	4/08/2019 - SET
Chromium, Hexavalent	0.004	mg/L	0.003	SM 3500 Cr B	4/01/2019 - HM
Iron, Total	< 0.100	mg/L	0.100	EPA 200.7	4/08/2019 - SET
Nickel, Total	< 0.020	mg/L	0.020	EPA 200.7	4/08/2019 - SET
Copper, Total	0.004	mg/L	0.001	EPA 200.8	4/16/ 2019- SET
Zinc, Total	0.026	mg/L	0.020	EPA 200.7	4/08/2019 - SET
Arsenic, Total	< 0.020	mg/L	0.020	EPA 200.7	4/08/2019 - SET
Selenium, Total	< 0.025	mg/L	0.025	EPA 200.7	4/08/2019 - SET
Silver, Total	< 0.020	mg/L	0.020	EPA 200.7	4/08/2019 - SET
Cadmium, Total	< 0.005	mg/L	0.005	EPA 200.7	4/08/2019 - SET
Antimony, Total	< 0.108	mg/L	0.108	EPA 200.7	4/08/2019 - SET
Mercury, Total	< 0.0002	mg/L	0.0002	EPA 245.1	4/04/2019 - SET
Thallium, Total	< 0.020	mg/L	0.020	EPA 200.7	4/08/2019 - SET
Lead, Total	< 0.015	mg/L	0.015	EPA 200.7	4/08/2019 - SET
Acrolein	< 0.050	mg/L	0.050	EPA 624	4/05/2019 - SET
Acrylonitrile	< 0.050	mg/L	0.050	EPA 624	4/05/2019 - SET
Benzene	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET

Notes:

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ANALYSIS REPORT

Chain of Custody Number: 19-0263
Project Name / Number: N/A / N/A
Date Collected: 04/01/19
Time Collected: 09:45

Sample Number: Effluent Sample
Lab Number: 191160
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Bromodichloromethane	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
Bromoform	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
Bromomethane	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
Carbon tetrachloride	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
Chlorobenzene	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
Chlorodibromomethane	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
Chloroethane	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
2-Chloroethyl vinyl ether	< 0.01	mg/L	0.01	EPA 624	4/05/2019 - SET
Chloroform	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
Chloromethane	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
1,2-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
1,3-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
1,4-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
1,1-Dichloroethane	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
1,2-Dichloroethane	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
trans-1,2-Dichloroethene	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
trans-1,3-Dichloropropene	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
cis-1,3-Dichloropropene	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
1,1-Dichloroethene	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
Tetrachloroethene	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
1,2-Dichlorpropane	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
Ethylbenzene	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
Methylene chloride	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
1,1,2,2-Tetrachloroethane	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET

Notes:

Report Date: 04/18/19

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ANALYSIS REPORT

Chain of Custody Number: 19-0263
Project Name / Number: N/A / N/A
Date Collected: 04/01/19
Time Collected: 09:45

Sample Number: Effluent Sample
Lab Number: 191160
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Toluene	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
1,1,1-Trichloroethane	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
1,1,2-Trichloroethane	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
Trichlorofluoromethane	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
Trichloroethene	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
Vinyl chloride	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET
Xylene	< 0.005	mg/L	0.005	EPA 624	4/05/2019 - SET

Notes:

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ANALYSIS REPORT

Chain of Custody Number: 19-0263
Project Name / Number: N/A / N/A
Date Collected: 04/01/19
Time Collected: 09:45

Sample Number: Effluent Sample
Lab Number: 191160
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
bis(2-Chloroethyl) ether	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
1,3-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
1,4-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
1,2-Dichlorobenzene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
bis(2-Chloroisopropyl) ether	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
N-Nitrosodimethylamine	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
N-Nitroso-di-n-propylamine	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Hexachloroethane	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Nitrobenzene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Isophorone	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
bis(2-Chloroethoxy) methane	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
1,2,4-trichlorobenzene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Naphthalene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Diethyl phthalate	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
N-Nitrosodiphenylamine	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
4-Bromophenyl phenyl ether	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Hexachlorobenzene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
3,3'-Dichlorobenzidine	< 0.060	mg/L	0.060	EPA 625	4/09/2019 - SET
Chrysene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Benzo (a) anthracene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Benzo (k) fluoranthene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Indeno (1,2,3-cd) pyrene	< 0.014	mg/L	0.014	EPA 625	4/09/2019 - SET
Benzidine	< 0.085	mg/L	0.085	EPA 625	4/09/2019 - SET
Benzo (g,h,i) perylene	< 0.015	mg/L	0.015	EPA 625	4/09/2019 - SET

Notes:

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ANALYSIS REPORT

Chain of Custody Number: 19-0263
Project Name / Number: N/A / N/A
Date Collected: 04/01/19
Time Collected: 09:45

Sample Number: Effluent Sample
Lab Number: 191160
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
Hexachlorobutadiene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
2-Chloronaphthalene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Dimethyl phthalate	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Acenaphthylene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
2,6-Dinitrotoluene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Acenaphthene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
2,4-Dinitrotoluene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
4-Chlorophenyl phenyl ether	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Fluorene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Phenanthrene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Anthracene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Di-n-butyl phthalate	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Fluoranthene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Pyrene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Butyl benzyl phthalate	< 0.010	mg/L	0.010	EPA 625	4/09/2019 - SET
bis(2-ethylhexyl) phthalate	< 0.080	mg/L	0.080	EPA 625	4/09/2019 - SET
Di-n-octyl phthalate	< 0.030	mg/L	0.030	EPA 625	4/09/2019 - SET
Benzo (b) fluoranthene	< 0.010	mg/L	0.010	EPA 625	4/09/2019 - SET
Benzo (a) pyrene	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
Dibenz (a,h) anthracene	< 0.050	mg/L	0.050	EPA 625	4/09/2019 - SET
1,2-Diphenylhydrazine	< 0.020	mg/L	0.020	EPA 625	4/09/2019 - SET
Hexachlorocyclopentadiene	< 0.060	mg/L	0.060	EPA 625	4/09/2019 - SET
Phenol	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
2-Chlorophenol	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET

Notes:

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ANALYSIS REPORT

Chain of Custody Number: 19-0263
Project Name / Number: N/A / N/A
Date Collected: 04/01/19
Time Collected: 09:45

Sample Number: Effluent Sample
Lab Number: 191160
Sample Matrix: Water
Sample Type: Grab

Analysis	Result	Units	Reporting Limit	Analysis Method	Date - Analyst
2-Nitrophenol	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
2,4-Dichlorophenol	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
2,4-Dimethylphenol	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
4-Chloro-3-methylphenol	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
2,4,6-Trichlorophenol	< 0.005	mg/L	0.005	EPA 625	4/09/2019 - SET
2,4-Dinitrophenol	< 0.080	mg/L	0.080	EPA 625	4/09/2019 - SET
4-Nitrophenol	< 0.040	mg/L	0.040	EPA 625	4/09/2019 - SET
4,6-Dinitro-2-methylphenol	< 0.070	mg/L	0.070	EPA 625	4/09/2019 - SET
Pentachlorophenol	< 0.025	mg/L	0.025	EPA 625	4/09/2019 - SET
Cresols, Total	< 0.025	mg/L	0.025	EPA 625	4/09/2019 - SET

Notes:

Report Date: 04/18/19

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FOR OFFICE USE ONLY

CHAIN NUMBER: 19-0263
DATE REPORTED: 4/18/2019
INVOICE NUMBER: 23171

Contact Name: Bernita Bright
Company Name: City of Boonville
Address: 1200 Locust Street
City, State, Zip: Boonville, MO 652330
E-Mail: wwtp@boonville-mo.org

Phone Number: 660-882-4024
Fax Number: 660-882-3385
Project Name / Number:
Quote Number:
Purchase Order Number: 4592

Project Due Date:
Comments:
Sampler's Name: (please print) Graham Powers
Sampler's Signature: Graham Powers

DISPOSITION INFORMATION

- ☐ STORE WITHIN HOLD TIME
- ☐ STORE LONG TERM
- ☐ RETURN AT CUSTOMER EXPENSE
- ☐ DISPOSE OF SAMPLE AT INOVATIA
- ☐ OTHER

NOTES:

FOR OFFICE USE ONLY:
DELIVERY METHOD: hand
CUSTODY SEALS: ☐ YES ☐ NO ☐ INTACT ☐ BROKEN
COOLANT: ☒ ICE ☐ ICE PACK ☐ NONE
PACKAGE TYPE: Cooler
ARRIVAL TEMPERATURE: 9.8 °C
MEASURED BY: ☐ TEMPERATURE BLANK ☒ SAMPLE ☐ COOLER / CONTAINER

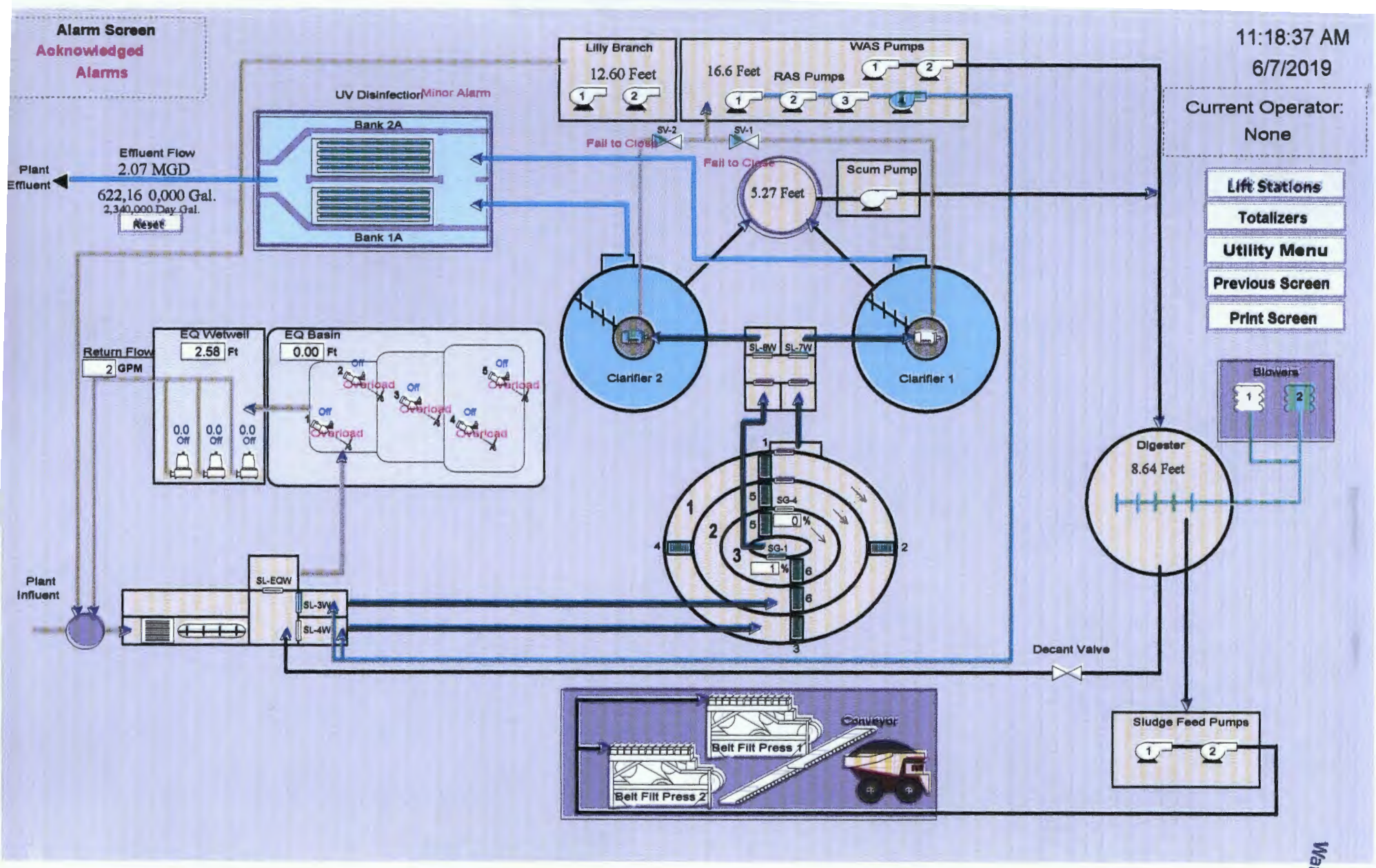
	LAB NUMBER	Customer Sample Number	Date Collected	Time Collected	Matrix (Soil / Water / Sludge / Other)	G=grab / C=composite	No. of Containers	Method Number → / NUMBER PER PRESERVATIVE: HCl	HNO_3	NaOH	H_2SO_4	TSP	Other:	Other:	REQUESTED ANALYSES: NH3, HEM	CN, Phenolics	Hardness	Cr (VI)	Al, As, Be, Cd, Cu	Fe, Pb, Ni, Se, Ag	Tl, Zn, Cr, Sb, Hg	TTO VOC	TTO SVOC	Comments
1	191160	Effluent Sample	4-1-19	09:45	Water	Grab	10	2		1	3				X	X	X	X	X	X	X	X	X	CrVI: Low Level
2																								Cu: DL<1 ug/L
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								

Please include any information that may be useful in the analysis of the sample, such as: expected concentrations, required detection limits, and method of collection.

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Graham Powers	4-1-19	10:30	[illegible]	4-1-19	1029

Unless otherwise governed under separate contract, by signing this form, the client accepts Inovatia's standard terms and conditions for service, pricing, and payment as published on the reverse side of this form.
Prior, written notification of regulatory compliance requirements (GLP/cGMP) is mandatory and may result in additional fees.

When You Want Innovation, Think Inovatia™



RECEIVED
JUN 24 2019
Water Protection

BOONVILLE
MISSOURI

CITY SERVICES • 1200 LOCUST STREET • BOONVILLE, MISSOURI 65233-1358 • 660-882-5257 • FAX 660-882-8218

RECEIVED
JUN 24 2019
Water Protection Program

October 29, 2015

Ms. Pam Hackler
Water Protection Program
P.O. Box 176
Jefferson City, MO 65102

Dear Ms. Hackler:

You will find enclosed the passing results of our Whole Effluent Toxicity Testing we did this month.

Sincerely,

Bernita Bright

Bernita Bright
Chief Operator of
Boonville Wastewater Plant

INOVATIA®
LABORATORIES, LLC

120 East Davis Street
Fayette, MO 65248-1405
(660) 248-1911
www.inovatia.com

Date: 10/27/2015

City of Boonville
1200 Locust Street
Boonville, MO 65233

RE: Whole Effluent Toxicity Test Results
Facility: Boonville Wastewater Plant

Date Received:	10/14/15	**Chain of Custody Number:**	15-1255
Time Received:	09:05	**Customer Sample Number:**	Effluent Sample
Relinquished by:	Bernita Bright	**Lab Number:**	154635
Sampler:	Bernita Bright	**Date Collected:**	10/14/15
		Time Collected:	8:00
		Lab Number (Receiving Water):	Receiving Water
		Date Collected (Receiving Water):	10/14/15
		Time Collected (Receiving Water):	07:45

Enclosed please find Whole Effluent Toxicity test results for the sample(s) received as described above. The values reported are in conformance with internal and method quality control guidelines, unless otherwise noted. If you have questions or need more information, please contact us.

Thank you for your interest in working with Inovatia Laboratories.

Sincerely,

Jennifer Vandelicht

Jennifer Vandelicht
Quality Assurance

Enclosures:
Chain of Custody Record(s)
State WET Test Report

This report has been produced for the exclusive and confidential use of our clients. Reference to the analyses, the results, or the company in any news releases, advertising, or other public announcement is prohibited without obtaining prior written consent.

Analysis Report
48-Hour Acute Toxicity Test
EPA-821-R-02-012 Non-Renewal Serial Dilution

INOVATIA

Chain of Custody: 15-1255 **Lab Number:** 154635
Facility: Boonville Wastewater Plant

Testing Laboratory:
Midwest Laboratories, Inc.
13611 B Street
Omaha, NE 68144

Sample Description:
Color: Light Yellow
Odor: Slightly Musty

Standard Toxicity Data:

P. promelas		*C. dubia*	
Reference:	KCl	**Reference:**	NaCl
LC50:	0.850 g/L	**LC50:**	2.321 g/L
Date:	September 2015	**Date:**	September 2015

Conditions:

Moderately Hard Synthetic Dilution Water — 16 Hours Light; 8 Hours Dark

P. promelas		*C. dubia*	
Age:	4 **Days**	**Age:**	< 24 **Hours**
Start Time:	15:20	**Start Time:**	15:20
Start Date:	10/15/15	**Start Date:**	10/15/15
End Time:	16:10	**End Time:**	16:10
End Date:	10/17/15	**End Date:**	10/17/15

Chemistry - 100% Effluent Only

Parameter	Result	Unit	Method
Hardness	315	mg eq CaCO3/L	Calculation
Conductivity	1490	umhos/cm	SM 2510B
Alkalinity	161	mg eq CaCO3/L	SM 2320B
Residual Chlorine	< 0.01	mg/L	SM 4500-CLD
Dissolved Solids	976	mg/L	SM 2540C
Ammonia (Pre-Fish)	< 0.1	mg/L	SM 4500-NH3C
Ammonia (Post-Fish)	< 0.1	mg/L	SM 4500-NH3C

Analysis Report
48-Hour Acute Toxicity Test
EPA-821-R-02-012 Non-Renewal Serial Dilution

INOVATIA

Chain of Custody: 15-1255 **Lab Number:** 154635
Facility: Boonville Wastewater Plant

Results

Dilution	Initial DO	Initial pH		Final DO	Final pH
100%	8.8	7.8		8.0	8.5
50%	8.7	7.9		8.0	8.6
25%	8.6	7.9		8.0	8.6
12.5%	8.5	7.8		8.0	8.6
6.25%	8.5	7.8		8.0	8.2
Lab Control Water	8.1	7.8		7.8	8.3
Receiving Water	8.0	8.2		8.2	7.8

Results

Dilution	Fathead Minnow 24 Hrs	Fathead Minnow 48 Hrs		Water Flea 24 Hrs	Water Flea 48 Hrs
100%	39	37		20	20
50%	40	39		20	20
25%	40	40		20	20
12.5%	39	38		20	20
6.25%	38	38		20	20
Lab Control Water	38	38		20	20
Receiving Water	40	40		20	20

Fathead Minnow (*P. promelas*)
LC50: > 100%
Tua: < 1.00
Method: Dunnett Multiple Comparison
P-value: 0.64

Water Flea (*C. dubia*)
LC50: > 100%
Tua: < 1.00
Method: Steel Many One Rank
P-value: 0.83

***Pimephales promelas* (Fathead Minnow)**
Survival Data Summary Table

INOVATIA

Chain of Custody: 15-1255
Lab Number: 154635
Facility: Boonville Wastewater Plant

Concentration	Replicate Number	Number of Survivors		
		Hours		Final Total
		24	48	
100%	1	10	10	
	2	9	9	
	3	10	8	
	4	10	10	
	Total	**39**	**37**	**37**
50%	1	10	9	
	2	10	10	
	3	10	10	
	4	10	10	
	Total	**40**	**39**	**39**
25%	1	10	10	
	2	10	10	
	3	10	10	
	4	10	10	
	Total	**40**	**40**	**40**
12.5%	1	10	10	
	2	9	9	
	3	10	10	
	4	10	9	
	Total	**39**	**38**	**38**
6.25%	1	9	9	
	2	9	9	
	3	10	10	
	4	10	10	
	Total	**38**	**38**	**38**
Lab Control Water	1	10	10	
	2	10	10	
	3	10	10	
	4	10	10	
	Total	**40**	**40**	**40**
Receiving Water	1	9	9	
	2	10	10	
	3	10	10	
	4	9	9	
	Total	**38**	**38**	**38**

Ceriodaphnia dubia (Water Flea)
Survival Data Summary Table

INNOVATIA

Chain of Custody: 15-1255
Lab Number: 154635
Facility: Boonville Wastewater Plant

Concentration	Replicate Number	Number of Survivors		
		Hours		Final Total
		24	48	
100%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
50%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
25%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
12.5%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
6.25%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
Lab Control Water	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
Receiving Water	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20

INOVATIA LABORATORIES, LLC

www.inovatia.com

CHAIN OF CUSTODY RECORD

INOVATIA LABORATORIES, LLC
120 EAST DAVIS STREET • P.O. BOX 30
FAYETTE, MO 65248-0030

PHONE: (660) 248-1911
FAX: (660) 248-1921
IL_CustServ@inovatia.com

FOR LABORATORY USE

CHAIN NUMBER: 151255
DATE REPORTED: 10-27-15
INVOICE NUMBER: 18115

Contact Name: Barnita Bright
Company Name: City of Boonville
Address: 1300 Locust Street
City, State, Zip: Boonville, MO 65233
E-Mail: wwtp@boonville-mo.org

Phone Number: 660-882-4024
Fax Number: 660-882-3385
Project Name / Number: WET 7-day
Quote Number:
Purchase Order Number: 3963

Project Due Date:
Comments:
Sampler's Name: (please print) Barnita Bright
Sampler's Signature: Barnita Bright

DISPOSITION INFORMATION

- ☐ STORE WITHIN HOLD TIME
- ☐ STORE LONG TERM
- ☐ RETURN AT CUSTOMER EXPENSE
- ☐ DISPOSE OF SAMPLE AT INOVATIA
- ☐ OTHER

NOTES:

DELIVERY METHOD: hand
CUSTODY SEALS. ☐ YES ☒ NO ☐ INTACT ☐ BROKEN
COOLANT: ☒ ICE ☐ ICE PACK ☐ NONE
PACKAGE TYPE: Cooler
ARRIVAL TEMPERATURE: 9.8 °C
MEASURED BY: ☐ TEMPERATURE BLANK ☒ SAMPLE ☐ COOLER / CONTAINER

REQUESTED ANALYSES

	LAB NUMBER	Customer Sample Number	Date Collected	Time Collected	Matrix (Soil / Water / Sludge / Other)	G=grab / C=composite	No. of Containers	Method Number →	NUMBER PER REPRESENTATIVE: HCl	HNO_3	NaOH	H_2SO_4	TSP	Other: Iced Sample	Other:	WET Test
1	15AU35	Effluent Sample	10-14-15	8:00 a.m.	WW	C	1							✓		✓
2	Rec. Water	Silver Branch Receiving Stream	10-14-15	7:45 a.m.	W	G	1							✓		✓
3																
4																
5																
6																
7																
8																
9																
10																

Please include any information that may be useful in the analysis of the sample, such as: expected concentrations, required detection limits and method of collection.

Comments:
Note: Please run WET Test according to my enclosed permit. We use UV disinfection.

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Barnita Bright	10-14-15		Penny Goff	10-14-15	905

Unless otherwise governed under separate contract, by signing this form, the client accepts Inovatia's standard terms and conditions for service, pricing, and payment as published on the reverse side of this form. Prior, written notification of regulatory compliance requirements (GLP/cGMP) is mandatory and may result in additional fees.

HOLE EFFLUENT TOXICITY (WET) TEST REPORT

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

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% UPSTREAM SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	24.2	EPA 170.1	10/15/15
pH Standard Units	7.8	EPA 150.1	10/15/15
Conductance µMohs	738	SM 2510B	10/15/15
Dissolved Oxygen mg/L	8.1	EPA 360.1	10/15/15
Total Residual Chlorine mg/L	< 0.01	SM 4500-CL-D	10/15/15
Unionized Ammonia mg/L	< 0.1	Calculation	10/19/15
*Total Alkalinity mg/L	304	SM 2320B	10/16/15
*Total Hardness mg/L	356	Calculation	10/19/15
*Recommended by USEPA guidance, not a required analysis.			

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

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

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

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

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

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

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

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

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

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

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

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

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

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM - P.O. BOX 176, JEFFERSON CITY MO, 65102

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

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

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME Boonville Wastewater Plant	DATE & TIME COLLECTED EFFLUENT 10/14/15 0800 UPSTREAM 10/14/15 0745
PERMIT NUMBER MO-0040738	PERMIT OUTFALL NUMBER 001
COLLECTOR'S NAME Bernita Bright	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION Lilly Branch	
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC) 100%	EFFLUENT SAMPLE TYPE (CHECK ONE) ☒ 24HR COMPOSITE ☐ GRAB ☐ OTHER
SAMPLE NUMBER EFFLUENT 154635 UPSTREAM Receiving Water	UPSTREAM SAMPLE TYPE (CHECK ONE) ☐ 24HR COMPOSITE ☒ GRAB ☐ OTHER
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR CHLORINE ____ mg/L	PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR AMMONIA ____ mg/L

PART B – TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY Inovatia Laboratories, LLC	TEST TYPE Acute	
FINAL REPORT NUMBER 15-1255	TEST DURATION 48 Hours	
DATE OF LAST REFERENCE TOXICANT TESTING Fish 09/2015 Flea 09/2015	TEST METHOD EPA-821-R-02-012	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY 10/15/15 12:16	TEST START DATE AND TIME 10/15/15 15:20	TEST END DATE AND TIME 10/17/15 16:10
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	TEST ORGANISM #1 AND AGE P. promelas 4 days	TEST ORGANISM #2 AND AGE C. dubia <24 hours
SAMPLE FILTERED[1] PRIOR TO ANALYSIS? ☒ YES ☐ NO EFFLUENT ____ UPSTREAM ____	90% OR GREATER SURVIVAL IN SYNTHETIC CONTROL? ☒ YES ☐ NO	DILUTION WATER USED TO ACHIEVE AEC Mod. Hard Synthetic Water
FILTER MESH SIEVE SIZE[2] 60 micron - due to presence of organisms	EFFLUENT ORGANISM #1 % MORTALITY AT AEC 7.5%	EFFLUENT ORGANISM #2 % MORTALITY AT AEC 0%
SAMPLE AERATED DURING TESTING? ☐ YES ☒ NO	UPSTREAM ORGANISM #1 % MORTALITY 5%	UPSTREAM ORGANISM #2 % MORTALITY 0%
pH ADJUSTED? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	TEST RESULT AT AEC FOR ORGANISM #1 ☒ PASS ☐ FAIL	TEST RESULT AT AEC FOR ORGANISM #2 ☒ PASS ☐ FAIL

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% EFFLUENT SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	24.3	EPA 170.1	10/15/15
pH Standard Units	7.8	EPA 150.1	10/15/15
Conductance µMohs	1490	SM 2510B	10/15/15
Dissolved Oxygen mg/L	8.8	EPA 360.1	10/15/15
Total Residual Chlorine mg/L	< 0.01	SM 4500-CL-D	10/15/15
Unionized Ammonia mg/L	< 0.1	Calculation	10/19/15
*Total Alkalinity mg/L	161	SM 2320B	10/16/15
*Total Hardness mg/L	315	Calculation	10/19/15

*Recommended by USEPA guidance, not a required analysis.

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

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

CONTINUED ON PAGE 2

BOONVILLE
MISSOURI

CITY SERVICES • 1200 LOCUST STREET • BOONVILLE, MISSOURI 65233-1358 • 660-882-5257 • FAX 660-882-8218

May 18, 2016

RECEIVED
JUN 24 2019
Water Protection Program

Ms. Pam Hackler
Water Protection Program
P.O. Box 176
Jefferson City, MO 65102

Dear Ms. Hackler:

You will find enclosed the passing results of our Whole Effluent Toxicity Testing we did last month.

Sincerely,

Bernita Bright

Bernita Bright
Chief Operator of
Boonville Wastewater Plant

INOVATIA® LABORATORIES, LLC

120 East Davis Street
Fayette, MO 65248-1405
(660) 248-1911
www.inovatia.com

Date: 5/9/2016

City of Boonville
1200 Locust Street
Boonville, MO 65233
Bernita Bright

RE: Whole Effluent Toxicity Test Results
Facility: Boonville Wastewater Plant

Date Received:	04/28/16	**Chain of Custody Number:**	16-0399
Time Received:	11:30	**Customer Sample Number:**	Effluent Sample
Relinquished by:	Bernita Bright	**Lab Number:**	161591
Sampler:	Bernita Bright	**Date Collected:**	04/28/16
		Time Collected:	10:45
		Lab Number (Receiving Water):	161591A
		Date Collected (Receiving Water):	04/28/16
		Time Collected (Receiving Water):	10:30

Enclosed please find Whole Effluent Toxicity test results for the sample(s) received as described above. The values reported are in conformance with internal and method quality control guidelines, unless otherwise noted. If you have questions or need more information, please contact us.

Thank you for your interest in working with Inovatia Laboratories.

Sincerely,

Jennifer Vandelicht

Jennifer Vandelicht
Quality Assurance

Enclosures:
Chain of Custody Record(s)
State WET Test Report

This report has been produced for the exclusive and confidential use of our clients. Reference to the analyses, the results, or the company in any news releases, advertising, or other public announcement is prohibited without obtaining prior written consent.

Analysis Report
48-Hour Acute Toxicity Test
EPA-821-R-02-012 Non-Renewal Serial Dilution

INNOVATIA

Chain of Custody: 16-0399 **Lab Number:** 161591
Facility: Boonville Wastewater Plant

Testing Laboratory:
Midwest Laboratories, Inc.
13611 B Street
Omaha, NE 68144

Sample Description:
Color: Light Yellow
Odor: Odorless

Standard Toxicity Data:			
P. promelas		*C. dubia*	
Reference:	KCl	**Reference:**	NaCl
LC50:	0.907 g/L	**LC50:**	2.193 g/L
Date:	April 2016	**Date:**	April 2016

Conditions:			
Moderately Hard Synthetic Dilution Water		16 Hours Light; 8 Hours Dark	
P. promelas		*C. dubia*	
Age:	5 **Days**	**Age:**	< 24 **Hours**
Start Time:	16:15	**Start Time:**	16:30
Start Date:	04/29/16	**Start Date:**	04/29/16
End Time:	17:00	**End Time:**	17:20
End Date:	05/01/16	**End Date:**	05/01/16

Chemistry - 100% Effluent Only

Parameter	Result	Unit	Method
Hardness	333	mg eq CaCO3/L	Calculation
Conductivity	1450	umhos/cm	EPA 120.1
Alkalinity	178	mg eq CaCO3/L	SM 2320B
Residual Chlorine	< 0.01	mg/L	SM 4500-CLD
Dissolved Solids	928	mg/L	SM 2540C
Ammonia (Pre-Fish)	0.17	mg/L	EPA 350.2
Ammonia (Post-Fish)	< 0.10	mg/L	EPA 350.2

Analysis Report
48-Hour Acute Toxicity Test
EPA-821-R-02-012 Non-Renewal Serial Dilution

INOVATIA

Chain of Custody: 16-0399 **Lab Number:** 161591
Facility: Boonville Wastewater Plant

Results

Dilution	Initial DO	Initial pH		Final DO	Final pH
100%	8.3	7.8		7.6	8.3
50%	8.5	7.8		7.6	8.3
25%	8.7	7.7		7.3	8.3
12.5%	8.7	7.7		7.2	8.2
6.25%	8.4	7.7		7.2	8.2
Lab Control Water	8.7	7.6		7.3	8.1
Receiving Water	7.8	8.1		7.4	8.1

Results

Dilution	Fathead Minnow 24 Hrs	Fathead Minnow 48 Hrs		Water Flea 24 Hrs	Water Flea 48 Hrs
100%	40	40		20	20
50%	40	39		20	20
25%	40	40		20	20
12.5%	40	39		20	20
6.25%	40	40		20	20
Lab Control Water	40	40		20	20
Receiving Water	40	40		20	20

Fathead Minnow (*P. promelas*)
LC50: > 100%
Tua: < 1.00
Method: Steel Many-One Rank Sum Test
P-Value: 0.83

Water Flea (*C. dubia*)
LC50: > 100%
Tua: < 1.00
Method: Steel Many-One Rank Sum Test
P-Value: 0.83

Pimephales promelas (Fathead Minnow)
Survival Data Summary Table

INNOVATIA

Chain of Custody: 16-0399
Lab Number: 161591
Facility: Boonville Wastewater Plant

Concentration	Replicate Number	Number of Survivors		
		Hours		Final Total
		24	48	
100%	1	10	10	
	2	10	10	
	3	10	10	
	4	10	10	
	Total	**40**	**40**	**40**
50%	1	10	10	
	2	10	10	
	3	10	10	
	4	10	9	
	Total	**40**	**39**	**39**
25%	1	10	10	
	2	10	10	
	3	10	10	
	4	10	10	
	Total	**40**	**40**	**40**
12.5%	1	10	10	
	2	10	10	
	3	10	9	
	4	10	10	
	Total	**40**	**39**	**39**
6.25%	1	10	10	
	2	10	10	
	3	10	10	
	4	10	10	
	Total	**40**	**40**	**40**
Lab Control Water	1	10	10	
	2	10	10	
	3	10	10	
	4	10	10	
	Total	**40**	**40**	**40**
Receiving Water	1	10	10	
	2	10	10	
	3	10	10	
	4	10	10	
	Total	**40**	**40**	**40**

Ceriodaphnia dubia (Water Flea)
Survival Data Summary Table

INNOVATIA

Chain of Custody: 16-0399
Lab Number: 161591
Facility: Boonville Wastewater Plant

Concentration	Replicate Number	Number of Survivors		
		Hours		Final Total
		24	48	
100%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
50%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
25%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
12.5%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
6.25%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
Lab Control Water	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
Receiving Water	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20

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www.inovatia.com

CHAIN OF CUSTODY RECORD

INOVATIA LABORATORIES, LLC
120 EAST DAVIS STREET • P.O. BOX 30
FAYETTE, MO 65248-0030

PHONE: (660) 248-1911
FAX: (660) 248-1921
IL_CustServ@inovatia.com

FOR OFFICE USE ONLY

CHAIN NUMBER: 160399
DATE REPORTED: 5/9/2016
INVOICE NUMBER: 18906

Contact Name: Bernita Bright
Company Name: City of Bronaville
Address: 1200 Locust Street
City, State, Zip: Bronaville, Mo 65233
E-Mail: wwtp@bonville-mo.org

Phone Number: 660-882-4024
Fax Number: 660-882-3385
Project Name / Number: WET Test
Quote Number:
Purchase Order Number: 4153

Project Due Date:
Comments:
Sampler's Name: Bernita Bright (please print)
Sampler's Signature: Bernita Bright

DISPOSITION INFORMATION

- ☐ STORE WITHIN HOLD TIME
- ☐ STORE LONG TERM
- ☐ RETURN AT CUSTOMER EXPENSE
- ☐ DISPOSE OF SAMPLE AT INOVATIA
- ☐ OTHER

NOTES:

FOR OFFICE USE ONLY:
DELIVERY METHOD: Hand
CUSTODY SEALS: ☐ YES ☑ NO ☐ INTACT ☐ BROKEN
COOLANT: ☑ ICE ☐ ICE PACK ☐ NONE
PACKAGE TYPE: Cooler
ARRIVAL TEMPERATURE: 5.6 °C
MEASURED BY: ☐ TEMPERATURE BLANK ☑ SAMPLE ☐ COOLER / CONTAINER

REQUESTED ANALYSES

	LAB NUMBER	Customer Sample Number	Date Collected	Time Collected	Matrix (Soil / Water / Sludge / Other)	G=grab / C=composite	No. of Containers	Method Number →	NUMBER PER REPRESENTATIVE: HCl	HNO_3	NaOH	H_2SO_4	TSP	Other: Ice / Samples	Other:	WET Test
1	161591	Effluent Sample	4-28-16	10:45	WW	C	1							✓		✓
2	161591A 161592	Libby Branch Receiving Stream	4-28-16	10:30	W	G	1							✓		✓
3																
4																
5																
6																
7																
8																
9																
10																

Please include any information that may be useful in the analysis of the sample, such as: expected concentrations, required detection limits and method of collection.

Comments:
Note: Please run WET Test according to my enclosed permit.
We have UV disinfection

Relinquished By: Bernita Bright	Date: 4-28-16	Time: 11:30	Received By: [signature]	Date: 4-28-16	Time: 1135
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Unless otherwise governed under separate contract, by signing this form, the client accepts Inovatia's standard terms and conditions for service, pricing, and payment as published on the reverse side of this form.
Prior, written notification of regulatory compliance requirements (GLP/cGMP) is mandatory and may result in additional fees

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MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM - P.O. BOX 176, JEFFERSON CITY MO, 65102

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

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

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME Boonville Wastewater Plant	DATE & TIME COLLECTED EFFLUENT 04/28/16 1045 UPSTREAM 04/28/16 1030
PERMIT NUMBER MO-0040738	PERMIT OUTFALL NUMBER 001
COLLECTOR'S NAME Bernita Bright	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION Lilly Branch	
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC) 100%	EFFLUENT SAMPLE TYPE (CHECK ONE) ☒ 24HR COMPOSITE ☐ GRAB ☐ OTHER
SAMPLE NUMBER EFFLUENT 161591 UPSTREAM Receiving Water	UPSTREAM SAMPLE TYPE (CHECK ONE) ☐ 24HR COMPOSITE ☒ GRAB ☐ OTHER
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR CHLORINE ____ mg/L	PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR AMMONIA ____ mg/L

PART B – TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY Inovatia Laboratories, LLC	TEST TYPE Acute	
FINAL REPORT NUMBER 16-0399	TEST DURATION 48 Hours	
DATE OF LAST REFERENCE TOXICANT TESTING Fish 04/2016 Flea 04/2016	TEST METHOD EPA-821-R-02-012	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY 04/29/2016 10:50	TEST START DATE AND TIME 04/29/2016 16:15	TEST END DATE AND TIME 05/01/2016 17:00
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	TEST ORGANISM #1 AND AGE P. promelas 5 days	TEST ORGANISM #2 AND AGE C. dubia <24 hours
SAMPLE FILTERED[1] PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	90% OR GREATER SURVIVAL IN SYNTHETIC CONTROL? ☒ YES ☐ NO	DILUTION WATER USED TO ACHIEVE AEC Mod. Hard Synthetic Water
FILTER MESH SIEVE SIZE[2]	EFFLUENT ORGANISM #1 % MORTALITY AT AEC 0%	EFFLUENT ORGANISM #2 % MORTALITY AT AEC 0%
SAMPLE AERATED DURING TESTING? ☐ YES ☒ NO	UPSTREAM ORGANISM #1 % MORTALITY 0%	UPSTREAM ORGANISM #2 % MORTALITY 0%
pH ADJUSTED? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	TEST RESULT AT AEC FOR ORGANISM #1 ☒ PASS ☐ FAIL	TEST RESULT AT AEC FOR ORGANISM #2 ☒ PASS ☐ FAIL

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% EFFLUENT SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	24.7	EPA 170.1	04/29/16
pH Standard Units	7.8	EPA 150.1	04/29/16
Conductance µMohs	1450	SM 2510B	04/29/16
Dissolved Oxygen mg/L	8.3	EPA 360.1	04/29/16
Total Residual Chlorine mg/L	< 0.01	SM 4500-CL-D	04/29/16
Unionized Ammonia mg/L	< 0.1	Calculation	05/03/16
*Total Alkalinity mg/L	178	SM 2320B	05/04/16
*Total Hardness mg/L	333	Calculation	05/02/16

*Recommended by USEPA guidance, not a required analysis.

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

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

CONTINUED ON PAGE 2

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

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

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% UPSTREAM SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	24.9	EPA 170.1	04/29/16
pH Standard Units	7.6	EPA 150.1	04/29/16
Conductance µMohs	617	SM 2510B	04/29/16
Dissolved Oxygen mg/L	8.7	EPA 360.1	04/29/16
Total Residual Chlorine mg/L	< 0.01	SM 4500-CL-D	04/29/16
Unionized Ammonia mg/L	< 0.1	Calculation	05/03/16
*Total Alkalinity mg/L	200	SM 2320B	05/04/16
*Total Hardness mg/L	248	Calculation	05/02/16
*Recommended by USEPA guidance, not a required analysis.			

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

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

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

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

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

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

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

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

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

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

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

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

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

INOVATIA LABORATORIES, LLC

120 East Davis Street
Fayette, MO 65248-1405
(660) 248-1911
www.inovatia.com

Date: 6/22/2017

City of Boonville
1200 Locust Street
Boonville, MO 65233

RECEIVED
JUN 24 2019
Water Protection Program

RE: Whole Effluent Toxicity Test Results
Facility: Boonville Wastewater Treatment Plant

Date Received:	06/07/17	**Chain of Custody Number:**	17-0641
Time Received:	09:15	**Customer Sample Number:**	Effluen Sample
Relinquished by:	Bernita Bright	**Lab Number:**	172414
Sampler:	Bernita Bright	**Date Collected:**	06/07/17
		Time Collected:	8:15
		Lab Number (Receiving Water):	Receiving
		Date Collected (Receiving Water):	06/07/17
		Time Collected (Receiving Water):	08:05

Enclosed please find Whole Effluent Toxicity test results for the sample(s) received as described above. The values reported are in conformance with internal and method quality control guidelines, unless otherwise noted. If you have questions or need more information, please contact us.

Thank you for your interest in working with Inovatia Laboratories.

Sincerely,

Jennifer Vandelicht
Jennifer Vandelicht
Quality Assurance

Enclosures:
Chain of Custody Record(s)
State WET Test Report

This report has been produced for the exclusive and confidential use of our clients. Reference to the analyses, the results, or the company in any news releases, advertising, or other public announcement is prohibited without obtaining prior written consent.

Analysis Report
48-Hour Acute Toxicity Test
EPA-821-R-02-012 Non-Renewal Serial Dilution

INOVATIA

Chain of Custody: 17-0641 **Lab Number:** 172414
Facility: Boonville Wastewater Treatment Plant

Testing Laboratory:
Midwest Laboratories, Inc.
13611 B Street
Omaha, NE 68144

Sample Description:
Color:
Odor:

Standard Toxicity Data:			
P. promelas		*C. dubia*	
Reference: KCl		**Reference:** NaCl	
LC50: 1.025	g/L	**LC50:** 2.000	g/L
Date: May 2017		**Date:** May 2017	

Conditions:			
Moderately Hard Synthetic Dilution Water		16 Hours Light; 8 Hours Dark	
P. promelas		*C. dubia*	
Age: 4	**Days**	**Age:** < 24	**Hours**
Start Time: 15:20		**Start Time:** 15:40	
Start Date: 06/08/17		**Start Date:** 06/08/17	
End Time: 14:25		**End Time:** 14:35	
End Date: 06/10/17		**End Date:** 06/10/17	

Chemistry - 100% Effluent Only

Parameter	Result	Unit	Method
Hardness	311	mg eq CaCO3/L	Calculation
Conductivity	1530	umhos/cm	EPA 120.1
Alkalinity	215	mg eq CaCO3/L	SM 2320B
Residual Chlorine	< 0.01	mg/L	SM 4500-CLD
Dissolved Solids	944	mg/L	SM 2540C
Ammonia (Pre-Fish)	0.33	mg/L	EPA 350.2
Ammonia (Post-Fish)	< 0.10	mg/L	EPA 350.2

Analysis Report
48-Hour Acute Toxicity Test
EPA-821-R-02-012 Non-Renewal Serial Dilution

INOVATIA

Chain of Custody: 17-0641 **Lab Number:** 172414
Facility: Boonville Wastewater Treatment Plant

Results

Dilution	Initial DO	Initial pH	Final DO	Final pH
100%	8.6	8.0	7.7	8.6
50%	8.2	7.9	7.5	8.7
25%	7.9	7.9	7.4	8.8
12.5%	7.8	7.9	7.2	8.8
6.25%	7.7	7.9	7.3	8.8
Lab Control Water	7.8	8.2	7.5	8.5
Receiving Water	7.2	7.8	7.3	8.8

Results

Dilution	Fathead Minnow 24 Hrs	Fathead Minnow 48 Hrs	Water Flea 24 Hrs	Water Flea 48 Hrs
100%	39	38	20	19
50%	40	38	20	20
25%	39	37	20	20
12.5%	40	38	20	20
6.25%	40	37	20	20
Lab Control Water	40	38	20	20
Receiving Water	37	37	20	19

Fathead Minnow (*P. promelas*)
LC50: > 100%
Tua: < 1.00
Method: Steel Many-One Rank Sum
P-Value: 0.91

Water Flea (*C. dubia*)
LC50: > 100%
Tua: < 1.00
Method: Steel Many-One Rank Sum
P-Value: 0.83

Pimephales promelas **(Fathead Minnow)**
Survival Data Summary Table

INNOVATIA

Chain of Custody: 17-0641
Lab Number: 172414
Facility: Boonville Wastewater Treatment Plant

Concentration	Replicate Number	Number of Survivors		
		Hours		Final Total
		24	48	
100%	1	9	9	
	2	10	9	
	3	10	10	
	4	10	10	
	Total	39	38	38
50%	1	10	9	
	2	10	10	
	3	10	9	
	4	10	10	
	Total	40	38	38
25%	1	10	9	
	2	9	9	
	3	10	10	
	4	10	9	
	Total	39	37	37
12.5%	1	10	10	
	2	10	9	
	3	10	9	
	4	10	10	
	Total	40	38	38
6.25%	1	10	10	
	2	10	10	
	3	10	8	
	4	10	9	
	Total	40	37	37
Lab Control Water	1	10	9	
	2	10	10	
	3	10	10	
	4	10	9	
	Total	40	38	38
Receiving Water	1	8	8	
	2	10	10	
	3	9	9	
	4	10	10	
	Total	37	37	37

INNOVATIA

Chain of Custody: 17-0[illegible]

Lab Number: 172414

Facility: Boonville Wastewater Treatment Plant

Concentration	Replicate Number	Number of Survivors		
		Hours		Final Total
		24	48	
100%	1	5	4	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	19	19
50%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
25%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
12.5%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
6.25%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
Lab Control Water	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
Receiving Water	1	5	4	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	19	19

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CHAIN OF CUSTODY RECORD

INOVATIA LABORATORIES, LLC
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FAYETTE, MO 65248-0030

PHONE: (660) 248-1911
FAX: (660) 248-1921
IL_CustServ@inovatia.com

FOR OFFICE USE ONLY:
CHAIN NUMBER: 17-0641
DATE REPORTED: 6/22/17
INVOICE NUMBER: 20602

Contact Name: Bernita Bright
Company Name: City of Boonville
Address: 1200 Locust St.
City, State, Zip: Boonville, Mo 65233
E-Mail: wwtp@boonville-mo.org

Phone Number: 660-882-4024
Fax Number: 660-882-3385
Project Name / Number: WET Test
Quote Number:
Purchase Order Number: 4366

Project Due Date:
Comments:
Sampler's Name: Bernita Bright (please print)
Sampler's Signature: Bernita Bright

DISPOSITION INFORMATION

- ☐ STORE WITHIN HOLD TIME
- ☐ STORE LONG TERM
- ☐ RETURN AT CUSTOMER EXPENSE
- ☐ DISPOSE OF SAMPLE AT INOVATIA
- ☐ OTHER

NOTES:

FOR OFFICE USE ONLY:
DELIVERY METHOD: hand
CUSTODY SEALS: ☐ YES ☒ NO ☐ INTACT ☐ BROKEN
COOLANT: ☒ ICE ☐ ICE PACK ☐ NONE
PACKAGE TYPE: Cooler
ARRIVAL TEMPERATURE: 5.8 °C
MEASURED BY: ☐ TEMPERATURE BLANK ☒ SAMPLE ☐ COOLER / CONTAINER

REQUESTED ANALYSES

	LAB NUMBER	Customer Sample Number	Date Collected	Time Collected	Matrix (Soil / Water / Sludge / Other)	G=grab / C=composite	No. of Containers	Method Number →	NUMBER PER REPRESENTATIVE: HCl	HNO_3	NaOH	H_2SO_4	TSP	Other: Fecal Samples	Other:	Acute WET Test
1	172414	Effluent Sample	6-7-17	08:15	WW	C	1							✓		✓
2	Receiving	Lilley Branch Receiving Stream	6-7-17	08:05	W	G	1							✓		✓
3																
4																
5																
6																
7																
8																
9																
10																

Please include any information that may be useful in the analysis of the sample, such as: expected concentrations, required detection limits, and method of collection.

Comments:
Note: Please run Acute WET Test according to my enclosed permit.
We have UV disinfection.

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Bernita Bright	6-7-17	915	Penny Goff	6-7-17	915
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Unless otherwise governed under separate contract, by signing this form, the client accepts Inovatia's standard terms and conditions for service, pricing, and payment as published on the reverse side of this form.
Prior, written notification of regulatory compliance requirements (GLP/cGMP) is mandatory and may result in additional fees.

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WATER PROTECTION PROGRAM - P.O. BOX 176, JEFFERSON CITY MO, 65102

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

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

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME City of Boonville	DATE & TIME COLLECTED EFFLUENT 6/7/17 0815 UPSTREAM 6/7/17 08:05
PERMIT NUMBER MO-0040738	PERMIT OUTFALL NUMBER 001
COLLECTOR'S NAME Bernita Bright	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION Lilly Branch	
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC) 100%	EFFLUENT SAMPLE TYPE (CHECK ONE) ☒ 24HR COMPOSITE ☐ GRAB ☐ OTHER
SAMPLE NUMBER EFFLUENT 172414 UPSTREAM Receiving	UPSTREAM SAMPLE TYPE (CHECK ONE) ☐ 24HR COMPOSITE ☒ GRAB ☐ OTHER
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR CHLORINE ____ mg/L	PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR AMMONIA ____ mg/L

PART B – TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY Inovatia Laboratories, LLC	TEST TYPE Acute	
FINAL REPORT NUMBER 17-0641	TEST DURATION 48 Hours	
DATE OF LAST REFERENCE TOXICANT TESTING Fish 5/31/17 Flea 5/31/17	TEST METHOD EPA-821-R-02-012	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY 6/8/17 11:50	TEST START DATE AND TIME 6/8/17 15:20	TEST END DATE AND TIME 6/10/17 14:25
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	TEST ORGANISM #1 AND AGE P. promelas 4 days	TEST ORGANISM #2 AND AGE C. dubia <24 hours
SAMPLE FILTERED[1] PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	90% OR GREATER SURVIVAL IN SYNTHETIC CONTROL? ☒ YES ☐ NO	DILUTION WATER USED TO ACHIEVE AEC Mod. Hard Synthetic Water
FILTER MESH SIEVE SIZE[2]	EFFLUENT ORGANISM #1 % MORTALITY AT AEC 5%	EFFLUENT ORGANISM #2 % MORTALITY AT AEC 5%
SAMPLE AERATED DURING TESTING? ☐ YES ☒ NO	UPSTREAM ORGANISM #1 % MORTALITY 7.5%	UPSTREAM ORGANISM #2 % MORTALITY 5%
pH ADJUSTED? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	TEST RESULT AT AEC FOR ORGANISM #1 ☒ PASS ☐ FAIL	TEST RESULT AT AEC FOR ORGANISM #2 ☒ PASS ☐ FAIL

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% EFFLUENT SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	24.5	EPA 170.1	6/8/17
pH Standard Units	8.0	EPA 150.1	6/8/17
Conductance µMohs	1530	SM 2510B	6/8/17
Dissolved Oxygen mg/L	8.6	EPA 360.1	6/8/17
Total Residual Chlorine mg/L	< 0.01	SM 4500-CL-D	6/8/17
Unionized Ammonia mg/L	< 0.1	Calculation	6/8/17
*Total Alkalinity mg/L	215	SM 2320B	6/9/17
*Total Hardness mg/L	311	Calculation	6/12/17

*Recommended by USEPA guidance, not a required analysis.

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

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

CONTINUED ON PAGE 2

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

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

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% UPSTREAM SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	24.6	EPA 170.1	6/8/17
pH Standard Units	7.8	EPA 150.1	6/8/17
Conductance µMohs	560	SM 2510B	6/8/17
Dissolved Oxygen mg/L	7.2	EPA 360.1	6/8/17
Total Residual Chlorine mg/L	< 0.01	SM 4500-CL-D	6/8/17
Unionized Ammonia mg/L	< 0.1	Calculation	6/12/17
*Total Alkalinity mg/L	210	SM 2320B	6/9/17
*Total Hardness mg/L	227	Calculation	6/12/17
*Recommended by USEPA guidance, not a required analysis.			

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

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

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

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

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

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

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

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

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

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

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

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

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

INOVATIA® LABORATORIES, LLC

120 East Davis Street
Fayette, MO 65248-1405
(660) 248-1911
www.inovatia.com

Date: 6/20/2018

City of Boonville
1200 Locust Street
Boonville, MO 65233

RECEIVED
JUN 24 2019
Water Protection Program

RE: Whole Effluent Toxicity Test Results
Facility: Boonville Wastewater Treatment Plant

Date Received: 06/06/18
Time Received: 10:12
Relinquished by: Graham Powers
Sampler: Bernita Bright

Chain of Custody Number: 18-0592
Customer Sample Number: Effluent Sample
Lab Number: 182198
Date Collected: 06/06/18
Time Collected: 8:00
Lab Number (Receiving Water): 182199
Date Collected (Receiving Water): 06/06/18
Time Collected (Receiving Water): 07:15

Enclosed please find Whole Effluent Toxicity test results for the sample(s) received as described above. The values reported are in conformance with internal and method quality control guidelines, unless otherwise noted. If you have questions or need more information, please contact us.

Thank you for your interest in working with Inovatia Laboratories.

Sincerely,

Jennifer Vandelicht

Jennifer Vandelicht
Quality Assurance

Enclosures:
Chain of Custody Record(s)
State WET Test Report

This report has been produced for the exclusive and confidential use of our clients. Reference to the analyses, the results, or the company in any news releases, advertising, or other public announcement is prohibited without obtaining prior written consent.

Analysis Report
48-Hour Acute Toxicity Test
EPA-821-R-02-012 Non-Renewal Serial Dilution

INOVATIA

Chain of Custody: 18-0592 **Lab Number:** 182198
Facility: Boonville Wastewater Treatment Plant

Testing Laboratory:
Inovatia Laboratories, LLC
120 East Davis
Fayette, MO 65248

Sample Description:
Color: Light Green
Odor: No odor

Standard Toxicity Data:			
P. promelas		*C. dubia*	
Reference: KCl		**Reference:** KCL	
LC50: 1300	mg/L	**LC50:** 285	mg/L
Date: 5/30/18		**Date:** 5/30/18	

Conditions:			
Moderately Hard Synthetic Dilution Water		16 Hours Light; 8 Hours Dark	
P. promelas		*C. dubia*	
Age: 1	**Days**	**Age:** < 24	**Hours**
Start Time: 15:45		**Start Time:** 15:45	
Start Date: 06/06/18		**Start Date:** 06/06/18	
End Time: 15:45		**End Time:** 15:45	
End Date: 06/08/18		**End Date:** 06/08/18	

Chemistry - 100% Effluent Only

Parameter	Result	Unit	Method
Hardness	348	mg eq CaCO3/L	Calculation
Conductivity	1580	umhos/cm	SM 2510B
Alkalinity	236	mg eq CaCO3/L	SM 2320B
Residual Chlorine	< 0.1	mg/L	SM 4500-CLD
Dissolved Oxygen	7.45	mg/L	EPA 360.1
Ammonia (Pre-Fish)	1.19	mg/L	SM 4500-NH3 C

Analysis Report
48-Hour Acute Toxicity Test
EPA-821-R-02-012 Non-Renewal Serial Dilution

INOVATIA

Chain of Custody: 18-0592 **Lab Number:** 182198
Facility: Boonville Wastewater Treatment Plant

Results

Dilution	Initial DO	Initial pH	Final DO	Final pH
100%	7.93	7.91	7.91	8.43
50%	8.07	8.03	7.91	8.49
25%	8.12	8.07	7.93	8.49
12.5%	8.13	8.08	8.05	8.48
6.25%	8.09	8.08	8.08	8.44
Lab Control Water	7.77	7.37	8.18	7.29
Receiving Water	7.72	8.13	8.28	8.30

Results

Dilution	Fathead Minnow 24 Hrs	Fathead Minnow 48 Hrs	Water Flea 24 Hrs	Water Flea 48 Hrs
100%	20	20	20	20
50%	18	18	20	20
25%	20	20	20	20
12.5%	19	19	20	20
6.25%	20	20	20	20
Lab Control Water	19	19	40	40
Receiving Water	20	20	40	40

Fathead Minnow (*P. promelas*)
LC_{50}: > 100%
TUa: < 1.00
Method: Dunnett

Water Flea (*C. dubia*)
LC_{50}: > 100%
TUa: < 1.00
Method: Steel Many-One Rank Test

Pimephales promelas (Fathead Minnow)
Survival Data Summary Table

INOVATIA

Chain of Custody: 18-0592
Lab Number: 182198
Facility: Boonville Wastewater Treatment Plant

Concentration	Replicate Number	Number of Survivors		
		Hours		Final Total
		24	48	
100%	1	10	10	
	2	10	10	
	Total	20	20	20
50%	1	8	8	
	2	10	10	
	Total	18	18	18
25%	1	10	10	
	2	10	10	
	Total	20	20	20
12.5%	1	9	9	
	2	10	10	
	Total	19	19	19
6.25%	1	10	10	
	2	10	10	
	Total	20	20	20
Lab Control Water	1	9	9	
	2	10	10	
	Total	19	19	19
Receiving Water	1	10	10	
	2	10	10	
	Total	20	20	20

Ceriodaphnia dubia (Water Flea)
Survival Data Summary Table

INNOVATIA

Chain of Custody: 18-0592
Lab Number: 182198
Facility: Boonville Wastewater Treatment Plant

Concentration	Replicate Number	Number of Survivors		
		Hours		Final Total
		24	48	
100%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
50%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
25%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
12.5%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
6.25%	1	5	5	
	2	5	5	
	3	5	5	
	4	5	5	
	Total	20	20	20
Lab Control Water	1	10	10	
	2	10	10	
	3	10	10	
	4	10	10	
	Total	40	40	40
Receiving Water	1	10	10	
	2	10	10	
	3	10	10	
	4	10	10	
	Total	40	40	40

CHAIN OF CUSTODY RECORD

INOVATIA LABORATORIES, LLC
www.inovatia.com

INOVATIA LABORATORIES, LLC
120 EAST DAVIS STREET • P.O. BOX 30
FAYETTE, MO 65248-0030

PHONE: (660) 248-1911
FAX: (660) 248-1921
IL_CustServ@inovatia.com

FOR OFFICE USE ONLY:
CHAIN NUMBER: 18-0592
DATE REPORTED: 6/20/2018
INVOICE NUMBER: 22031

Contact Name: Bernita Bright
Company Name: City of Boonville
Address: 1200 Locust St
City, State, Zip: Boonville, Mo. 65233
E-Mail: wwtp@boonville-mo.org

Phone Number: 660-882-4024
Fax Number: 660-882-3385
Project Name / Number: WET Test
Quote Number:
Purchase Order Number: 4486

Project Due Date:
Comments:
Sampler's Name: Bernita Bright (please print)
Sampler's Signature: Bernita Bright

DISPOSITION INFORMATION

- ☐ STORE WITHIN HOLD TIME
- ☐ STORE LONG TERM
- ☐ RETURN AT CUSTOMER EXPENSE
- ☐ DISPOSE OF SAMPLE AT INOVATIA
- ☐ OTHER

NOTES:

FOR OFFICE USE ONLY:
DELIVERY METHOD: Hand
CUSTODY SEALS: ☐ YES ☑ NO ☐ INTACT ☐ BROKEN
COOLANT: ☑ ICE ☐ ICE PACK ☐ NONE
PACKAGE TYPE: cooler
ARRIVAL TEMPERATURE: 4.0 °C
MEASURED BY: ☐ TEMPERATURE BLANK ☑ SAMPLE ☐ COOLER / CONTAINER

	LAB NUMBER	Customer Sample Number	Date Collected	Time Collected	Matrix (soil / water / sludge / other)	G=grab / C=composite	No. of Containers	Method Number → NUMBER PER REPRESENTATIVE: HCl	HNO_3	NaOH	H_2SO_4	TSP	Other: Test Samples	Other:	REQUESTED ANALYSES: Acute WET Test
1	182198	Effluent Sample	6-6-18	08:00	WW	C	1						✓		✓
2	182199	Little Branch Receiving Stream	6-6-18	09:15	W	G	1						✓		✓
3															
4															
5															
6															
7															
8															
9															
10															

Please include any information that may be useful in the analysis of the sample, such as: expected concentrations, required detection limits, and method of collection.

Comments:

Note: Please run Acute WET test according to my permit.
We have UV disinfection.

Relinquished By: Graham Powers	Date: 6-6-18	Time: 10:11	Received By: Jennifer Vardeman	Date: 6/6/18	Time: 1012
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

Unless otherwise governed under separate contract, by signing this form, the client accepts Inovatia's standard terms and conditions for service, pricing, and payment as published on the reverse side of this form.
Prior, written notification of regulatory compliance requirements (GLP/cGMP) is mandatory and may result in additional fees.

When You Want Innovation, **Think Inovatia™**

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM - P.O. BOX 176, JEFFERSON CITY MO, 65102

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

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

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME City of Boonville	DATE & TIME COLLECTED EFFLUENT 6/6/18 0800 UPSTREAM 6/6/18 0915
PERMIT NUMBER MO-0040738	PERMIT OUTFALL NUMBER #001
COLLECTOR'S NAME Bernita Bright	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION Lilly Branch	
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC) 100%	EFFLUENT SAMPLE TYPE (CHECK ONE) ☒ 24HR COMPOSITE ☐ GRAB ☐ OTHER
SAMPLE NUMBER EFFLUENT 182198 UPSTREAM 182199	UPSTREAM SAMPLE TYPE (CHECK ONE) ☐ 24HR COMPOSITE ☒ GRAB ☐ OTHER
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR CHLORINE ____ mg/L	PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR AMMONIA ____ mg/L

PART B – TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY Inovatia Laboratories, LLC	TEST TYPE Acute	
FINAL REPORT NUMBER 18-0592	TEST DURATION 48 Hours	
DATE OF LAST REFERENCE TOXICANT TESTING Fish 5/30/18 Flea 5/30/18	TEST METHOD EPA-821-R-02-012	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY 6/6/2018 10:12	TEST START DATE AND TIME 6/6/18 1545	TEST END DATE AND TIME 6/8/18 1545
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	TEST ORGANISM #1 AND AGE P. promelas 1 day	TEST ORGANISM #2 AND AGE C. dubia <24 hours
SAMPLE FILTERED[1] PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	90% OR GREATER SURVIVAL IN SYNTHETIC CONTROL? ☒ YES ☐ NO	DILUTION WATER USED TO ACHIEVE AEC Mod. Hard Synthetic Water
FILTER MESH SIEVE SIZE[2]	EFFLUENT ORGANISM #1 % MORTALITY AT AEC 0%	EFFLUENT ORGANISM #2 % MORTALITY AT AEC 0%
SAMPLE AERATED DURING TESTING? ☐ YES ☒ NO	UPSTREAM ORGANISM #1 % MORTALITY 0%	UPSTREAM ORGANISM #2 % MORTALITY 0%
pH ADJUSTED? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	TEST RESULT AT AEC FOR ORGANISM #1 ☒ PASS ☐ FAIL	TEST RESULT AT AEC FOR ORGANISM #2 ☒ PASS ☐ FAIL

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% EFFLUENT SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	17.0	EPA 170.1	6/6/18
pH Standard Units	7.76	EPA 150.1	6/6/18
Conductance µMohs	1580	SM 2510B	6/18/18
Dissolved Oxygen mg/L	7.45	EPA 360.1	6/6/18
Total Residual Chlorine mg/L	< 0.1	SM 4500-CL-D	6/6/18
Unionized Ammonia mg/L	0.04	Calculation	6/19/18
*Total Alkalinity mg/L	236	SM 2320B	6/15/18
*Total Hardness mg/L	348	Calculation	6/19/18

*Recommended by USEPA guidance, not a required analysis.

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

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

CONTINUED ON PAGE 2

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

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

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% UPSTREAM SAMPLE[3]

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	17.0	EPA 170.1	6/6/18
pH Standard Units	7.84	EPA 150.1	6/6/18
Conductance µMohs	671	SM 2510B	6/18/18
Dissolved Oxygen mg/L	8.25	EPA 360.1	6/6/18
Total Residual Chlorine mg/L	< 0.1	SM 4500-CL-D	6/6/18
Unionized Ammonia mg/L	< 0.003	Calculation	6/19/18
*Total Alkalinity mg/L	291	SM 2320B	6/15/18
*Total Hardness mg/L	299	Calculation	6/19/18

*Recommended by USEPA guidance, not a required analysis.

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

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

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

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

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

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

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

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

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

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

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

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

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