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-0093513
Owner:	City of Hannibal
Address:	320 Broadway, Hannibal, MO 63401
Continuing Authority:	Hannibal Board of Public Works
Address:	P.O. Box 1589, Hannibal, MO 63401
Facility Name:	Hannibal Wastewater Treatment Plant
Facility Address:	700 South Arch Street, Hannibal, MO
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.

May 1, 2018
Effective Date

October 1, 2019
Modification Date

Edward B. Galbraith, Director, Division of Environmental Quality

April 30, 2023
Expiration Date

Chris Wieberg, Director, Water Protection Program

FACILITY DESCRIPTION (continued):

Outfall #001 – POTW – SIC #4952
The use or operation of this facility shall be by or under the supervision of a Certified "A" Operator.
Influent lift station / mechanical bar screen / aerated grit removal / JWC channel monster / two pure oxygen activated sludge reactors / three final clarifiers / chlorination / Peracetic Acid disinfection / 2 aerobic sludge digester / sludge gravity thickener basin / sludge belt press / biosolids are land applied, composted, or disposed of in a landfill

Design population equivalent is 60,000
Design flow is 6 MGD.
Actual flow is 3.8 MGD
Design sludge production is 1,680 dry tons/year

Legal Description:	Landgrant 2739, Marion County
UTM Coordinates:	X=641379, Y=4396822
Receiving Stream:	Mississippi River (P)
First Classified Stream and ID:	Mississippi River (P) (3699)
USGS Basin & Sub-watershed No.:	(07110004-0504)

Outfall #002 – POTW – SIC #4952 – Alternative Maintenance Outfall
The use or operation of this facility shall be by or under the supervision of a Certified "A" Operator.
Influent lift station / mechanical bar screen / aerated grit removal / JWC channel monster / two pure oxygen activated sludge reactors / three final clarifiers / chlorination / Peracetic Acid disinfection / 2 aerobic sludge digester / sludge gravity thickener basin / sludge belt press / biosolids are land applied, composted, or disposed of in a landfill

Design population equivalent is 60,000
Design flow is 6 MGD
Actual flow is dependent upon usage
Design sludge production is 1,680 dry tons/year

Legal Description:	Sec. 32, T57N, R4W, Marion County
UTM Coordinates:	X=639928, Y=4395437
Receiving Stream:	Bear Creek (P)
First Classified Stream and ID:	Bear Creek (P) (8)
USGS Basin & Sub-watershed No.:	(07110004-0501)

Permitted Feature SM1 – Instream Monitoring
Instream monitoring location – Upstream on Mississippi River – See Special Condition #21

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 shall become effective on **May 1, 2018** 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
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		630	126	once/week	grab
Ammonia as N	mg/L	*		*	once/month	grab
Oil & Grease	mg/L	*		*	once/month	grab
Total Residual Chlorine (Note 2)	µg/L	964		446	once/week	grab
Peracetic Acid Residual	mg/L	4.6		*	once/week	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE JUNE 28, 2018. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

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

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE JUNE 28, 2018.

EFFLUENT PARAMETER(S)	UNITS	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Biochemical Oxygen Demand$_5$ – Percent Removal (Note 3)	%	85	once/month	calculated
Total Suspended Solids – Percent Removal (Note 3)	%	85	once/month	calculated

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE JUNE 28, 2018.

* 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.

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

Note 2 - This permit contains a Total Residual Chlorine (TRC) limit.

(a) Disinfection is required during the recreational season from April 1 through October 31. This permit does not authorize the use of chlorine or dechlorination chemicals outside the recreational season. Should the facility wish to chlorinate the effluent during the non-recreational season, the permittee must submit a permit modification request to the Department prior to adding chlorine to the effluent.

(b) If chlorine or dechlorination chemicals were not used during a sampling period within the recreational season, an actual analysis for TRC is not necessary. Simply report as "0 µg/L" for TRC.

Note 3 – Influent sampling is not required when the facility does not discharge effluent during the reporting period. Samples are to be collected prior to any treatment process. Percent removal is calculated by the following formula: [(Influent –Effluent) / Influent] x 100% = Percent Removal. The Monthly Average Minimum Percent removal is to be reported as the average of all daily calculated removal efficiencies. Influent samples are to be collected as a 24-hour composite sample, composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

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

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on **May 1, 2018** 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
Total Phosphorus	mg/L	*		*	once/quarter****	grab
Total Nitrogen	mg/L	*		*	once/quarter****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE JULY 28, 2018.

* Monitoring requirement only.
**** See table below for quarterly sampling requirements

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

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 shall become effective on **May 1, 2018** 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
Acute Whole Effluent Toxicity (Note 4)	TU_a	*			once/year	composite**
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE AUGUST 28, 2018.						
Chronic Whole Effluent Toxicity (Note 5)	TU_c	*			once/permit cycle	composite**
WET TEST REPORTS SHALL BE SUBMITTED ONCE PER PERMIT CYCLE; THE FIRST REPORT IS DUE AUGUST 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 4 – The Acute WET test shall be conducted once per year during the 1st, 2nd, 3rd, and 5th year of the permit cycle. See Special Condition #19 for additional requirements.

Note 5 –The Chronic WET test shall be conducted during the 4th year of the permit cycle. See Special Condition #20 for additional requirements.

OUTFALL #002	**TABLE A-4. 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 shall become effective on **May 1, 2018** 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
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		630	126	once/week	grab
Ammonia as N (April 1 – Sept 30) (Oct 1 – March 31)	mg/L	3.5 5.3		1.4 3.1	three/week	grab
Oil & Grease	mg/L	15		10	once/month	grab
Total Residual Chlorine (Note 6)	µg/L	< 130		< 130	once/week	grab
Peracetic Acid Residual	mg/L	1.0		*	once/week	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE JUNE 28, 2018. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

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

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE JUNE 28, 2018.

* 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.

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

Note 6 - This permit contains a Total Residual Chlorine (TRC) limit.

(a) The Water Quality Based Effluent Limit for Total Residual Chlorine was calculated to be 17.2 µg/L (daily maximum limit) and 7.9 µg/L (monthly average limit). These limits are below the minimum quantification level (ML) of the most common and practical EPA approved CLTRC methods. The Department has determined the current acceptable ML for total residual chlorine to be 130 µg/L when using the DPD Colorimetric Method #4500 – CL G. from Standard Methods for the Examination of Waters and Wastewater. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values. The minimum quantification level does not authorize the discharge of chlorine in excess of the effluent limits stated in the permit. Measured values greater than or equal to the minimum quantification level of 130 µg/L will be considered violations of the permit and values less than the minimum quantification level of 130 µg/L will be considered to be in compliance with the permit limitation.

(b) Disinfection is required during the recreational season from April 1 through October 31. This permit does not authorize the use of chlorine or dechlorination chemicals outside the recreational season. Should the facility wish to chlorinate the effluent during the non-recreational season, the permittee must submit a permit modification request to the Department prior to adding chlorine to the effluent.

(c) If chlorine or dechlorination chemicals were not used during a sampling period within the recreational season, an actual analysis for TRC is not necessary. Simply report as "0 µg/L" for TRC.

PERMITTED FEATURE SM1	TABLE B-1. INSTREAM MONITORING REQUIREMENTS

The monitoring requirements shall become effective on **May 1, 2018** and remain in effect until expiration of the permit. The stream shall be monitored by the permittee as specified below:

PARAMETER(S)	UNITS	MONITORING REQUIREMENTS				
		DAILY MAXIMUM		MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Total Phosphorus	mg/L	*		*	once/quarter****	grab
Total Nitrogen	mg/L	*		*	once/quarter****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE JULY 28, 2018.

* Monitoring requirement only.
**** See table below for quarterly sampling

Quarterly Minimum Sampling Requirements			
Quarter	**Months**	**Total Nitrogen & Total Phosphorus**	**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

C. 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 March 1, 2015 respectively, and hereby incorporated as though fully set forth herein. The permittee is required to conduct biosolids testing frequency in accordance with the monitoring frequency of Table C-1 below. Table C-1 supersedes the requirements in Standard Conditions Part III, Section I – Monitoring Frequency Table 5.

Table C-1: Biosolids Testing Monitoring Frequency (†)			
Metals, Pathogens, and Vectors	Nitrogen TKN [1]	Nitrogen PAN [2]	Priority Pollutants [3]
twice/year	twice/year	1 per month	1 per permit cycle

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

† Total Solids: A grab sample of biosolids shall be tested once per day during land application periods for percent total solids. This data shall be used to calculate the dry tons of biosolids applied per acre. Total Phosphorus and Total Potassium shall be tested twice per year. This table is not applicable for incineration and permit holders that landfill their sludge/biosolids.

D. SPECIAL CONDITIONS

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

D. SPECIAL CONDITIONS (continued)

(3) Pretreatment Program Reports; and
(4) Any additional report required by the permit excluding bypass reporting.
After such a system has been made available by the Department, required data shall be directly input into the system by the next report due date.

(c) Other actions. The following shall be submitted electronically after such a system has been made available by the Department:
(1) Notices of Intent to discharge (NOIs);
(2) Notices of Termination (NOTs);
(3) No Exposure Certifications (NOEs); and
(4) 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 electronically submit compliance monitoring data and reports unless a waiver is granted by the Department in compliance with 40 CFR Part 127. The permittee may obtain an electronic reporting waiver by first submitting an eDMR Waiver Request Form: http://dnr.mo.gov/forms/780-2692-f.pdf. The Department will either approve or deny this electronic reporting waiver request within 120 calendar days. Only permittees with an approved waiver request may submit monitoring data and reports on paper to the Department for the period that the approved electronic reporting waiver is effective.

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

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

4. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(3)(B) within 90 days of notice of its availability.

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

6. Changes in existing pollutants or the addition of new pollutants to the treatment facility

The permittee must provide adequate notice to the Director of the following:
(a) 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 those pollutants; and
(b) Any substantial change in 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.
(c) For purposes of this paragraph, adequate notice shall include information on;
(1) the quality and quantity of effluent introduced into the POTW, and
(2) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

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.

D. SPECIAL CONDITIONS (continued)

(e) See Standard Conditions Part I, Section A, #4 regarding proper analytical methods used for sample analysis.
(f) When calculating monthly averages, one-half of the method detection limit (MDL) should be used instead of a zero. Where all data are below the MDL, the "<MDL" shall be reported as indicated in item (c).

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

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. If a modification of the monitoring frequencies listed in 10 CSR 20-9 is needed, the permittee shall submit a written request to the Department for review and, if deemed necessary, approval.

10. The permittee shall develop and implement a program for maintenance and repair of the collection system. The recommended guidance is the US EPA's Guide for Evaluating Capacity, Management, Operation, And Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems (Document number 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 permittee shall also submit a report via the Electronic Discharge Monitoring Report (eDMR) Submission System annually, by January 28th, for the previous calendar year. The report shall contain the following information:
(a) A summary of the efforts to locate and eliminate sources of excessive infiltration and inflow into the collection system serving the facility for the previous year.
(b) A summary of the general maintenance and repairs to the collection system serving the facility for the previous year.
(c) A summary of any planned maintenance and repairs to the collection system serving the facility for the upcoming calendar year. This list shall include locations (GPS, 911 address, manhole number, etc.) and actions to be taken.

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.b. 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: http://dnr.mo.gov/modnrcag/ or the Environmental Emergency Response hotline 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. At least one gate must be provided to access the wastewater treatment facility and provide for maintenance and mowing. The gate shall remain closed except when temporarily opened by the permittee to access the facility to perform operational monitoring, sampling, maintenance, or mowing. The gates shall also be temporarily opened for inspections by the Department. The gate shall be closed and locked when the facility is not staffed.

14. At least one (1) warning sign shall be placed on each side of the facility enclosure in such positions as to be clearly visible from all directions of approach. There shall also be one (1) sign placed for every five hundred feet (500') (150 m) of the perimeter fence. A sign shall also be placed on each gate. Minimum wording shall be SEWAGE TREATMENT FACILITY—KEEP OUT. Signs shall be made of durable materials with characters at least two inches (2") high and shall be securely fastened to the fence, equipment or other suitable locations.

15. 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.

16. An all-weather access road shall be provided to the treatment facility.

D. SPECIAL CONDITIONS (continued)

17. The discharge from the wastewater treatment facility shall be conveyed to the receiving stream via a closed pipe or a paved or rip-rapped open channel. Sheet or meandering drainage is not acceptable. The outfall sewer shall be protected against the effects of floodwater, ice or other hazards as to reasonably insure its structural stability and freedom from stoppage. The outfall shall be maintained so that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters. The facility will sample from a location other than the outfall as the outfall location is approximately 15 feet below the surface of the Mississippi River.

18. Land application of biosolids shall be conducted in accordance with Standard Conditions III and a Department approved biosolids management plan. Land application of biosolids during frozen, snow covered, or saturated soil conditions in accordance with the additional requirements specified in WQ426 shall occur only with prior approval from the Department.

19. 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 Allowable Effluent Concentration (AEC) for this facility is 2% with the dilution series being: 40%, 20%, 10%, 5%, and 1%.
    (e) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
    (f) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of 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.

20. 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 Allowable Effluent Concentration (AEC) is 0.2%, the dilution series is: 4.0%, 2.0%, 1.0%, 0.5%, and 0.1%.
    (e) All chemical and physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% effluent concentration.
    (f) The facility must submit a full laboratory report for all toxicity testing. The report must include a quantification of chronic toxic units ($TU_c = 100/IC_{25}$) reported according to the *Methods for Measuring the Chronic Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* chapter on report preparation and test review. The 25 percent Inhibition Effect Concentration (IC_{25}) is the toxic or effluent concentration that would cause 25 percent reduction in mean young per female or in growth for the test populations.

21. Receiving Water Monitoring Conditions
    (a) The upstream receiving water sample should be collected at a point upstream from any influence of the effluent, where the water is visibly flowing down stream. Samples should be taken at least four feet from the bank or from the middle of the stream (whichever is less) and 6-inches below the surface if possible.

D. SPECIAL CONDITIONS (continued)

(b) When conducting in-stream monitoring, the permittee shall record observations that include: the time of day, weather conditions, unusual stream characteristics (e.g., septic conditions, algae growth, etc.), the stream segment (e.g., riffle, pool or run) from where the sample was collected. These observations shall be submitted with the sample results.

(c) Samples shall not be collected from areas with especially turbulent flow, still water or from the stream bank, unless these conditions are representative of the stream reach or no other areas are available for sample collection. Sampling should not be made when significant precipitation has occurred recently. The sampling event should be terminated and rescheduled if any of the following conditions occur:

- If turbidity in the stream increases notably; or
- If rainfall over the past two weeks exceeds 2.5 inches or exceeds 1 inch in the last 24 hours

(d) Always use the correct sampling technique and handling procedure specified for the parameter of interest. Please refer to the latest edition of Standard Methods for the Examination of Water and Wastewater for further discussion of proper sampling techniques. All analyses must be conducted in accordance with an approved EPA method. Meters shall be calibrated immediately (within 1 hour) prior to the sampling event.

(e) Please contact the Department if you need additional instructions or assistance.

22. 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.

23. Stormwater Pollution Prevention Plan (SWPPP): A SWPPP must be developed and implemented within 365 days of the effective date of the permit. Through implementation of the SWPPP, the permittee shalt minimize the release of pollutants in stormwater from the facility to the waters of the state. The SWPPP shall be developed in consultation with the concepts and methods described in the following document: Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators, (Document number EPA 833-B-09-002) published by the United States Environmental Protection Agency (USEPA) in February 2009.

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

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

i. The monthly routine inspection shall be documented in a brief written report, which shall include:
   i. The person(s) conducting the inspection.
   ii. The inspection date and time.
   iii. Weather information for the day of the inspection.
   iv. Precipitation information for the entire period since the last inspection.
   v. Description of the discharges observed, including visual quality of the discharges (sheen, turbid, etc.).
   vi. Condition of BMPs
   vii. If BMPs were replaced or repaired.
   viii. Observations and evaluations of BMP effectiveness.

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

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

iv. The routine inspection reports shall be made available to Department personnel upon request.

D. SPECIAL CONDITIONS (continued)

(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.23.
  (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.

24. 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.

25. Biosolids Composting Requirements for General Public Use:
(a) Applicability. A sewage biosolids compost product will be considered suitable for general public use when the permittee meets the requirements under this permit special condition. General public use means the compost is for crops and vegetation including use in residential areas, public use areas and for horticulture, silviculture and agricultural uses.
(b) Composting Facility Description.
  (1) Composting must be conducted on an impermeable base, which may be made of asphalt, concrete, compacted earth, or other materials and shall comply with the permeability limitations under 10 CSR 20-8.020(13)(A)4.
  (2) Raw materials will consist of dewatered sewage biosolids, wood chips, yard waste or other compostable materials.
(c) If the compost is to be distributed to the public, it shall meet the Class A requirements for pathogen reduction by having undergone one of the Processes to Further Reduce Pathogens found in Appendix B of 40 CFR 503.

D. SPECIAL CONDITIONS (continued)

(d) The permittee will maintain a detailed operations plan for the composting process.

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

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

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

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

(i) Records and Reporting Requirements.
   (1) Time, locations and results shall be recorded for each monitoring requirement and maintained for at least five years. Copies of these records shall be made available to the Department upon request.
   (2) The total quantity of compost distributed during the year must be recorded.
   (3) An annual report shall be submitted by January 28 summarizing compost activities monitoring. A copy of the individual laboratory reports and daily records need not be submitted unless requested by the Department. The reports shall be submitted to the Department via eDMR and to the EPA Region VII office as part of the annual sludge report.

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

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACTSHEET ADDENDUM
FOR PERMIT MODIFICATION
#MO-0093513
HANNIBAL 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.

Part I – Facility Information

Facility Type: Major Municipal
Facility Description: Influent lift station / mechanical bar screen / aerated grit removal / Worthington comminutor / two pure oxygen activated sludge reactors / three final clarifiers / chlorination / Peracetic Acid disinfection / 2 aerobic sludge digester / sludge gravity thickener basin / sludge belt press / sludge is land applied or disposed of in a landfill

Part II – Modification Rationale

This operating permit is hereby modified to reflect a change in frequency for biosolids testing. The frequencies for Metals, Pathogens, Vectors, and Nitrogen TKN are revised to allow sampling twice per year. The frequency for Priority Pollutants and TCLP is revised to allow sampling once per permit cycle. The permit was also modified to remove the requirement for the facility to submit a written technical evaluation of the need to revise local limits for pretreatment by November 1, 2018 as the City submitted the evaluation, and the requirement is no longer needed.

No other changes were made at this time.

Part III – 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.

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 July 26, 2019 to August 26, 2019. No responses received.

DATE OF ADDENDUM: August 28, 2019

COMPLETED BY:

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

Missouri Department of Natural Resources
Factsheet Addendum
For Pretreatment Program Modification
#MO-0093513
Hannibal 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 Hannibal 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 required to Public Notice

The public notice of the Department of Natural Resources' intent to approve the city of Hannibal's pretreatment program modification has ended as of May 13, 2019. The pretreatment program is hereby approved pursuant to 40 CFR 403.18 (adopted in 10 CSR 20-6.100) and the city of Hannibal shall implement the pretreatment program requirements upon issuance of this permit.

The pretreatment program changes were designated substantial modifications because the changes could have a significant impact on the operation of the program, pursuant to 40 CFR 403.18(b)(7). Hannibal's city ordinance will adopt revised limits as shown in the *Technical Determination of Local Limits Report,* dated January 2019. The revised local limits reflect the city's recent industrial waste surveys. The revised local limits table is published as prohibited masses for pollutants; and general manager will distribute the permit limitations in pounds per day for all users that meet the definition of S.I.U. as defined by city ordinance. In addition, the city is proposing to adopt the U.S. Environmental Protection Agency's (EPA's) 2005 amendments to the federal General Pretreatment Regulation at 40 CFR 403 and, thus, has modified the city's Chapter 25- *Sewer and Sewage Disposal* ordinance and the city's *Enforcement Response Plan, Industrial Users of the Sewer System* which outlines the procedures to identify, document, and respond to significant industrial user violations. Both the Chapter 25 ordinance and the Enforcement Response Plan contain additional updates that are beyond the scope of the 2005 amendments to the federal General Pretreatment Regulation.

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: 05/17/2019

Completed by:

Todd Blanc,
State Pretreatment Coordinator
Water Protection Program
314-416-2064
todd.blanc@dnr.mo.gov

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0093513
HANNIBAL WWTP

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

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

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

This Factsheet is for a Major.

Part I – Facility Information

Facility Type: POTW - SIC #4952

Facility Description: Influent lift station / mechanical bar screen / aerated grit removal / Worthington comminutor / two pure oxygen activated sludge reactors / three final clarifiers / chlorination / Peracetic Acid disinfection / 2 aerobic sludge digester / sludge gravity thickener basin / sludge belt press / sludge is land applied or disposed of in a landfill

Have any changes occurred at this facility or in the receiving water body that effects effluent limit derivation?
☒ - Yes; The Hannibal Board of Public Works had a Mixing Zone study conducted on the Mississippi River by Black & Veatch for Outfall #001 for the Hannibal Wastewater Treatment Plant. The study was dated May 5, 2017. 10 CSR 20-7.031(5)(A)4.B sets a maximum size of the mixing zone and zone of initial dilution. The default mixing zone is one-quarter (1/4) of the volume of flow and the default Zone of initial dilution is one-tenth (0.1) of the volume of flow of the mixing zone, and no more than ten (10) times the effluent design flow unless the use of diffusers or specific mixing zone study can justify more mixing. The mixing zone for Outfall #001 was set at 1/4 of the low flow value of the Mississippi River in the previous permit (MZ 7Q10 = 4,625.89 CFS) and the zone of initial dilution was determined to be 93 CFS, or 10 times the design flow of 9.3 CFS. The study provided a site specific zone of initial dilution of one-tenth (0.1) of the low flow value of the Mississippi River, or 462.59 CFS. The mixing zone and zone of initial dilutions study data was used in effluent limitations calculations.

☐ - No.

Application Date: 07/10/2013
Expiration Date: 12/31/2013

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
#001	9.3	Secondary	Domestic
#002*	9.3	Secondary	Domestic

* - Alternative Maintenance Outfall

Facility Performance History:
The facility failed to meet final effluent limits for BOD on the February and March 2014 Discharge Monitoring Reports (DMRs). The facility failed to meet final effluent limits for TSS on the February and March 2014, and June 2016 DMRs. This facility was last inspected on May 28, 2013. The inspection showed the following unsatisfactory features: failure to submit the 2012 Annual I & I report and failure to submit the end of year progress report of progress made towards elimination of the constructed SSO. The facility had submitted the missing documentation before the report was completed, so the facility was returned to compliance.

Comments:
Changes in this permit include the addition of Peracetic Acid Residual limits, Total Nitrogen and Total Phosphorus monitoring, and a Chronic WET test, and removal of Oil & Grease limits and removal of Copper, Lead, Zinc, and Phenols from Outfall #001. Changes also include revised Total Residual Chlorine limits. See Part VI of the Fact Sheet for further information regarding the addition and removal of effluent parameters. Special conditions were updated to include the addition of inflow and infiltration reporting requirements, reporting of Non-detects, bypass reporting requirements, pretreatment requirements, a Stormwater Pollution Prevention Plan, and the addition of instream monitoring requirements. The permittee requested a reduced frequency for biosolids testing as required by Standard Condition Part III, Section I. After a review of the last five years of biosolids data, the Department reduced the frequency and included a statement and table in the permit showing the reduced frequency.

Part II – Operator Certification Requirements

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

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

Owned or operated by or for a

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

Each of the above entities are only applicable if they have a Population Equivalent greater than two hundred (200) or fifty (50) or more service connections.

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

Operator's Name: Corey A. Means
Certification Number: 8626
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.

☐ - This facility is not required to have a certified operator.

Part III– Operational Monitoring

☐ - As per [10 CSR 20-9.010(4))], the facility is not required to conduct operational monitoring.

☒ - As per [10 CSR 20-9.010(4))], the facility is required to conduct operational monitoring.

Part IV – Receiving Stream Information

RECEIVING STREAM(S) TABLE: OUTFALL #001

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
Mississippi River	P	3699	AQL, WBC-A, SCR, HHP, IRR, LWW, DWS, IND	07110004 - 0504	0

RECEIVING STREAM(S) TABLE: OUTFALL #002

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
Bear Creek	P	8	AQL, WBC-B, SCR, HHP, IRR, LWW	07110004 - 0501	0
Mississippi River	P	3699	AQL, WBC-A, SCR, HHP, IRR, LWW, DWS, IND		1.51

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

Uses which may be found in the receiving streams table, above:

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

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

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

WBC = Whole Body Contact recreation where the entire body is capable of being submerged;
WBC-A = Whole body contact recreation that supports swimming uses and has public access;
WBC-B = Whole body contact recreation that supports swimming;
SCR = Secondary Contact Recreation (like fishing, wading, and boating).

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

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

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

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

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

RECEIVING STREAM(S) LOW-FLOW VALUES:

RECEIVING STREAM (C, E, P, P1)	LOW-FLOW VALUES (CFS)*		
	1Q10	7Q10	30Q10
Mississippi River (P)	15,611.61	18,503.53	22,525.61
Bear Creek (P)	0.1	0.1	1.0

* - Low Flow values for the Mississippi River obtained using USGS 05587450, Mississippi River at Grafton, IL, 11/14/1962-11/14/2010. This is the nearest monitoring location with significant flow data for the Mississippi River. Average effluent flow of 15.4 cfs, derived from the facility DMR data, was subtracted from calculated low flows to obtain the values listed above. The USGS 05501600, Mississippi River at Hannibal, MO monitoring location has data for only 19 years (1991-2010), and was providing what appeared to be artificially small low flow values. It was therefore, was not used. Low Flow values for Bear Creek obtained using USGS 05502000, Bear Creek at Hannibal, MO, 11/15/1970-11/15/2010.

MIXING CONSIDERATIONS

MIXING CONSIDERATIONS TABLE: MISSISSIPPI RIVER

MIXING ZONE (CFS)** [10 CSR 20-7.031(5)(A)4.B.(II)(a)]			ZONE OF INITIAL DILUTION (CFS)** [10 CSR 20-7.031(5)(A)4.B.(II)(b)]		
1Q10	7Q10	30Q10	1Q10	7Q10	30Q10
3,902.9	4,625.89	5,631.4	390.29	462.59	563.14

**From the Department approved Black & Veatch Mixing Zone Study, Hannibal Wastewater Treatment Plant dated May 5, 2017

MIXING CONSIDERATIONS TABLE: BEAR CREEK

MIXING ZONE (CFS)** [10 CSR 20-7.031(5)(A)4.B.(II)(a)]			ZONE OF INITIAL DILUTION (CFS)** [10 CSR 20-7.031(5)(A)4.B.(II)(b)]		
1Q10	7Q10	30Q10	1Q10	7Q10	30Q10
0.025	0.025	0.25	0.0025	0.0025	0.025

**From the Department approved Black & Veatch Mixing Zone Study, Hannibal Wastewater Treatment Plant dated May 5, 2017

RECEIVING STREAM MONITORING REQUIREMENTS:

Facilities with a design flow greater than 100,000 gallons per day are required to sample their effluent quarterly for Total Phosphorus and Total Nitrogen per 10 CSR 20-7.015(9)(D)7. Upstream monitoring for these parameters is necessary to determine background concentrations in order to complete calculations related to future effluent limit derivation where necessary or appropriate.

Permitted Feature SM1. (Upstream)

Receiving Water Body's Water Quality
No stream survey has been conducted for this facility.

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 discharges to a Losing Stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)], or is an existing facility, and has submitted an alternative evaluation.

☒ - The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)], 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.

☐ - All limits in this operating permit are at least as protective as those previously established; therefore, backsliding does not apply.

☒ - 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.

- The Reasonable Potential Analysis calculations showed that Oil & Grease did not have a reasonable potential to violate Water Quality Standards for Outfall #001. The limits for these parameters were removed from the permit for Outfall #001 and replaced with monitoring only requirements.
- The monitoring frequency for BOD and TSS were reduced to once per week for Outfalls #001 and #002. The reduction in frequency was in accordance with 10 CSR 20-7.015(2)(C)1. as the effluent does not exhibit high variability and consistently complies with the applicable effluent limit.
- The Reasonable Potential Analysis calculations showed that Copper, Lead, Zinc, and Phenols did not have a reasonable potential to violate Water Quality Standards for Outfall #001. These parameters were removed from the permit for Outfall #001.
- pH was changed to 6.0 – 9.0 due to the buffering capacity of the mixing zone for Outfall #001.
- Effluent limitations were re-calculated for Total Residual Chlorine based on new information derived from discharge monitoring reports, the Mixing Zone Study, and on the current Missouri Water Quality Standards for Total Residual Chlorine for Outfall #001. The newly established limitations are still protective of water quality."
- WET testing requirements were changed from pass/fail to monitoring only for toxic units. This change reflects modifications to Missouri's Effluent Regulation found at 10 CSR 20-7.015. 40 CFR 122.44(d)(1)(ii) requiring the Department to establish effluent limitations to control all parameters which have the reasonable potential to cause or contribute to an excursion above any state water quality standard, including state narrative criteria. The previous permit imposed a pass/fail limitation without collecting sufficient numerical data to conduct an analytical reasonable potential analysis. The permit writer has made a reasonable potential determination which concluded the facility does not have reasonable potential at this time but monitoring is required. Implementation of the toxic unit monitoring requirement will allow the Department to effect numeric criteria in accordance with water quality standards established under §303 of the CWA.

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

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

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

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

☐ - This permit contains new and/or expanded discharge; please see **APPENDIX FOR ANTIDEGRADATION ANALYSIS.**

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.

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

AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:
As per [10 CSR 20-6.010(3)(B)], …An applicant may utilize a lower preference continuing authority by submitting, as part of the application, a statement waiving preferential status from each existing higher preference authority, providing the waiver does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the Department.

BIOSOLIDS & SEWAGE SLUDGE:
Biosolids are solid materials resulting from domestic wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works. Additional information regarding biosolids and sludge is located at the following web address: http://extension.missouri.edu/main/DisplayCategory.aspx?C=74, items WQ422 through WQ449.

☒ - Permittee has a Department approved biosolids management plan, and is authorized to land applies biosolids in accordance with Standard Conditions III. The permittee requested a reduced frequency for biosolids testing as required by Standard Condition Part III, Section I. After a review of the last five years of biosolids data, the Department reduced the frequency and included a statement and table in the permit showing the reduced frequency.

☐ - This condition is not applicable to the permittee for this facility.

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 currently under enforcement action.

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

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

Operational Monitoring Lagoon: http://dnr.mo.gov/forms/780-2801-f.pdf
Operational Monitoring Mechanical: http://dnr.mo.gov/forms/780-2800-f.pdf
I&I Report: http://dnr.mo.gov/forms/780-2690-f.pdf
Per 40 CFR 127.15 and 127.24, permitted facilities may request a temporary waiver for up to 5 years or a permanent waiver from electronic reporting from the Department. To obtain an electronic reporting waiver, a permittee must first submit an eDMR Waiver Request Form: http://dnr.mo.gov/forms/780-2692-f.pdf. A request must be made for each facility. If more than one facility is owned or operated by a single entity, then the entity must submit a separate request for each facility based on its specific circumstances. An approved waiver is non-transferable.

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

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

☐ - The permittee/facility is not currently using the eDMR data reporting system.

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.

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

☒ - A RPA was conducted on appropriate parameters. Please see **APPENDIX – RPA RESULTS.**

☐ - A RPA was not conducted for this facility.

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)].

☐ - Equivalent to Secondary Treatment is 65% removal [40 CFR Part 133.105(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(11)] 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.

☐ - This facility is not required to develop or implement a program for maintenance and repair of the collection system; however, it is a violation of Missouri State Environmental Laws and Regulations to allow untreated wastewater to discharge to waters of the state.

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 includes 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) and 10 CSR 20-7.031(11), 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 associated with development of a site specific criterion. A facility is not prohibited from conducting these activities, but a SOC may not be granted for conducting these activities.

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

☐ - The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(11)].

☒ - This permit does not contain a SOC.

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

☐ - The permittee's Sewer Extension Authority Supervised Program has been reauthorized. Please see **Appendix – Sewer Extension Authority Supervised Program Reauthorization Letter** for applicable conditions.

☒ - 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 February 2009], 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 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 NPDES Form 3510-11 – No Exposure Certification for Exclusion from NPDES Stormwater Permitting (https://www3.epa.gov/npdes/pubs/msgp2008_appendixk.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. This information will be reevaluated at the time of renewal.

☐ - At this time, the permittee is not required to develop and implement a SWPPP.

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

☐ - This operating permit is drafted under premises of a petition for variance.

☒ - 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(78)], 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.

☐ - Wasteload allocations were not calculated.

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

☐ - A WLA study including model was submitted to the Department.

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

WATER QUALITY STANDARDS:
Per [10 CSR 20-7.031(4)], General Criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the Department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

WHOLE EFFLUENT TOXICITY (WET) TEST:

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

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)7. and the Water Quality Standards 10 CSR 20-7.031(4)(D),(F),(G),(I)2.A & B are being met. Under [10 CSR 20-6.010(8)(A)4], 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.

☐ - At this time, the permittee is not 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.

☐ - Bypasses occur or have occurred at this facility.

☒ - 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 discharges to a 303(d) listed stream.

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

☒ - This facility discharges to a stream with an EPA approved TMDL. The Mississippi River TMDL was approved on November 3, 2006. The pollutants the TMDL addressed were Chlordane and Polychlorinated Biphenyls (PCBs). The TMDL states that "There are no Missouri facilities which discharge either directly to the Mississippi River or to a tributary where the Mississippi River is the first classified water body, that have that potential for discharging detectable amounts of PCBs or chlordane. Since chlordane and PCBs were banned in 1988 and 1977, respectively, there should be negligible discharge of chlordane and PCBs into streams from wastewater treatment plants and other point sources. Therefore, the WLA is set as zero pounds/day in this TMDL." The TMDL does not consider this facility to be a source of the above listed pollutant or considered to contribute to the impairment.

Part VI – Effluent Limits Determination

OUTFALL #001 – MAIN FACILITY OUTFALL

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

- ☒ Missouri or Mississippi River [10 CSR 20-7.015(2)]
- ☐ Lakes or Reservoirs [10 CSR 20-7.015(3)]
- ☐ Losing Streams [10 CSR 20-7.015(4)]
- ☐ Metropolitan No-Discharge Streams [10 CSR 20-7.015(5)]
- ☐ Special Streams [10 CSR 20-7.015(6)]
- ☐ Subsurface Waters [10 CSR 20-7.015(7)]
- ☐ All Other Waters [10 CSR 20-7.015(8)]

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		630	126	630/126	1/week	monthly	G
Ammonia as N	mg/L	2, 3	*		*	*/*	1/month	monthly	G
Oil & Grease	mg/L	1, 3	*		*	15/10	1/month	monthly	G
Chlorine, Total Residual	µg/L	1, 3	964		446	209/140	1/week	monthly	G
Peracetic Acid Residual	mg/L	7	4.6		*	***	1/week	monthly	G
Total Nitrogen	mg/L	1	*		*	***	1/quarter	quarterly	G
Total Phosphorus	mg/L	1	*		*	***	1/quarter	quarterly	G
Acute Whole Effluent Toxicity	TUa	1, 9	*			Pass/ Fail	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	6.0		9.0	6.5-9.0	3/week	monthly	G

PARAMETER	Unit	Basis for Limits			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
E = 24-hr. estimate
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

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).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Effluent Limits Determination.**

- **Total Suspended Solids (TSS).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Effluent Limits Determination.**

- ***Escherichia coli (E. coli)***. Monthly average of 126 per 100 mL as a geometric mean and Weekly Average of 630 per 100 mL as a geometric mean during the recreational season (April 1 – October 31), to protect Whole Body Contact Recreation (A) designated use of the receiving stream, as per 10 CSR 20-7.031(5)(C). An effluent limit for both monthly average and weekly average is required by 40 CFR 122.45(d). The Geometric Mean is calculated by multiplying all of the data points and then taking the nth root of this product, where n = # of samples collected. For example: Five E. coli samples were collected with results of 1, 4, 6, 10, and 5 (#/100mL). Geometric Mean = 5^{th} root of (1)(4)(6)(10)(5) = 5^{th} root of 1,200 = 4.1 #/100mL.

- **Total Ammonia Nitrogen**. The Reasonable Potential Analysis conducted indicates no reasonable potential for the facility to violate Missouri WQS for Ammonia in the Mississippi River. Therefore, a monitoring only requirement from the previous operating permit has been retained. Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3] default pH 7.8 SU Background total ammonia nitrogen = 0.03 mg/L in the Mississippi River.

    - **Oil & Grease**. The Reasonable Potential Analysis conducted indicates no reasonable potential for the facility to violate Missouri WQS for Oil & Grease in the Mississippi River. Therefore, the permit writer added a monitoring only requirement for Oil & Grease.

- **Total Residual Chlorine (TRC)**. Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. Background TRC = 0.0 µg/L.

  Chronic WLA: $C_e = ((9.3 + 4{,}625.89)10 – (4{,}625.89 * 0.0))/9.3$
  $C_e = 4{,}984.1$ µg/L

  Acute WLA: $C_e = ((9.3 + 462.59)19 – (462.59 * 0.0))/9.3$
  $C_e = 964.1$ µg/L

  $LTA_c = 4{,}984.1\ (0.4789) = 2{,}386.89$ µg/L [CV = 0.7, 99^{th} Percentile]
  $LTA_a = 964.1\ (0.2797) = 269.66$ µg/L [CV = 0.7, 99^{th} Percentile]

  Use most protective number of LTA_c or LTA_a.

  MDL = 269.66 (3.575) = 964 µg/L [CV = 0.7, 99^{th} Percentile]
  AML = 269.66 (1.655) = 446 µg/L [CV = 0.7, 95^{th} Percentile, n = 4]

  The Water Quality Based Effluent Limit for Total Residual Chlorine was calculated to be 964 µg/L (daily maximum limit) and 446 µg/L (monthly average limit). The Department has determined the current acceptable ML for total residual chlorine to be 130 µg/L when using the DPD Colorimetric Method #4500 – CL G. from Standard Methods for the Examination of Waters and Wastewater. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values.

- **Peracetic Acid Residual:** The daily maximum effluent limitation was determined from the EPA's FIFRA label for VigorOx® 15/23 Antimicrobial Agent. That label provides a maximum amount of Peracetic acid that can be discharged based on the dilution factor (DF) of the receiving stream. If the DF is ≥ 12, the maximum amount is 0.09*DF; and if the DF is < 12, then the maximum amount is 1 ppm. Monitoring only for a monthly average.

  DF = (plant effluent discharge + receiving stream 7Q10)/plant effluent discharge
  DF = (9.3+ 462.59)/9.3 = 50.7

  MDL = 0.09* DF
  MDL = 0.09 * 50.7
  MDL = 4.6 ppm = 4.6 mg/L

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

- **pH**. – 6.0-9.0 SU. pH limitations [10 CSR 20-7.015] are protective of the water quality standard [10 CSR 20-7.031(5)(E)], due to the buffering capacity of the mixing zone.

- **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 Biochemical Oxygen Demand 5-day (BOD_5) and Total Suspended Solids (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 Biochemical Oxygen Demand 5-day (BOD_5) and Total Suspended Solids (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.

  For Classified P streams with other than default Mixing Considerations, the AEC% is determined as follows:.
  Acute AEC% = $\{[(\text{design flow}_{cfs} + ZID_{7Q10}) / \text{design flow}_{cfs}]^{-1}\} \times 100 = ##\%$
  Acute AEC% = $\{[(9.3 + 462.59) / 9.3]^{-1}\} \times 100 = 2\%$

- **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.

  For Classified P streams with other than default Mixing Considerations, the AEC% is determined as follows:.
  Chronic AEC% = $\{[(\text{design flow}_{cfs} + MZ_{7Q10}) / \text{design flow}_{cfs}]^{-1}\} \times 100 = ##\%$
  Chronic AEC% = $\{[(9.3 + 4{,}625.89) / 9.3]^{-1}\} \times 100 = 0.2\%$

- **Parameters Removed**. Total Recoverable Copper, Total Recoverable Lead, Total Recoverable Zinc, and Phenols were removed from the permit as there was no reasonable potential observed for the pollutants to violate Water Quality Standards.

Sampling Frequency Justification:

Sampling and Reporting Frequency was retained from previous permit except for BOD and TSS which were reduced to once per week per 10 CSR 20-7.015(2)(C)1. Weekly sampling is required for *E. coli*, per 10 CSR 20-7.015(9)(D)6.A.

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

Acute Whole Effluent Toxicity

☒ - No less than **ONCE/YEAR:**
☒ -Facility is designated as a Major facility or has a design flow ≥ 1.0 MGD.
☒ - Facility incorporates a pretreatment program.
☒ -Facility has Water Quality-based effluent limitations for toxic substances (other than NH_3).

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.

Sampling Type Justification:

As per 10 CSR 20-7.015, BOD_5, TSS, and WET test samples collected for mechanical plants shall be a 24 hour composite sample. Grab samples, however, must be collected for pH, Ammonia as N, *E. coli*, TRC, Oil & Grease, and Total Phosphorus. This is due to the holding time restriction for *E. coli*, the volatility of Ammonia and TRC, and the fact that pH cannot be preserved and must be sampled in the field. As Ammonia, Oil & Grease, and Total Phosphorus samples must be immediately preserved, these samples are to be collected as a grab.

OUTFALL #002 – ALTERNATE MAINTENANCE OUTFALL

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

☐ Missouri or Mississippi River [10 CSR 20-7.015(2)]
☐ Lakes or Reservoirs [10 CSR 20-7.015(3)]
☐ Losing Streams [10 CSR 20-7.015(4)]
☐ Metropolitan No-Discharge Streams [10 CSR 20-7.015(5)]
☐ Special Streams [10 CSR 20-7.015(6)]
☐ Subsurface Waters [10 CSR 20-7.015(7)]
☒ All Other Waters [10 CSR 20-7.015(8)]

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		630	126	1030/ 206	1/week	monthly	G
Ammonia as N (Apr 1 – Sep 30)	mg/L	2, 3	3.5		1.4	2.3/1.5	3/week	monthly	G
Ammonia as N (Oct 1 – Mar 31)	mg/L	2, 3	5.3		3.1	7.6/2.8	3/week	monthly	G
Oil & Grease	mg/L	2, 3	15		10	20/10	1/month	monthly	G
Chlorine, Total Residual	µg/L	2, 3	17.2		7.9	17/8	1/week	monthly	G
Peracetic Acid Residual	mg/L	7	1.0		*	***	1/week	monthly	G

PARAMETER	Unit	Basis for Limits	Minimum		Maximum	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type
pH	SU	1	6.0		9.0	6.5-9.0	3/week	monthly	G

PARAMETER	Unit	Basis for Limits			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
E = 24-hr. estimate
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

OUTFALL #002 – DERIVATION AND DISCUSSION OF LIMITS:

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

- **Biochemical Oxygen Demand (BOD_5).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Effluent Limits Determination.**

- **Total Suspended Solids (TSS).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Effluent Limits Determination.**

- ***Escherichia coli (E. coli)***. Monthly average of 126 per 100 mL as a geometric mean and Weekly Average of 630 per 100 mL as a geometric mean during the recreational season (April 1 – October 31), to protect Whole Body Contact Recreation (A) designated use of the receiving stream, as per 10 CSR 20-7.031(5)(C). An effluent limit for both monthly average and weekly average is required by 40 CFR 122.45(d). The Geometric Mean is calculated by multiplying all of the data points and then taking the nth root of this product, where n = # of samples collected. For example: Five E. coli samples were collected with results of 1, 4, 6, 10, and 5 (#/100mL). Geometric Mean = 5^{th} root of (1)(4)(6)(10)(5) = 5^{th} root of 1,200 = 4.1 #/100mL.

- **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. Chronic criteria do apply, because this discharge may exceed the 4 day period applicable for chronic chlorine water quality standards [and most other water quality standards].

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

Summer: April 1 – September 30
Chronic WLA: $C_e = ((9.3 + 0.25)1.5 – (0.25 * 0.01))/9.3$
$C_e = 1.54$ mg/L

Acute WLA: $C_e = ((9.3 + 0.0025)12.1 – (0.0025 * 0.01))/9.3$
$C_e = 12.1$ mg/L

$LTA_c = 1.54$ mg/L (0.800) = 1.20 mg/L [CV = 0.537, 99^{th} Percentile, 30 day avg.]
$LTA_a = 12.1$ mg/L (0.352) = 3.89 mg/L [CV = 0.537, 99^{th} Percentile]

Use most protective number of LTA_c or LTA_a.

MDL = 1.20 mg/L (2.84) = 3.5 mg/L [CV = 0.537, 99^{th} Percentile]
AML = 1.20 mg/L (1.17) = 1.4 mg/L [CV = 0.537, 95^{th} Percentile, n =30]

Winter: October 1 – March 31
Chronic WLA: $C_e = ((9.3 + 0.25)3.1 – (0.25 * 0.01))/9.3$
$C_e = 3.18$ mg/L

Acute WLA: $C_e = ((9.3 + 0.0025)12.1 – (0.0025 * 0.01))/9.3$
$C_e = 12.1$ mg/L

$LTA_c = 3.18$ mg/L (0.882) = 2.48 mg/L [CV = 0.298, 99^{th} Percentile, 30 day avg.]
$LTA_a = 12.1$ mg/L (0.529) = 3.89 mg/L [CV = 0.298, 99^{th} Percentile]

Use most protective number of LTA_c or LTA_a.

MDL = 2.48 mg/L (1.89) = 5.3 mg/L [CV = 0.298, 99^{th} Percentile]
AML = 2.48 mg/L (1.09) = 3.1 mg/L [CV = 0.298, 95^{th} Percentile, n =30]

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

- **Total Residual Chlorine (TRC)**. Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. Background TRC = 0.0 µg/L. Chronic criteria do apply, because this discharge may exceed the 4 day period applicable for chronic chlorine water quality standards [and most other water quality standards].

  Chronic WLA: $C_e = ((9.3 + 0.025)10 – (0.025 * 0.0))/9.3$
  $C_e = 10.03$ µg/L

  Acute WLA: $C_e = ((9.3 + 0.0025)19 – (0.0025 * 0.0))/9.3$
  $C_e = 19.01$ µg/L

  $LTA_c = 10.03\ (0.479) = 4.80$ µg/L [CV = 0.7, 99th Percentile]
  $LTA_a = 19.01\ (0.280) = 5.30$ µg/L [CV = 0.7, 99th Percentile]

  Use most protective number of LTA_c or LTA_a.

  MDL = 4.80 (3.58) = **17.2** µg/L [CV = 0.7, 99th Percentile]
  AML = 4.80 (1.65) = **7.9** µg/L [CV = 0.7, 95th Percentile, n = 4]

  The Water Quality Based Effluent Limit for Total Residual Chlorine was calculated to be 16.5 µg/L (daily maximum limit) and 8.2 µg/L (monthly average limit). These limits are below the minimum quantification level (ML) of the most common and practical EPA approved CLTRC methods. The Department has determined the current acceptable ML for total residual chlorine to be 130 µg/L when using the DPD Colorimetric Method #4500 – CL G. from Standard Methods for the Examination of Waters and Wastewater. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values. Measured values greater than or equal to the minimum quantification level of 130 µg/L will be considered violations of the permit and values less than the minimum quantification level of 130 µg/L will be considered to be in compliance with the permit limitation.

- **Peracetic Acid Residual:** The daily maximum effluent limitation was determined from the EPA's FIFRA label for VigorOx® 15/23 Antimicrobial Agent. That label provides a maximum amount of Peracetic acid that can be discharged based on the dilution factor (DF) of the receiving stream. If the DF is ≥ 12, the maximum amount is 0.09*DF; and if the DF is < 12, then the maximum amount is 1.0 ppm. Monitoring only for a monthly average.

  DF = (plant effluent discharge + receiving stream 7Q10)/plant effluent discharge

  DF = (9.3+ 0.0025)/9.3 = 1.0

  As the DF is < 12, then the maximum amount is 1.0 ppm.

  MDL = 1.0 mg/L

- **pH**. – 6.0-9.0 SU. pH limitations [10 CSR 20-7.015] are protective of the water quality standard [10 CSR 20-7.031(5)(E)], due to the buffering capacity of the mixing zone.

- **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 Biochemical Oxygen Demand 5-day (BOD_5) and Total Suspended Solids (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 Biochemical Oxygen Demand 5-day (BOD_5) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. This facility is required to meet 85% removal efficiency for TSS.

Sampling Frequency Justification:

As this is an alternate Maintenance Outfall, the Sampling and Reporting Frequency was copied from Outfall #001, except for Ammonia, which was set at three per week, as limits were established for Ammonia and Outfall #002 does not have the same mixing allowance as Outfall #001.

Sampling Type Justification:

As per 10 CSR 20-7.015, BOD_5, TSS, and WET test samples collected for mechanical plants shall be a 24 hour composite sample. Grab samples, however, must be collected for pH, Ammonia as N, *E. coli*, TRC, Oil & Grease, and Total Phosphorus. This is due to the holding time restriction for *E. coli*, the volatility of Ammonia and TRC, and the fact that pH cannot be preserved and must be sampled in the field. As Ammonia, Oil & Grease, and Total Phosphorus samples must be immediately preserved, these samples are to be collected as a grab.

PERMITTED FEATURE SM1 – INSTREAM MONITORING (UPSTREAM)

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

MONITORING REQUIREMENTS TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Previous Permit Limit	Sampling Frequency	Reporting Frequency	Sample Type ****
Total Nitrogen	mg/L	7	*		*	***	quarterly	quarterly	G
Total Phosphorus	mg/L	7	*		*	***	quarterly	quarterly	G

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

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

Basis for Limitations Codes:

1. State or Federal Regulation/Law
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

PERMITTED FEATURE SM1 – DERIVATION AND DISCUSSION OF MONITORING REQUIREMENTS:

- **Total Phosphorus and Total Nitrogen**. Facilities with a design flow greater than 100,000 gallons per day are required to sample their effluent quarterly for Total Phosphorus and Total Nitrogen per 10 CSR 20-7.015(9)(D)7. Upstream monitoring for these parameters is necessary to determine background stream concentrations in order to complete calculations that determine instream nutrient loading.

Sampling Frequency Justification:
The sampling and reporting frequency for Total Phosphorus and Total Nitrogen has been established to match the required sampling frequency of these parameters in the effluent.

Sampling Type Justification
As Total Phosphorus and Total Nitrogen samples must be immediately preserved; these samples are to be collected as a grab.

OUTFALL #001 – GENERAL CRITERIA CONSIDERATIONS:
In accordance with 40 CFR 122.44(d)(1), effluent limitations shall be placed into the permit for those pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. The rule further states that pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above a narrative criterion within an applicable State water quality standard, the permit shall contain a numeric effluent limitation to protect that narrative criterion. In order to comply with this regulation, the permit writer will complete reasonable potential determinations on whether the discharge will violate any of the general criteria listed in 10 CSR 20-7.031(4). These specific requirements are listed below followed by derivation and discussion (the lettering matches that of the rule itself, under 10 CSR 20-7.031(4)). It should also be noted that Section 644.076.1, RSMo as well as Section D – Administrative Requirements of Standard Conditions Part I of this permit states that it shall be unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri that is in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law or any standard, rule or regulation promulgated by the commission.

(A) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses. The discharge from this facility is made up of treated domestic wastewater. Based upon review of the most recent Report of Compliance Inspection dated May 28, 2013, 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 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) There shall be no significant human health hazard from incidental contact with the water. Please see (D) above as justification is the same.

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

(G) 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.

(H) 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 publically-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. See **Appendix – Cost Analysis for Compliance**

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.

PERMIT SYNCHRONIZATION:
The Department of Natural Resources is currently undergoing a synchronization process for operating permits. Permits are normally issued on a five-year term, but to achieve synchronization many permits will need to be issued for less than the full five years allowed by regulation. The intent is that all permits within a watershed will move through the Watershed Based Management (WBM) cycle together will all expire in the same fiscal year. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the Department to explore a watershed based permitting effort at some point in the future. Renewal applications must continue to be submitted within 180 days of expiration, however, in instances where effluent data from the previous renewal is less than 4 years old, that data may be re-submitted to meet the requirements of the renewal application. If the permit provides a schedule of compliance for meeting new water quality based effluent limits beyond the expiration date of the permit, the time remaining in the schedule of compliance will be allotted in the renewed permit. With permit synchronization, this permit will expire in the 4th Quarter of 2018. If the Department issues the permit at this time, the effective period of the permit would be less than one year in length. To ensure efficient use of Department staff, reduce the Department's permitting back log and to provide better service to the permittee by avoiding another renewal application to be submitted in such a short time period this operating permit will be issued for the maximum timeframe of five years and synced with other permits in the watershed at a later date.

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 February 23, 2018 to March 26, 2018.

Missouri Public Utility Alliance submitted a comment letter during the Public Notice period. MPUA's comments as summarized by the Department and the Department's responses to the comments are included below:

- MPUA discussed changing the effluent limit for Oil & Grease at Outfall #002 to the standard 20 mg/L for a daily maximum and 10 mg/L for a monthly average.

  Response: Upon review, the Department determined that the Oil & Grease limits for Outfall #002 were calculated incorrectly due to the use of guidance used for toxic limit calculations, as Oil & Grease is a conventional pollutant. However, and since the City has reported effluent sample results that are routinely above the detection limit for the parameter and on one occurrence over the chronic standard of 10.0 mg/L, the Department has determined the discharge has the reasonable potential to cause or contribute to an excursion of the in-stream water quality standard for Oil and Grease. The permit contains the corrected limits of 15 mg/L for a daily maximum, and 10 mg/L for a monthly average per Department guidance.

- MPUA noted that the units for Oil & Grease were incorrect in the RPA table on Page 23 of the Fact Sheet.

  Response: The units in the RPA table on Page 23 of the Fact Sheet were corrected.

- MPUA discussed that the effluent limits for Outfall #002 of 630/126 for weekly average and monthly average for *E. coli* are incorrect, as Bear Creek is classified as a whole body contact B stream, and that the limits for Outfall #002 should be 1,030/206 #100mL to protect the designated use.

  Response: The first receiving stream for Outfall #002, Bear Creek, has a designated use of Whole Body Contact B recreation; however, the discharge from Outfall #002 is also within 2 miles of the Mississippi River, which at that location has a Whole Body Contact A recreation use designation. Per 10 CSR 20-7.015(9)(B)1.D, discharges located within 2 miles upstream of stream segments designated for whole body contact recreation shall not exceed the water quality E. coli counts established in 10 CSR 20-7.031(5)(C) for the receiving stream segment designated for that use. As the Mississippi River is within 2 miles of the discharge, the discharge from Outfall #002 shall not exceed the water quality standard for E. coli established in Table

A in 10 CSR 20-7.031 for the 30 day geometric mean of 126 #/100mL for WBC-A streams. 10 CSR 20-7.015(9)(B)1.E establishes the weekly geometric mean of 630 #/100mL for WBC-A streams. The permit will remain as drafted

- MPUA discussed that the Reasonable Potential Analysis used to calculate the effluent limits for total ammonia nitrogen should have been calculated with the monthly average DMR data as the monthly average data is reflective of chronic conditions, and requested that the water quality based effluent limits for total ammonia nitrogen be recalculated using the monthly average data.

  Response: Reasonable Potential Analyses, in accordance with the guidance provided in the Technical Support Document for Water Quality-based Toxics Control, are calculated by using all available daily sample results. As you are aware, federal regulation section 40 CFR 122.44(d)(1)(ii) requires that effluent variability be utilized, in addition to treatment technology, available mixing and any other considerations to determine whether or not a discharge has a reasonable potential to cause an excursion of instream water quality standards. While the monthly average does illustrate a long term effluent quality, information regarding the variability of the discharge is lost in the calculation. Therefore the use of individual samples is required. The permit will remain as drafted.

- MPUA discussed that the monitoring frequency of Biochemical Oxygen Demand and Total Suspended Solids at Outfall #002 seems arbitrary since the DMR reports do not show that the effluent limits were exceeded.

  Response: Outfall #002 is a backup outfall for Outfall #001, and is used very infrequently as our records show that Outfall #002 has not been utilized by the facility to discharge in over 12 years according to DMR data. The monitoring frequencies in the public noticed permit were established at the same frequency as Outfall #001, except for Ammonia, as effluent limits for Ammonia were established for Outfall #002. In reviewing the DMR data, the Department, in utilizing the allowance in 10 CSR 20-7.015(2)(C)1. to establish less frequent sampling requirements for point sources that produce an effluent that does not exhibit high variability and consistently complies with the applicable effluent limit, has determined that the BOD and TSS monitoring frequencies for Outfall #002 can be reduced to once per week per your request. In addition, the monitoring frequency for Outfalls #001 will also be reduced to once per week. The permit and fact sheet will be updated with these changes.

In addition, the Department noted an error in the permit during the Public Notice period, and a correction was made to the permit by the Department. The Table in Part C. Standard Conditions was changed to correct the testing frequency for Metals, Pathogens, and Vectors. The Table was changed from quarterly to one every 60 days per 40 CRF 503.16 Table 1.

DATE OF FACT SHEET: APRIL 9, 2018

COMPLETED BY:

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

Appendices

APPENDIX - CLASSIFICATION WORKSHEET:

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Maximum Population Equivalent (P.E.) served (Max 10 pts.)	1 pt./10,000 PE or major fraction thereof.	6
Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)	1 pt. / MGD or major fraction thereof.	6
EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY:		
Missouri or Mississippi River	0	0
All other stream discharges except to losing streams and stream reaches supporting whole body contact	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
PRELIMINARY TREATMENT - Headworks		
Screening and/or comminution	3	3
Grit removal	3	3
Plant pumping of main flow (lift station at the headworks)	3	3
PRIMARY TREATMENT		
Primary clarifiers	5	
Combined sedimentation/digestion	5	
Chemical addition (except chlorine, enzymes)	4	
REQUIRED LABORATORY CONTROL – performed by plant personnel (highest level only)		
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	
ALTERNATIVE FATE OF EFFLUENT		
Direct reuse or recycle of effluent	6	
Land Disposal – low rate	3	
High rate	5	
Overland flow	4	
Total from page **ONE (1)**	----	31

APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
VARIATION IN RAW WASTE (highest level only) (DMR exceedances and Design Flow exceedances)		
Variation do not exceed those normally or typically expected	0	
Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow	2	2
Recurring deviations or excessive variations of more than 200 % in strength and/or flow	4	
Raw wastes subject to toxic waste discharge	6	6
SECONDARY TREATMENT		
Trickling filter and other fixed film media with secondary clarifiers	10	
Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches)	15	15
Stabilization ponds without aeration	5	
Aerated lagoon	8	
Advanced Waste Treatment Polishing Pond	2	
Chemical/physical – without secondary	15	
Chemical/physical – following secondary	10	
Biological or chemical/biological	12	
Carbon regeneration	4	
DISINFECTION		
Chlorination or comparable	5	5
Dechlorination	2	
On-site generation of disinfectant (except UV light)	5	
UV light	4	
SOLIDS HANDLING - SLUDGE		
Solids Handling Thickening	5	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	6
Total from page **TWO (2)**	----	53
Total from page **ONE (1)**	---	31
Grand Total	---	84

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

APPENDIX – RPA RESULTS:

Outfall #001

Parameter	CMC*	RWC Acute*	CCC*	RWC Chronic*	n**	Range max/min	CV***	MF	RP Yes/No
Total Ammonia as Nitrogen (Summer) (mg/L)	12.1	1.77	1.5	0.15	29.00	39.4/2.81	0.54	1.90	NO
Total Ammonia as Nitrogen (Winter) (mg/L)	12.1	0.79	3.1	0.08	25.00	22/5.66	0.30	1.49	NO
Copper, Total Recoverable	22.0	0.51	14.1	0.05	4.00	7.5/7.5	0.6	3.44	NO
Lead, Total Recoverable	150.8	3.21	5.9	0.33	4.00	40/7.5	0.6	4.07	NO
Zinc, Total Recoverable	180.7	2.37	179.2	0.24	4.00	35/7.5	0.6	3.44	NO
Total Residual Chlorine	19.0	225.12	10.0	22.92	26.00	4880/130	0.7	2.34	YES
Oil & Grease (mg/L)	NA	NA	10.00	0.0	54	10.3/0.5	0.6	1.710	NO

Outfall #002

Parameter	CMC*	RWC Acute*	CCC*	RWC Chronic*	n**	Range max/min	CV***	MF	RP Yes/No
Total Ammonia as Nitrogen (Summer) (mg/L)	12.1	74.83	1.5	72.89	29.00	39.4/2.81	0.537	1.90	YES
Total Ammonia as Nitrogen (Winter) (mg/L)	12.1	32.77	3.1	31.92	25.00	22/5.66	0.298	1.49	YES
Total Residual Chlorine	19.0	11419.56	10.0	11392.01	26.00	4880/130	0.704	2.34	YES
Oil & Grease (mg/L)	NA	NA	10.00	17.6	54	10.3/0.5	0.626	1.710	YES

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 – COST ANALYSIS FOR COMPLIANCE:

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

Hannibal WWTP, Permit Renewal
City of Hannibal
Missouri State Operating Permit #MO-0093513

Section 644.145 RSMo requires the Department of Natural Resources (DNR) 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 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 DNR website (http://dnr.mo.gov/forms/780-2511-f.pdf) should have been submitted with the permit renewal application. If it was not received with the renewal application, the Department sent a request to complete it with the welcome letter.

The Department is required to issue a permit with final effluent limits in accordance with 644.051.1.(1) RSMo, 644.051.1.(2) RSMo, and the Clean Water Act. The practical result of this analysis is to incorporate a compliance schedule into the permit in order to mitigate adverse impact to distressed populations resulting from new costs for the wastewater treatment facility.

Residential Connections:	6,774
Commercial Connections:	751
Industrial Connections:	24
Total Connections for this facility:	7,549

New Permit Requirements:

The permit requires compliance with new Peracetic Acid Residual limits, new monitoring for Total Nitrogen and Total Phosphorus monitoring for Outfall #001 and instream at Permitted Feature SM1, a Chronic WET test, and the development of a Stormwater Pollution Prevention Plan.

Anticipated Costs Associated with Complying with the New Requirements:

The following table outlines the estimated costs of the new permit requirements listed above:

New Requirement – Outfall #001	Frequency	Estimated Cost	Estimated Annual Costs
Peracetic Acid Residual (ampules)	weekly	$3.50	$100
Peracetic Acid Residual (meter)	Once every 5 years	$400	$80
Total Phosphorus sampling (#001)	Quarterly	$24	$96
Total Nitrogen sampling (#001)	Quarterly	$73	$292
Chronic WET test	Once every 5 years	$1,550	$310
SWPPP	Costs estimated for 5 years	$10,000	$2,000
		TOTAL	**$2,878**

New Requirement – Outfall #002	Frequency	Estimated Cost	Estimated Annual Costs
Peracetic Acid Residual (ampules)	weekly	$3.50	$100
Oil & Grease – revised limits €	weekly	$0	$0
		TOTAL	$100

€ - The facility is able to meet the revised limits, therefore no new cost.

New Requirement – Permitted Feature SM1	Frequency	Estimated Cost	Estimated Annual Costs
Total Phosphorus sampling (SM1)	Quarterly	$24	$96
Total Nitrogen sampling (SM1)	Quarterly	$73	$292
		TOTAL	**$388**

New Requirements		Estimated Annual Costs
Outfall #001		$2,878
Outfall #002		$100
Permitted Feature SM1		$388
	TOTAL	**$3,366**

This estimated, annual cost, if financed through user fees, might cost each household an extra $0.04[1] per month. A community sets their user rates based on several factors. The percentage of the current user rate that is available to cover new debt is unknown to the Department.

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

The current monthly user rate is $41.10. Due to the minimal cost associated with this new permit requirement, the Department anticipates the City of Hannibal has the means to raise $3,366 annually.

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

Estimated Costs for New Permit Requirements:

Median Household Income (MHI) for the City of Hannibal:	$36,616
Estimated total annual cost:	$3,366
Estimated monthly cost per household:	$0.04
Estimated monthly cost per household as a percent of MHI[2]:	0.001%
Estimated resulting user rate per household per month:	$41.14
Estimated resulting user rate as a percent of MHI[3]:	1.4%

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

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

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.

Stormwater Pollution Prevention Plan

Stormwater runoff is water from rain or snowmelt that does not immediately infiltrate into the ground and flows over or through natural or man-made storage or conveyance systems. When undeveloped areas are converted to land uses with impervious surfaces such as buildings, parking lots, and roads, the natural hydrology of the land is altered and can result in increased surface runoff rates, volumes, and pollutant loads. Stormwater runoff picks up industrial pollutants and typically discharges them directly into nearby waterbodies or indirectly via storm sewer systems. Runoff from areas where industrial activities occur can contain toxic pollutants (e.g., heavy metals and organic chemicals) and other pollutants such as trash, debris, and oil and grease, when facility practices allow exposure of industrial materials to stormwater. This increased flow and pollutant load can impair waterbodies, degrade biological habitats, pollute drinking water sources, and cause flooding and hydrologic changes to the receiving water, such as channel erosion. Industrial facilities typically perform a portion of their activities in outdoor areas exposed to the elements. This may include activities such as material storage and handling, vehicle fueling and maintenance, shipping and receiving, and salt storage, all of which can result in pollutants being exposed to precipitation and capable of being carried off in stormwater runoff. Also, facilities may have performed industrial activities outdoors in the past and materials from those activities still remain exposed to precipitation. In addition, accidental spills and leaks, improper waste disposal, and illicit connections to storm sewers may also lead to exposure of pollutants to stormwater.

A SWPPP is a written document that identifies the industrial activities conducted at the site, including any structural control practices, which the industrial facility operator will implement to prevent pollutants from making their way into stormwater runoff. The SWPPP also must include descriptions of other relevant information, such as the physical features of the facility, and procedures for spill prevention, conducting inspections, and training of employees. The SWPPP is intended to be a "living" document, updated as necessary, such that when industrial activities or stormwater control practices are modified or replaced, the SWPPP is similarly revised to reflect these changes.

Whole Effluent Toxicity (WET) test

The WET Test is a quantifiable method of determining if discharge from a facility may be causing toxicity to aquatic life by itself or in combination with receiving stream water. WET tests are required under 10 CSR 20-6.010(8)(A)4 to be performed by specialists properly trained in conducting the test according to 40 CFR 136. This test will help ensure that the existing permit limits are providing adequate protection for aquatic life.

(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 their outstanding debt for their current wastewater collection and treatment systems to be $5,650,000. The community reported that each user pays $4.71 each month towards payment 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.

Socioeconomic Data: [4-12.] The following table characterizes the current overall socioeconomic condition of the community as compared to the overall socioeconomic condition of the State of Missouri. The following information was compiled using the latest U.S. Census data.

Indicator No.	Select a Community from the Dropdown List →	Hannibal City	Missouri State
1	Population (2015)	17,717	6,045,448
2	Percent Change in Population (2000-2015)	-0.2%	8.0%
3	2015 Median Household Income (in 2016 Dollar)	$36,616	$48,582
4	Percent Change in Median Household Income (2000-2015)	-11.9%	-7.8%
5	Median Age (2015)	38	38.2
6	Change in Median Age in Years (2000-2015)	1.9	2.1
7	Unemployment Rate (2015)	8.6%	7.5%
8	Percent of Population Below Poverty Level (2015)	22.3%	15.6%
9	Percent of Household Received Food Stamps (2015)	16.2%	13.5%
10	(Primary) County Where the Community Is Located	Marion County	

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

The City provided a five year proposed plan of capital improvements to the drinking water system serving the City. The plan had the City spending an estimated 6.7 million dollars on improvements to the drinking water system.

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

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

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

Conclusion and Finding

As a result of new regulations, the Department is proposing modifications to the current operating permit that will require the permittee to comply with new Peracetic Acid Residual limits, new monitoring for Total Nitrogen and Total Phosphorus monitoring for Outfall #001 and instream at Permitted Feature SM1, a Chronic WET test, and the development of a Stormwater Pollution Prevention Plan. The Department identified the actions for which cost analysis for compliance is required under Section 644.145 RSMo.

The Department estimates the cost for the new requirements is $3,366 per year. Should these additional costs be financed through user fees, it may require an increase in user fees 0.001% of the community's MHI.

The Department considered the eight (8) criteria presented in subsection 644.145, RSMo when evaluating the cost associated with the relevant actions. Taking into consideration these criteria, this analysis examined whether the above referenced permit modifications affects 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. As a result of reviewing the above criteria, the Department hereby finds that the action described above 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. (($3,366/7,549)/12 months) = $0.04
2. ($0.04/($36,616/12))*100% = 0.001%
3. ($41.14/($36,616/12))*100% = 1.4%
4. U.S. Census Bureau. 2011-2015 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_15_5YR_B01003&prodType=table.
5. U.S. 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. U.S. 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.
6. U.S. Census Bureau. 2011-2015 American Community Survey 5-Year Estimates, Table B19013: Median Household Income in the Past 12 Months (in 2015 Inflation-Adjusted Dollars). http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_B19013&prodType=table.
7. U.S. 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. U.S. 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.
8. U.S. Department of Labor Bureau of Labor Statistics (2016) Consumer Price Index - All Urban Consumers, U.S. City Average, All items, 1982-84=100. http://data.bls.gov/timeseries/CUUR0000SA0?data_tool=Xgtable. U.S. Department of Labor Bureau of Labor Statistics (2016) Consumer Price Index - All Urban Consumers, All items, 1982-84=100, Midwest Urban Areas. http://data.bls.gov/timeseries/CUUR0300SA0?data_tool=Xgtable.
9. U.S. Census Bureau. 2011-2015 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_15_5YR_B01002&prodType=table.
10. U.S. 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. U.S. 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.
11. U.S. Census Bureau. 2011-2015 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_15_5YR_B23025&prodType=table.
12. U.S. Census Bureau. 2011-2015 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_15_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
March 1, 2015

PART III – SLUDGE AND BIOSOLIDS FROM DOMESTIC AND INDUSTRIAL WASTEWATER TREATMENT FACILITIES

SECTION A – GENERAL REQUIREMENTS

1. This permit pertains to sludge requirements under the Missouri Clean Water Law and regulation for domestic wastewater and industrial process wastewater. This permit also incorporates applicable federal sludge disposal requirements under 40 CFR 503 for domestic wastewater. The Environmental Protection Agency (EPA) has principal authority for permitting and enforcement of the federal sludge regulations under 40 CFR 503 for domestic wastewater. EPA has reviewed and accepted these standard sludge conditions. EPA may choose to issue a separate sludge addendum to this permit or a separate federal sludge permit at their discretion to further address the federal requirements.
2. These PART III Standard Conditions apply only to sludge and biosolids generated at domestic wastewater treatment facilities, including public owned treatment works (POTW), privately owned facilities and sludge or biosolids generated at industrial facilities.
3. Sludge and Biosolids Use and Disposal Practices:
    a. The permittee is authorized to operate the sludge and biosolids treatment, storage, use, and disposal facilities listed in the facility description of this permit.
    b. The permittee shall not exceed the design sludge volume listed in the facility description and shall not use sludge disposal methods that are not listed in the facility description, without prior approval of the permitting authority.
    c. The permittee is authorized to operate the storage, treatment or generating sites listed in the Facility Description section of this permit.
4. Sludge Received from other Facilities:
    a. Permittees may accept domestic wastewater sludge from other facilities including septic tank pumpings from residential sources as long as the design sludge volume is not exceeded and the treatment facility performance is not impaired.
    b. The permittee shall obtain a signed statement from the sludge generator or hauler that certifies the type and source of the sludge
5. These permit requirements do not supersede nor remove liability for compliance with county and other local ordinances.
6. These permit requirements do not supersede nor remove liability for compliance with other 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 sludge disposal standard or limitation issued or approved under Section 405(d) of the Clean Water Actor under Chapter 644 RSMo.
8. In addition to STANDARD CONDITIONS, the Department may include sludge limitations in the special conditions portion or other sections of a site specific permit.
9. Alternate Limits in the Site Specific Permit.
   Where deemed appropriate, the Department may require an individual site specific permit in order to authorize alternate limitations:
    a. A site specific permit must be obtained for each operating location, including application sites.
    b. To request a site specific permit, an individual permit application, permit fee, and supporting documents shall be submitted for each operating location. This shall include a detailed sludge/biosolids management plan or engineering report.
10. Exceptions to these Standard Conditions may be authorized on a case-by-case basis by the Department, as follows:
    a. The Department will prepare a permit modification and follow permit notice provisions as applicable under 10 CSR 20-6.020, 40 CFR 124.10, and 40 CFR 501.15(a)(2)(ix)(E). This includes notification of the owner of the property located adjacent to each land application site, where appropriate.
    b. Exceptions cannot be granted where prohibited by the federal sludge regulations under 40 CFR 503.

SECTION B – DEFINITIONS

1. Best Management Practices include agronomic loading rates, soil conservation practices 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 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 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 (PFRP) in accordance with 40 CFR 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. Industrial wastewater means any wastewater, also known as process water, not defined as domestic wastewater. Per 40 CFR Part 122, process water 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.
8. Mechanical treatment plants are wastewater treatment facilities that use mechanical devices to treat wastewater, including septic tanks, sand filters, extended aeration, activated sludge, contact stabilization, trickling filters, rotating biological discs, and other similar facilities. It does not include wastewater treatment lagoons and constructed wetlands for wastewater treatment.
9. Operating location as defined in 10 CSR 20-2.010 is all contiguous lands owned, operated or controlled by one (1) person or by two (2) or more persons jointly or as tenants in common.
10. Plant Available Nitrogen (PAN) is the nitrogen that will be available to plants during the growing seasons after biosolids application.
11. 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.
12. 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)
13. Sludge lagoon is part of a mechanical wastewater treatment facility. A sludge lagoon is an earthen 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.
14. Septage is the material pumped from residential septic tanks and similar treatment works (with a design population of less than 150 people). The standard for biosolids from septage is different from other sludges.

SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES

1. Sludge shall be routinely removed from wastewater treatment facilities and handled according to the permit facility description and sludge conditions of this permit.
2. The permittee shall operate the facility so that there is no sludge discharged to waters of the state.
3. Mechanical treatment plants shall have separate sludge storage compartments in accordance with 10 CSR 20, Chapter 8. Failure to remove sludge from these storage compartments on the required design schedule is a violation of this permit.

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

1. This section applies to permittees that haul sludge to another treatment facility for disposal or use contract haulers to remove and dispose of sludge.
2. Permittees that use contract haulers are responsible for compliance with all the terms of this permit including final disposal, unless the hauler has a separate permit for sludge or biosolids disposal issued by the Department; or the hauler transports the sludge to another permitted treatment facility.
3. Haulers who land apply septage must obtain a state permit.
4. Testing of sludge, other than total solids content, is not required if sludge is hauled to a municipal wastewater treatment facility or other permitted wastewater treatment facility, unless it is required by the accepting facility.

SECTION E – INCINERATION OF SLUDGE

1. Sludge incineration facilities shall comply with the requirements of 40 CFR 503 Subpart E; air pollution control regulations under 10 CSR 10; and solid waste management regulations under 10 CSR 80.
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, quantity of sludge incinerated, quantity of ash generated, quantity of ash stored, and ash used or disposal method, quantity, and location. Permittee shall also provide the name of the disposal facility and the applicable permit number.

SECTION F – SURFACE DISPOSAL SITES AND SLUDGE LAGOONS

1. Surface disposal sites of domestic facilities shall comply with the requirements in 40 CFR 503 Subpart C; air pollution control regulations under 10 CSR 10; and solid waste management regulations under 10 CSR 80.
2. 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 sludge storage lagoons as storage facilities, accumulated 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 sludge removed will be dependent on sludge generation and accumulation in the facility. Enough 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 sludge on the bottom of the lagoon, upon prior approval of the Department; or
    b. Permittee shall close the lagoon in accordance with Section H.

SECTION G – LAND APPLICATION

1. The permittee shall not land apply sludge or biosolids unless land application is authorized in the facility description or the special conditions of the issued NPDES permit.
2. Land application sites within a 20 miles radius of the wastewater treatment facility are authorized under this permit when biosolids are applied for beneficial use in accordance with these standard conditions unless otherwise specified in a site specific permit. If the permittee's land application site is greater than a 20 mile radius of the wastewater treatment facility, approval must be granted from the Department.
3. Land application shall not adversely affect a threatened or endangered species or its designated critical habitat.
4. Biosolids shall not be applied unless authorized in this permit or exempted under 10 CSR 20, Chapter 6.
    a. This permit does not authorize the land application of domestic sludge except for when sludge meets the definition of biosolids.
    b. This permit authorizes "Class A or B" biosolids derived from domestic wastewater and/or process water sludge 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.
5. Public Contact Sites:

    Permittees who wish to apply Class A biosolids to public contact sites must obtain approval from the Department after two years of proper operation with acceptable testing documentation that shows the biosolids meet Class A criteria. A shorter length of testing will be allowed with prior approval from the Department. Authorization for land applications must be provided in the special conditions section of this permit or in a separate site specific permit.
    a. After Class B biosolids have been land applied, public access must be restricted for 12 months.
    b. Class B biosolids are only land applied to root crops, home gardens or vegetable crops whose edible parts will not be for human consumption.
6. Agricultural and Silvicultural Sites:

    Septage – Based on Water Quality guide 422 (WQ422) published by the University of Missouri
    a. Haulers that land apply septage must obtain a state permit
    b. Do not apply more than 30,000 gallons of septage per acre per year.
    c. Septage 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 other mechanical type treatment facilities.
    d. To meet Class B sludge requirements, maintain septage at 12 pH for at least thirty (30) minutes before land application. 50 pounds of hydrated lime shall be added to each 1,000 gallons of septage in order to meet pathogen and vector stabilization for septage biosolids applied to crops, pastures or timberland.
    e. 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.

Biosolids - Based on Water Quality guide 423, 424, and 425 (WQ423, WQ424, WQ425) published by the University of Missouri;

a. Biosolids shall be monitored to determine the quality for regulated pollutants
b. The number of samples taken is directly related to the amount of sludge produced by the facility (See Section I of these Standard Conditions). Report as dry weight unless otherwise specified in the site specific permit. 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 reach the maximum concentration of pollutants allowed.
c. Table 1 gives the maximum concentration allowable to protect water quality standards

TABLE 1

Biosolids ceiling concentration [1]	
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

[1] Land application is not allowed if the sludge concentration exceeds the maximum limits for any of these pollutants

d. The low metal concentration biosolids has reduced requirements because of its higher quality and can safely be applied for 100 years or longer at typical agronomic loading rates. (See Table 2)

TABLE 2

Biosolids Low Metal Concentration [1]	
Pollutant	Milligrams per kilogram dry weight
Arsenic	41
Cadmium	39
Copper	1,500
Lead	300
Mercury	17
Nickel	420
Selenium	36
Zinc	2,800

[1] You may apply low metal biosolids without tracking cumulative metal limits, provided the cumulative application of biosolids does not exceed 500 dry tons per acre.

e. Each pollutant in Table 3 has an annual and a total cumulative loading limit, based on the allowable pounds per acre for various soil categories.

TABLE 3

Pollutant	CEC 15+		CEC 5 to 15		CEC 0 to 5	
	Annual	Total [1]	Annual	Total [1]	Annual	Total [1]
Arsenic	1.8	36.0	1.8	36.0	1.8	36.0
Cadmium	1.7	35.0	0.9	9.0	0.4	4.5
Copper	66.0	1,335.0	25.0	250.0	12.0	125.0
Lead	13.0	267.0	13.0	267.0	13.0	133.0
Mercury	0.7	15.0	0.7	15.0	0.7	15.0
Nickel	19.0	347.0	19.0	250.0	12.0	125.0
Selenium	4.5	89.0	4.5	44.0	1.6	16.0
Zinc	124.0	2,492.0	50.0	500.0	25.0	250.0

[1] Total cumulative loading limits for soils with equal or greater than 6.0 pH (salt based test) or 6.5 pH (water based test)

TABLE 4 - Guidelines for land application of other trace substances [1]

Cumulative Loading	
Pollutant	Pounds per acre
Aluminum	4,000[2]
Beryllium	100
Cobalt	50
Fluoride	800
Manganese	500
Silver	200
Tin	1,000
Dioxin	(10 ppt in soil)[3]
Other	[4]

[1] Design of land treatment systems for Industrial Waste, 1979. Michael Ray Overcash, North Carolina State University and Land Treatment of Municipal Wastewater, EPA 1981.)

[2] This applies for a soil with a pH between 6.0 and 7.0 (salt based test) or a pH between 6.5 to 7.5 (water based test). Case-by-case review is required for higher pH soils.

[3] Total Dioxin Toxicity Equivalents (TEQ) in soils, based on a risk assessment under 40 CFR 744, May 1998.

[4] Case by case review. Concentrations in sludge should not exceed the 95th percentile of the National Sewage Sludge Survey, EPA, January 2009.

Best Management Practices – Based on Water Quality guide 426 (WQ426) published by the University of Missouri

a. Use best management practices when applying biosolids.
b. Biosolids cannot discharge from the land application site
c. Biosolid application is subject to the Missouri Department of Agriculture State Milk Board concerning grazing restrictions of lactating dairy cattle.
d. Biosolid application must be in accordance with section 4 of the Endangered Species Act.
e. Do not apply more than the agronomic rate of nitrogen needed.
f. The applicator must document the Plant Available Nitrogen (PAN) loadings, available nitrogen in the soil, and crop removal 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.
    i. PAN can be determined as follows and is in accordance with WQ426
    (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.
g. Buffer zones are as follows:
    i. 300 feet of a water supply well, sinkhole, lake, pond, water supply reservoir or water supply intake in a stream;
    ii. 300 feet of a losing stream, no discharge stream, stream stretches designated for whole body contact recreation, wild and scenic rivers, Ozark National Scenic Riverways or outstanding state resource waters as listed in the Water Quality Standards, 10 CSR 20-7.031;
    iii. 150 feet if dwellings;
    iv. 100 feet of wetlands or permanent flowing streams;
    v. 50 feet of a property line or other waters of the state, including intermittent flowing streams.
h. Slope limitation for application sites are as follows;
    i. A slope 0 to 6 percent has 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.
i. No biosolids may be land applied in an area that it is reasonably certain that pollutants will be transported into waters of the state.
j. Do not apply biosolids to sites with soil that is snow covered, frozen or saturated with liquid without prior approval by the Department.
k. Biosolids / sludge applicators must keep detailed records up to five years.

SECTION H – CLOSURE REQUIREMENTS

1. This section applies to all wastewater facilities (mechanical, industrial, and lagoons) and sludge or biosolids storage and treatment facilities and incineration ash ponds. 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 residues, including sludge, biosolids. Mechanical plants, sludge lagoons, ash ponds and other storage structures must obtain approval of a closure plan from the Department. 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. Residuals 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. Residuals shall meet the monitoring and land application limits for agricultural rates as referenced in Section H of these standard conditions.
    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.
        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.
4. When closing a domestic wastewater treatment lagoon with a design treatment capacity equal or less than 150 persons, the residuals are considered “septage” under the similar treatment works definition. See Section B of these standard conditions. 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. Residuals left within the domestic lagoon shall be mixed with soil on at least a 1 to 1 ratio, 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.
6. Lagoons and/or earthen structure and/or ash pond 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 and/or industrial process wastewater plant; all 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. Per 10 CSR 20-6.015(4)(B)6, Hazardous Waste shall not be land applied or disposed during industrial and mechanical plant closures unless in accordance with Missouri Hazardous Waste Management Law and Regulations under 10 CSR 25.
    c. After demolition of the mechanical plant / industrial plant, the site must only contain clean fill defined in RSMo 260.200 (5) 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 or other beneficial use. Other solid wastes must be removed.
8. If sludge from the domestic lagoon or mechanical treatment plant exceeds agricultural rates under Section G and/or H, 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 503, Subpart C.

SECTION I – MONITORING FREQUENCY

1. At a minimum, sludge or biosolids 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

Design Sludge Production (dry tons per year)	Monitoring Frequency (See Notes 1, 2, and 3)			
	Metals, Pathogens and Vectors	Nitrogen TKN [1]	Nitrogen PAN [2]	Priority Pollutants and TCLP [3]
0 to 100	1 per year	1 per year	1 per month	1 per year
101 to 200	biannual	biannual	1 per month	1 per year
201 to 1,000	quarterly	quarterly	1 per month	1 per year
1,001 to 10,000	1 per month	1 per month	1 per week	--[4]
10,001 +	1 per week	1 per week	1 per day	--[4]

[1] Test total Kjeldahl nitrogen, if biosolids application is 2 dry tons per acre per year or less.

[2] 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.

[3] Priority pollutants (40 CFR 122.21, Appendix D, Tables II and III) and toxicity characteristic leaching procedure (40 CFR 261.24) is required only for permit holders that must have a pre-treatment program.

[4] One sample for each 1,000 dry tons of sludge.

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: Total Phosphorus: Total phosphorus and total potassium shall be tested at the same monitoring frequency as metals.
Note 3: Table 5 is not applicable for incineration and permit holders that landfill their sludge.

2. If you own a wastewater treatment lagoon or sludge lagoon that is cleaned out once a year or less, you may choose to sample only when the sludge is removed or the lagoon is closed. Test one composite sample for each 100 dry tons of sludge or biosolids removed from the lagoon during the year within the lagoon at closing. 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. Permittees receiving industrial wastewater may be required to conduct additional testing upon request from the Department.
4. At this time, the Department recommends monitoring requirements shall be performed in accordance with, "POTW Sludge Sampling and Analysis Guidance Document," United States Environmental Protection Agency, August 1989, and the subsequent revisions.

SECTION J – 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 these standard conditions and any additional items in the Special Conditions section of this permit. This shall include dates when the sludge facility is checked for proper operation, records of maintenance and repairs and other relevant information.
2. Reporting period
    a. By January 28th of each year, an annual report shall be submitted for the previous calendar year period for all mechanical wastewater treatment facilities, sludge lagoons, and sludge or biosolids disposal facilities.
    b. Permittees with wastewater treatment lagoons shall submit the above annual report only when sludge or biosolids are removed from the lagoon during the report period or when the lagoon is closed.
3. Report Forms. The annual report shall be submitted on report forms provided by the Department or equivalent forms approved by the Department.
4. Reports shall be submitted as follows:

Major facilities (those serving 10,000 persons or 1 million gallons per day) shall report to both the Department and EPA. Other facilities need to report only to the Department. Reports shall be submitted to the addresses listed as follows:

DNR regional office listed in your permit
(see cover letter of permit)
ATTN: Sludge Coordinator

EPA Region VII
Water Compliance Branch (WACM)
Sludge Coordinator
11201 Renner Blvd.
Lenexa, KS 66219

5. Annual report contents. The annual report shall include the following:
    a. Sludge and biosolids testing performed. Include a copy or summary of all test results, even if not required by the permit.
    b. Sludge or biosolids quantity shall be reported as dry tons for quantity generated by the wastewater treatment facility, the quantity stored on site at the end of the year, and the quantity used 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, 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 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 sludge or biosolids 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, CEC, and phosphorus. If none was tested during the year, report the last date when tested and results.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

RECEIVED
MAY 28 2019
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	
Hannibal Wastewater Treatment Plant	
PERMIT NO.	COUNTY
MO-0093513	Marion

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

AP 32528

RECEIVED
MAY 28 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	6737
DATE RECEIVED	FEE SUBMITTED
5-28-19	$300.00
JET PAY OONFIRMATION 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- _____ Expiration Date _____

☑ An operating permit modification: Permit #MO- 0093513 Reason: Lower Biosolids Testing Frequency

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	
Hannibal Wastewater Treatment Plant		573-248-1511	
ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE
700 South Arch Street	Hannibal	MO	63401

2.1 LEGAL DESCRIPTION (Facility Site): Sec. 32 , T 57N , R 4W — COUNTY: Marion

2.2 UTM Coordinates Easting (X): 63978 Northing (Y): 4395588
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

2.3 Name of receiving stream: Mississippi River

2.4 Number of Outfalls: 2 wastewater outfalls: 2 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 Hannibal	hhall@hannibalbpw.org	573-221-0111	
ADDRESS	CITY	STATE	ZIP CODE
320 Broadway Street	Hannibal	MO	63401

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

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

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

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

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

NAME	EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
Hannibal Board of Public Works	hhall@hannibalbpw.org	573-221-8050	
ADDRESS	CITY	STATE	ZIP CODE
P.O. Box 1589	Hannibal	MO	63401

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)
Cory Means	Senior Operator	8626
EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE	
cmeans@hannibalbpw.org	573-248-1511	

6. FACILITY CONTACT

NAME	TITLE		
Jeff Williams	Asst. Supervisior		
EMAIL ADDRESS	TELEPHONE NUMBER WITH AREA CODE		
jwillaims@hannibalbpw.org	573-231-7112		
ADDRESS	CITY	STATE	ZIP CODE
P.O. Box 1589	Hannibal	MO	63401

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Hannibal Wastewater Treatment Plant	MO- MO-0093513	001

PART A – BASIC APPLICATION INFORMATION

7. FACILITY INFORMATION

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

(See Attachments #2 and #3)

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Hannibal Wastewater Treatment Plant	MO- MO-0093513	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: NA | Discharge SIC Code: #4952

7.4 Number of people presently connected or population equivalent (P.E.): 18,000 Design P.E. 60,000

7.5 Connections to the facility:

Number of units presently connected:

Residential: 6868 Commericial: 785 Industrial 19

7.6 Design Flow 6.0 MGD | Actual Flow 3.8 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

There are 19 Industries. The largest is General Mills - food items. Several smaller industries of various types & product production. Please call Jeff Williams 573-231-7112 to seek more specific information on pretreatment parameters and plan for the City of Hannibal.

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.
Hannibal Wastewater Treatment Plant	MO- MO-0093513	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 1,680 Actual Dry Tons/Year 236.3 Ave.

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

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

9.4 Type of storage:

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

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) Beneficial Reuse by Landfill for Daily Cover

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

NAME	EMAIL ADDRESS		
Meridian Waste Solutions, Inc.			
ADDRESS	**CITY**	**STATE**	**ZIP CODE**
13100 Highway Vv	Bowling Green	MO	63334
CONTACT PERSON	**TELEPHONE NUMBER WITH AREA CODE**	**PERMIT NO.**	
Ms. Linda Leffeler	573-324-5911	MO- 0116304	

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

NAME	EMAIL ADDRESS		
Eagle Ridge Sanitary Landfill			
ADDRESS	**CITY**	**STATE**	**ZIP CODE**
13100 Highway Vv	Bowling Green	MO	63334
CONTACT PERSON	**TELEPHONE NUMBER WITH AREA CODE**	**PERMIT NO.**	
Mr. Tom Dunne	314-220-1561	MO- 00111996	

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

The cake biosolids as either a Class A or B status is used as daily cover as soil replacement.

END OF PART A

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Hannibal Wastewater Treatment Plant	MO- MO-0093513	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) 140 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:

(Please see Attachment #10)

11. BYPASSING

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

If yes, explain:

* There is no bypassing at the WWTP
* There is a constructed Sanitary Sewer Overflow recommended and approved by MDNR - Attachment #5

12. OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)

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

Yes ☐ No ☑

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

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

13. SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION

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

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Hannibal Wastewater Treatment Plant	MO- MO-0093513	001

PART B – ADDITIONAL APPLICATION INFORMATION

14. EFFLUENT TESTING DATA

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

Outfall Number

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	6.09	S.U.	6.37	S.U.	16
pH (Maximum)	7.44	S.U.	6.98	S.U.	16
Flow Rate	9.085	MGD	4.189	MGD	16

*For pH report a minimum and a maximum daily value

POLLUTANT		MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
		Conc.	Units	Conc.	Units	Number of Samples		
Conventional and Nonconventional Compounds								
BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD_5	39.5	mg/L	19.7	mg/L	16	SM 5210 B	
	$CBOD_5$	N/A	mg/L	N/A	mg/L			
E. COLI		-	#/100 mL	-	#/100 mL			
TOTAL SUSPENDED SOLIDS (TSS)		40.0	mg/L	17.2	mg/L	16	SM 2540	
TOTAL PHOSPHORUS		29.5	mg/L	16.6	mg/L	3	10210	
TOTAL KJELDAHL NITROGEN			mg/L		mg/L			
NITRITES + NITRATES			mg/L		mg/L			
AMMONIA AS N		14.6	mg/L	5.44	mg/L	15	SM 4500	
CHLORINE* (TOTAL RESIDUAL, TRC)		2.60	mg/L	2.60	mg/L	1	8167	
DISSOLVED OXYGEN		15.42	mg/L	6.60	mg/L	13		
OIL and GREASE		2.30	mg/L	1.00	mg/L	16	SM 5520	
OTHER: _____			mg/L		mg/L			

*Report only if facility chlorinates

END OF PART B

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Hannibal Wastewater Treatment Plant	MO- MO-0093513	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)
Jeff Williams	Asst. Supervisor

SIGNATURE

TELEPHONE NUMBER WITH AREA CODE
573-231-7112

DATE SIGNED
May 10, 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.

ATTACHMENT 2
Form B2 - Section 7.2
Topographic Map and Aerial Photos

Map Descriptions
The following maps give the location of the WWTP, wastewater influent and effluent points, actual points of discharge, and the locations of effluent piping for Outfall #001, Outfall #002, as well as the location of Continental Cement Company's site for beneficial reuse of biosolids through composting to create an artificial soil (at pre-law quarry sites).

The structures and processes can be located and identified as follows:

- ***Map 1 – Aerial*** - Hannibal Wastewater Treatment Plant is marked in red; influent piping for the wastewater is marked in green; effluent piping is yellow; streams are indicated in blue. (Note: There are no drinking wells within ¼ mile area of the Hannibal WWTP.)

- ***Map 2 – Topographic*** - Shows areas extending a minimum of one (1) mile beyond the Hannibal Wastewater Treatment Plant location as stated in the application. Locations of Outfall #001 and #002 are indicated by yellow dots.

- ***Map 3 – Aerial*** – Continental Cement Company's plant site is identified, as well as the completed artificial soil project site location. CCC's NPDES Permit MO-0111686 is for beneficial reuse of biosolids through composting to create an artificial soil at pre-law quarry sites.

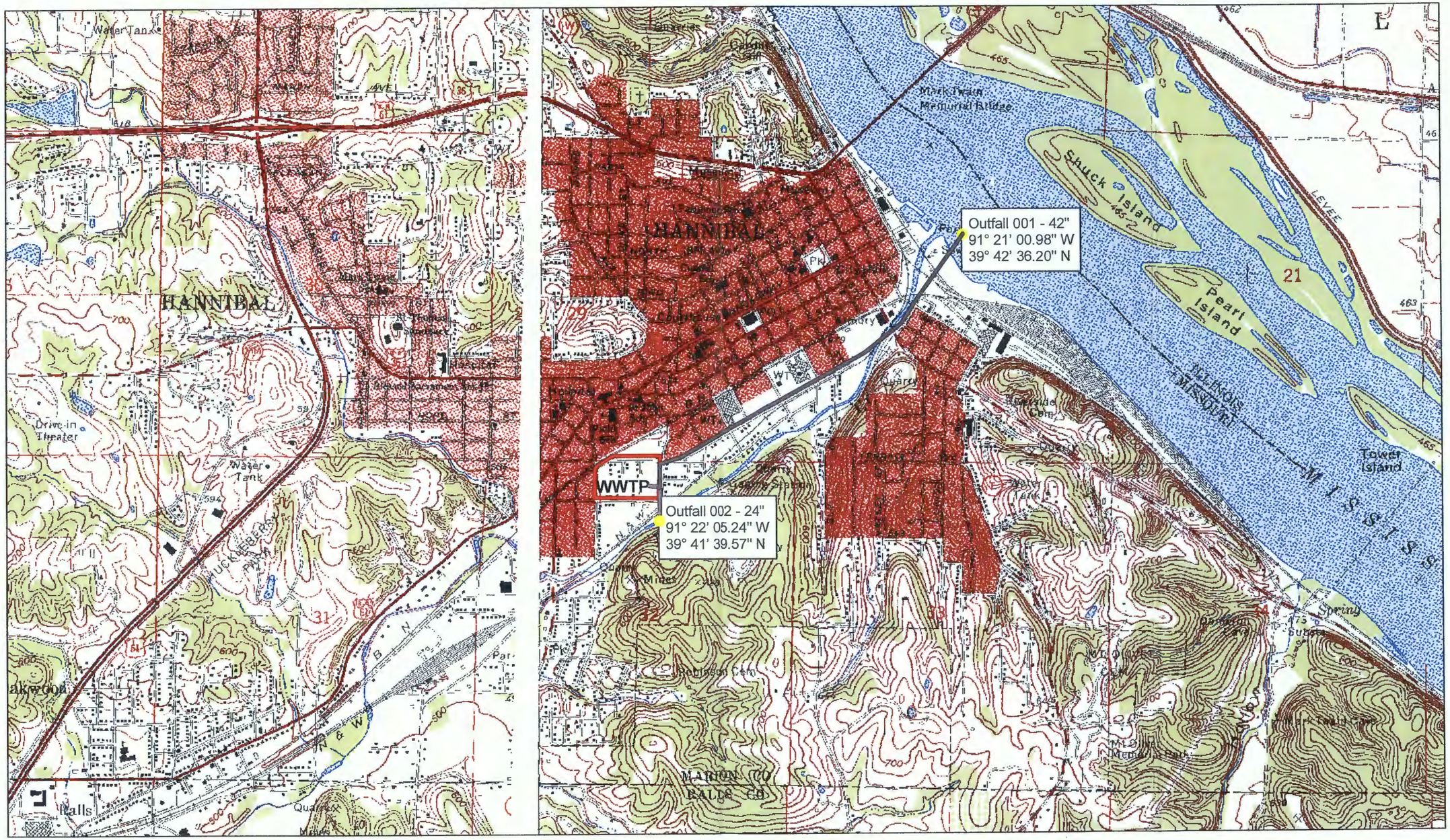
- ***Map 4 – Aerial*** – Continental Cement Company's current compost and soil project site.

BOARD OF PUBLIC WORKS
CITY OF HANNIBAL
OFFICE 573-221-8050
FAX 573-221-7522
www.hannibalbpw.org
ELECTRIC, WATER AND SEWER DEPARTMENTS
3 INDUSTRIAL LOOP DRIVE • PO BOX 1589 • HANNIBAL, MISSOURI 63401-1589

Hannibal Board of Public Works
Permit Application July 2013
Aerial Map - Wastewater Treatment Plant Map 1

N

Date:
06-11-2013



BOARD OF PUBLIC WORKS
CITY OF HANNIBAL
ELECTRIC, WATER AND SEWER DEPARTMENTS
3 INDUSTRIAL LOOP DRIVE • PO BOX 1589 • HANNIBAL, MISSOURI 63401-1589
OFFICE 573-221-8050
FAX 573-221-7522
www.hannibalbpw.org

Hannibal Board of Public Works
Permit Application July 2013
Topographic Map - Wastewater Treatment - Map 2

N

Date: 06-11-13

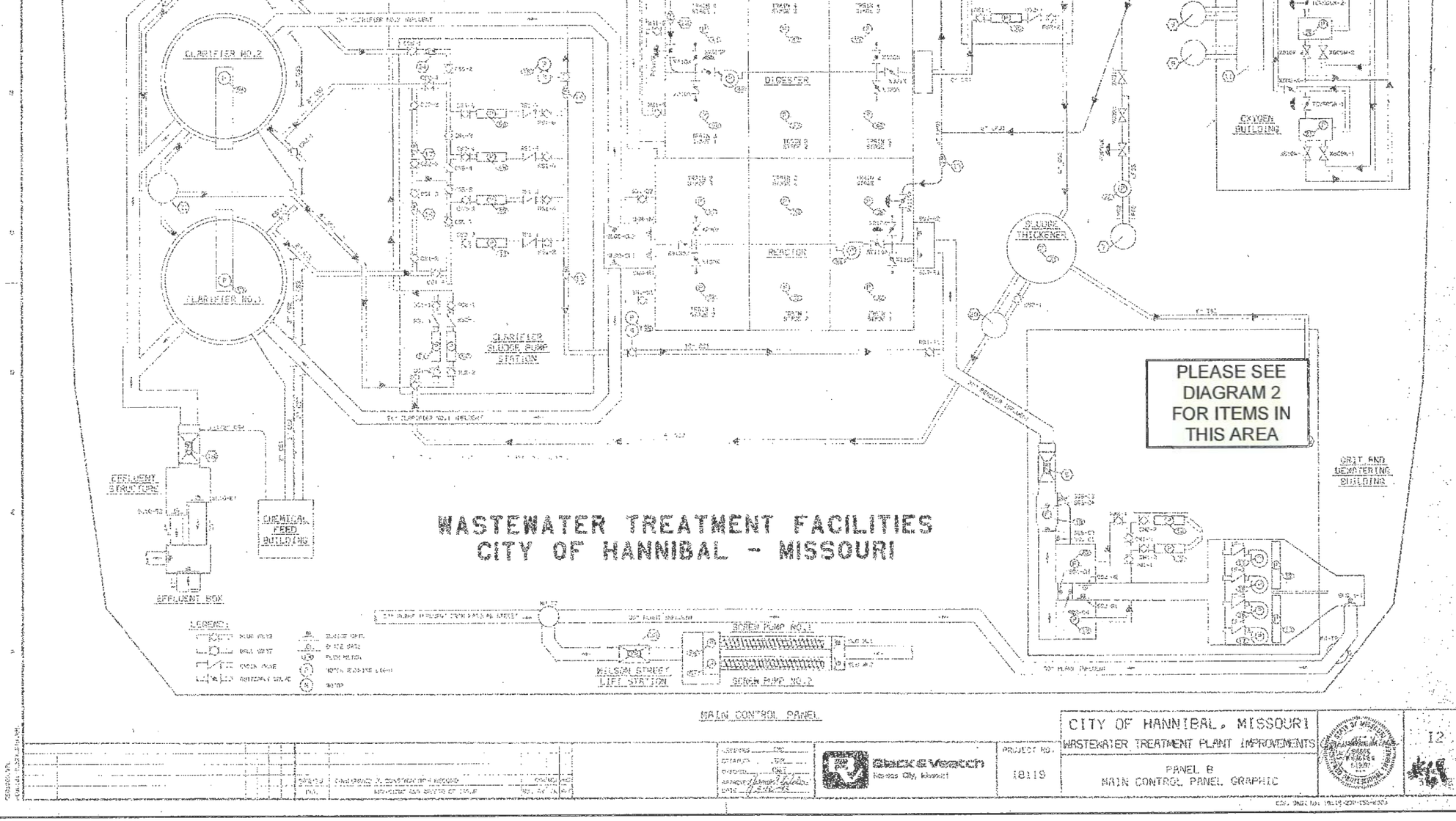
ATTACHMENT 3
Form B2 - Section 7.3
Process Flow Diagrams

Diagrams 1 and 2 – Schematic Drawings
The following two (2) schematics show the process of the Hannibal Wastewater Treatment Plant as stated in Section 7.20 of the application (Form B2).

Water volumes for the influent points will average 3.76 MGD. The exact daily flow between the plant processes is unknown, but is approximately 100% flow (3.76 MGD) from the influent/entry point to the Grit and Dewatering (G & D) Building; from the parallel reactor it splits into three (3) 24 in. pipes. Flow at this point is approximately 33% (1.25 MGD) per pipe, and enters the three (3) clarifiers. It centralizes after the clarifier and flow is at approximately 100% (3.76 MGD) at the 42 in. effluent/discharge pipe. (See Diagram 1.)

The preliminary and primary treatment processes in the G & D Building include a mechanical bar screen, aerated grit removal, and a Worthington commutator. The flow then passes through a Fisher/Porter Parshall flume for direct influent measurement. From the G & D Building the sewage goes into the parallel covered reactors and flows into the secondary process for the addition of return activated sludge and oxygen. Flow from the parallel reactors travels to the 3 available clarifiers for settling and overflow. The overflow goes to the effluent structure for effluent measurement and chlorination during full body contact season.

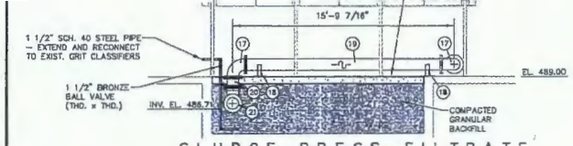
Waste sludge is pumped to the two parallel aerobic digesters and treated for 24 days at temperatures of 58° C or higher, then it goes into a thickener and on to a 2 meter K/S belt press for dewatering. (See Diagram 2.)



BOARD OF PUBLIC WORKS
CITY OF HANNIBAL
OFFICE 573-221-8050
FAX 573-221-7522
www.hannibalbpw.org
ELECTRIC, WATER AND SEWER DEPARTMENTS
3 INDUSTRIAL LOOP DRIVE • PO BOX 1589 • HANNIBAL, MISSOURI 63401-1589

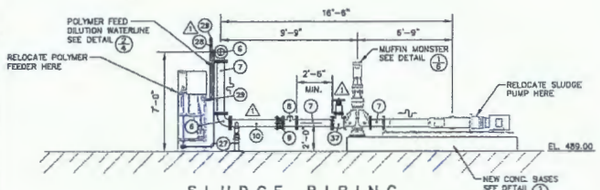
Hannibal Board of
Permit Application Jul
Waste Water Treatment

N



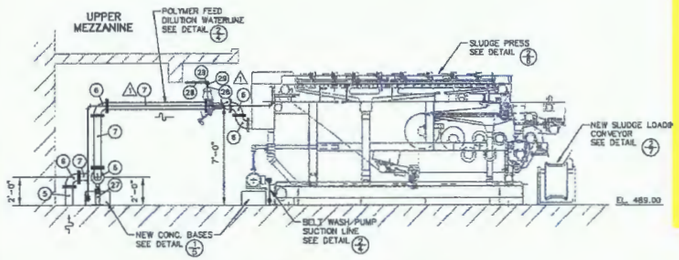
5/4 SLUDGE PRESS FILTRATE DISCHARGE PIPING SECTION

SCALE: 1/4" = 1'-0"



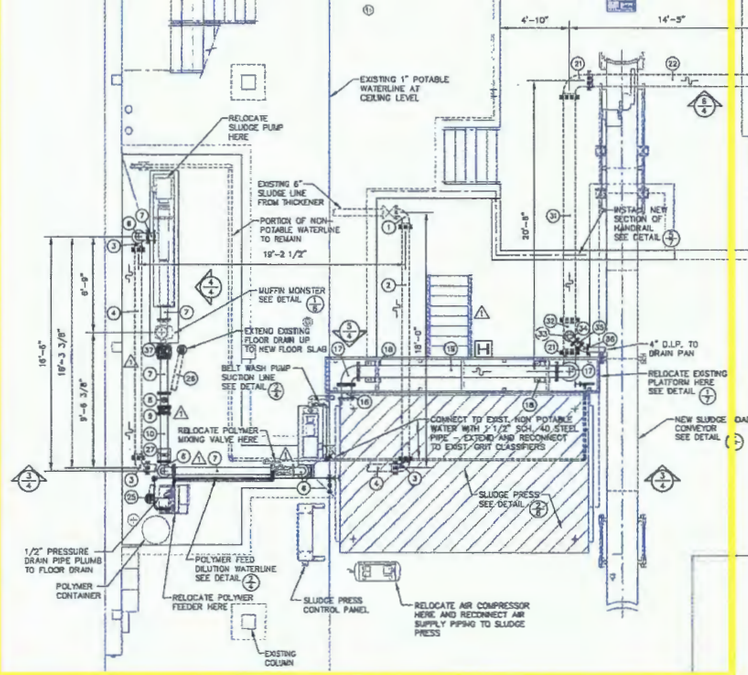
4/4 SLUDGE PIPING / EQUIPMENT SECTION

SCALE: 1/4" = 1'-0"



3/4 SLUDGE PRESS / PIPING SECTION

SCALE: 1/4" = 1'-0"



1/4 MECHANICAL PLAN

SCALE: 1/4" = 1'-0"

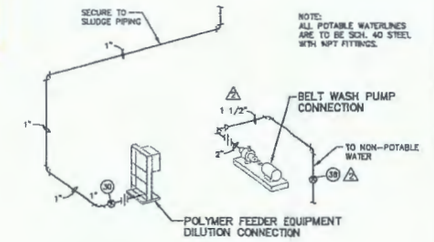
1.	6" D.I.P. (F.G. x P.E.)
2.	OMITTED ⚠
3.	OMITTED ⚠
4.	OMITTED ⚠
5.	OMITTED ⚠
6.	OMITTED ⚠
7.	OMITTED ⚠
8.	10" x 8" D.I. CONCENTRIC REDUCER (F.G. x F.G.)
9.	10"-90° D.I. BEND (F.G. x F.G.)
10.	PIPE SUPPORT SEE DET. ⊕
11.	10" D.I.P. (F.G. x F.G.)
12.	10" D.I.P. (F.G. x P.E.)
13.	10"-90° D.I. BEND (M.J. x P.E.)
14.	10" D.I.P. (M.J. x P.E.)
15.	10" UNI-FLANGE
16.	10" FLAP VALVE (F.G.)
17.	NEW FLOOR DRAIN
18.	4" D.I.P. DRAIN TO EXTENDED DRAIN
19.	PIPE STAND (TYPE "A") SEE DET. ⊕
20.	1" P.V.C. SCH. 80
21.	1"-90° P.V.C. SCH. 80 BEND
22.	1" BRONZE BALL VALVE (THD.)
23.	10" D.I.P. (P.E. x P.E.)
24.	10" x 4" D.I. RED. TEE (M.J. x M.J. x M.J.)
25.	4" D.I.P. (M.J. x P.E.)
26.	4"-90° D.I. BEND (F.G. x F.G.)
27.	4" D.I.P. (F.G. x F.G.)
28.	4"-45° BEND (F.G. x F.G.)
29.	8" GATE VALVE (F.G. x F.G.) ⚠
30.	1 1/2" BRONZE BALL VALVE (THD.) ⚠

EXISTING STRUCTURES NOTES

1. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL DIMENSIONS AND ELEVATIONS OF THE EXISTING STRUCTURES IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING MATERIALS. DO NOT SCALE DIMENSIONS FROM DRAWINGS FOR CONSTRUCTION PURPOSES.
2. PLAN DIMENSIONS AND DETAILS RELATIVE TO EXISTING STRUCTURES HAVE BEEN TAKEN FROM EXISTING PLANS AND ARE SUBJECT TO NOMINAL CONSTRUCTION VARIATIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY SUCH DIMENSIONS AND DETAILS IN THE FIELD AND MAKE NECESSARY APPROVED ADJUSTMENTS PRIOR TO CONSTRUCTION OR ORDERING OF MATERIALS. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN THE SCOPE OF WORK.
3. IF, DURING THE PERFORMANCE OF THE WORK, THE CONTRACTOR FINDS A CONFLICT OR DISCREPANCY RELATED TO EXISTING DETAILS AND DIMENSIONS OF THE EXISTING STRUCTURE, THE CONTRACTOR SHALL REPORT SUCH DISCREPANCIES TO THE ENGINEER (OWNER'S REPRESENTATIVE) AT ONCE AND BEFORE PROCEEDING WITH THE WORK AFFECTED THEREBY. THE CONTRACTOR SHALL OBTAIN WRITTEN INTERPRETATION OR CLARIFICATION OF SUCH DISCREPANCIES.

PIPING SYMBOLS / PLUMBING FIXTURES ABBREVIATIONS

BALL VALVE IN VERT. PIPE RUN	ELBOW TURNED UP
BALL VALVE	ELBOW TURNED DOWN
90° ELBOW	TEE TURNED UP
UNION	TEE TURNED DOWN
	REDUCER



2/4 POTABLE WATERLINE SCHEMATIC

NO SCALE

NO.	DATE	REVISION DESCRIPTION	BY
1	3/21/03	RELOCATED POLYMER MIXING VALVE, ADDED 6" GATE	RH
		VALVE / MODIFIED PLATFORM AND STAIRS / DELETED	
		A.R.V. & TEE	
2	3/21/03	REV. BELT WASH PUMP DISCHARGE PIPING FROM	RH
		1" TO 1 1/2"	

STATE OF MISSOURI — SCOTT ANDREW NIXON — NUMBER PE-2002018838 — PROFESSIONAL ENGINEER

MECO ENGINEERING COMPANY, INC.
ENGINEERS • SURVEYORS
3120 HIGHWAY W
HANNIBAL, MISSOURI 63401 (573) 221-4048

HANNIBAL BOARD OF PUBLIC WORKS
WASTEWATER TREATMENT PLANT
SLUDGE PRESS REPLACEMENT

EQUIPMENT LAYOUT MECHANICAL PLAN

SURVEYED	DESIGNED	DRAWN	CHECKED	APPROVED	RELEASED	SCALE	DRAWING NO.	PROJECT NO.	SHEET NO.
	S. Gough	C. Huddleston				1/4" = 1'-0"	2840680	284-068	4

BOARD OF PUBLIC WORKS
CITY OF HANNIBAL
ELECTRIC, WATER AND SEWER DEPARTMENTS
#3 INDUSTRIAL LOOP DRIVE • HANNIBAL, MISSOURI 63401
OFFICE 573-221-8050
FAX 573-221-7522
E-MAIL utility@hannibalbpw.org

Hannibal Board of Public
Permit Application July 2013
Waste Water Treatment - D

N

Date:
06-11-2013

ATTACHMENT 5
Form B2 - Section 7.7
Constructed SSO in Collection System

In regard to Form B2 Section 7.7 is a letter dated September 12, 2012 addressing comments of MDNR on Sewer Tributary to Wilson Street Pump Station Report with attached Proposed Constructed SSO Elimination Schedule, a letter dated October 19, 2012 from MDNR on receiving an engineering report from Horner & Shifrin, Inc., and MDNR's engineering review.

Map 6 – Satellite Image – There is a constructed SSO in the collection system that was installed at the time of the construction of the flood wall to protect the downtown area of the City of Hannibal in 1996. The constructed SSO in collection system is located as indicated on Map 6 that follows.

Diagram 3 is a Collection Schematic Drawing dated May, 1996 of the flood constructed SSO, followed by a copy of a letter from Hannibal Board of Public Works (HBPW) to MDNR outlining use of the constructed SSO in the collection system.

Attachment 57

COPY

BOARD OF PUBLIC WORKS

CITY OF HANNIBAL

OFFICE 573-221-8050
FAX 573-221-7522
www.hannibalbpw.org

ELECTRIC, WATER AND SEWER DEPARTMENTS
3 INDUSTRIAL LOOP DRIVE • PO BOX 1589 • HANNIBAL, MISSOURI 63401-1589

September 12, 2012

Missouri Department of Natural Resources
Northeast Regional Office
1709 Prospect Drive
Macon, Missouri 63552-2602

ATTN: Irene Crawford, Regional Director

RE: Evaluation of Sewer System – Sewers Tributary to Wilson Street Pump Station Report

Dear Ms. Crawford,

The following responses are provided to the comments contained in your letter dated July 30, 2012 concerning the review of the previously submitted draft report.

1. Due to the proposed scope of improvements and large cost associated with those improvements, we are proposing the attached schedule to allow the cost to be spread out over fifteen years.
2. There is no known industry located within the watershed that obtains is water from a source other than the Hannibal Board of Public Works.
3. This is further examined in the revised report.
4. Currently the GIS map is more than 90% complete concerning the drawing of sewer structures. It is anticipated that the map should be completed in the next 18 to 24 months as we are currently locating buried manholes. The process of locating and raising buried manholes has been ongoing for the past year. There were approximately 800 un-locatable manholes on the list at the beginning. That list has been reduced to approximately 100. The manhole and television inspections being completed are being used to verify and update the map concerning pipe diameters and material.
5. When the information for each manhole is collected for the GIS map, the top of the lid and flowline elevations are collected.
6. This item is addressed in the revised report.
7. This information is duly noted.

Should you have any questions concerning our comments, please feel to contact me at (573) 221-8050, extension 6041 or email to mmunzlinger@hannibalbpw.org.

Sincerely,

Mathew N. Munzlinger, P.E.
Utility Planning & Construction Engineer

Enclosure: Proposed Schedule

cc: Robert Stevenson, P.E., HBPW General Manager
Heath Hall, HBPW Director of Operations
Jim Macy, MDNR, Director, Financial Assistance Center

PROPOSED CONSTRUCTED SSO ELIMINATION SCHEDULE – September 11, 2012[1]

1. First Year
    a. Continue flow monitoring
    b. Monitor groundwater level
    c. Continue televising sewer mains in Priority Area 1 shown on Figure 4.3 in the May 2012 report
    d. Complete smoke testing of Priority Area 1 shown on Figure 4.3 in the May 2012 report
    e. Abandon mains in Priority Area 1 shown on Figure 4.3 in the May 2012 report no longer needed
    f. Review collected data to determine mains for rehabilitation work project
    g. Put sewer main rehabilitation work out to bid
    h. Complete level 2 manhole inspections of manholes in Priority Area 1 shown on Figure 4.3 in the May 2012 report
    i. Provide year-end report to MDNR outlining progress and revised schedule for next year

2. Second Year
    a. Award main rehabilitation work – up to a maximum of $200,000
    b. Continue flow monitoring
    c. Monitor groundwater level
    d. Continue televising of sewer mains in watershed
    e. Continue to complete manhole inspections in watershed
    f. Continue smoke testing upstream of Priority Area 1 shown on Figure 4.3 in the May 2012 report
    g. Review data from manhole inspections for possible rehabilitation project
    h. Complete work in house to reduce I/I in manholes in Priority Area 1 shown on Figure 4.3 in the May 2012 report
    i. Provide year-end report to MDNR outlining progress and revised schedule for next year

3. Third Year
    a. Develop and award manhole rehabilitation project
    b. Continue to collect flow data
    c. Monitor groundwater level
    d. Continue televising of sewer mains in watershed
    e. Continue to complete manhole inspections in watershed
    f. Continue to complete smoke testing in watershed
    g. Bid and award sewer main rehabilitation project based upon previous years data – up to $250,000 minus manhole rehabilitation cost
    h. Provide year-end report to MDNR outlining progress and revised schedule for next year

4. Fourth Year
    a. Continue to collect flow data
    b. Continue to monitor ground water levels
    c. Continue televising of sewer mains in watershed
    d. Continue to complete manhole inspections in watershed
    e. Continue to complete smoke testing in watershed

[1] The schedule was developed based upon the information known at the date of development. Unknown factors such as economic conditions, weather conditions as well as others may affect the completion of the project as scheduled

f. Bid and award up to $300,000 worth of rehabilitation work (combination of manholes and sewer mains)
g. Provide year-end report to MDNR outlining progress and revised schedule for next year

5. Fifth Year
   a. Continue flow monitoring
   b. Continue to collect groundwater level data
   c. Complete previously awarded rehabilitation projects
   d. Continue to complete smoke testing in watershed
   e. Develop plan to complete extensive flow monitoring study to determine the effectiveness of I/I reduction measures already implemented
   f. Provide year-end report to MDNR outlining progress and revised schedule for next year

6. Sixth Year
   a. Continue flow monitoring
   b. Continue to collect groundwater level data
   c. Complete previously awarded rehabilitation projects
   d. Continue to complete smoke testing in watershed
   e. Begin extensive flow monitoring study to determine the effectiveness of I/I reduction measures already implemented
   f. Provide year-end report to MDNR outlining progress and revised schedule for next year

7. Seventh Year
   a. Continue flow monitoring
   b. Continue to collect groundwater level data
   c. Complete previously awarded rehabilitation projects
   d. Continue to complete smoke testing in watershed
   e. Wrap up and evaluate data collected as part of the flow monitoring study to determine the effectiveness of I/I reduction measures already implemented
   f. Re-evaluate additional improvements mentioned in the report based upon the data available up to this point
   g. Provide year-end report to MDNR outlining progress and revised schedule for next year

8. Eighth through Fifteenth Year[2]
   a. Continue flow monitoring
   b. Continue to collect groundwater level data
   c. Complete previously awarded rehabilitation projects
   d. Continue to complete smoke testing in watershed
   e. Re-evaluate additional improvements mentioned in the report based upon the data available up to this point
   f. Provide year-end report to MDNR outlining progress and revised schedule for next year

[2] Scheduling beyond the Seventh year is unknown at this point. Should the completion on improvements to the WWTP, Wilson Street Lift Station or Installation of a new pump station would require the additional years.

Matt W Attachment 5

STATE OF MISSOURI
Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director
DEPARTMENT OF NATURAL RESOURCES

www.dnr.mo.gov

5.200 Hannibal WWTP
Marion County
MO-0093513

October 19, 2012

The Honorable Roy Hark
Mayor, City of Hannibal
320 Broadway
Hannibal, MO 63401

Dear Mayor Hark:

On September 14, 2012, the Missouri Department of Natural Resources' Northeast Regional Office received a report entitled Evaluation of Sewer System – Sewers Tributary to Wilson Street Pump Station. The report was sealed by Mr. David Cavender of Horner & Shifrin, Inc. This report was required by Notice of Violation #NER2011051910063636, issued on May 24, 2011.

Please see the enclosed Engineering Review regarding this report.

If you have any questions, please contact Mr. Scott Adams, E.I., or me at (660) 385-8000 or Missouri Department of Natural Resources' Northeast Regional Office, 1709 Prospect Dr., Macon, MO 63552. Thank you.

Sincerely,

NORTHEAST REGIONAL OFFICE

Irene Crawford
Regional Director

IC/saa

Enclosed: Engineering Review report

c: Mr. Robert W. Stevenson, P.E., General Manager, HBPW
Mr. Heath Hall, Director of Operations, HBPW
Mr. Jim Macy, MDNR Financial Assistance Center

MISSOURI DEPARTMENT OF NATURAL RESOURCES
NORTHEAST REGIONAL OFFICE

ENGINEERING REVIEW
HANNIBAL WWTF
MARION COUNTY
#MO-0093513
October 19, 2012

On May 24, 2011, Notice of Violation #NER2011051910063636 was issued to the Hannibal Board of Public Works due to sanitary sewer overflows from an unpermitted, constructed outfall in the community's collection system. Specifically, staff periodically open valves in manhole #M11B-52 (located near the intersection of Main and Lyons), allowing sewage to flow to a flood-control pond, which is then pumped to the Mississippi River.

The Hannibal Board of Public Works was required to submit a plan to eliminate the valves in the manhole that allow the overflows. The plan was to be submitted by June 20, 2011. The department received a response on June 14, 2011. On July 18, 2011, the department approved an extension until March 14, 2012, for submitting the report. On March 14, 2012, the department received a letter from the board proposing to submit a report in May or June 2012, take one and a half years to perform rehabilitation and/or construction, and take a final year to evaluate the effectiveness of the repairs. On April 16, 2012, the department sent a letter to the board approving the schedule and requesting a draft report by the end of May 2012. On June 1, 2012, we received a draft report entitled Evaluation of Sewer System -- Sewers Tributary to Wilson Street Pump Station. An Engineering Review report was sent to the city on July 30, 2012, and a final report was received by the department on September 14, 2012. The cover letter to the report included a response to the July 30 Engineering Review and provided a proposed schedule for the required work.

We appreciate the submittal of the report and schedule. The report is hereby approved.

The proposed schedule includes a year-end report that is to be submitted to the department. The year-end report must be submitted by January 28th of each year and must include the following at a minimum:

1. a summary of progress made to date with emphasis on the work completed in the previous year,
2. a general summary of the remaining work proposed with a detailed summary of the work proposed for the next year, and
3. a list of all bypasses and overflows that occurred during the previous calendar year with a city-wide map showing the location.

As a reminder, all bypasses at the wastewater treatment plant as well as all sanitary sewer overflows in the collection system or at lift stations must be properly reported to the department.

SUBMITTED BY:

Mr. D. Scott Adams, E.I.
Environmental Engineering Unit
Northeast Regional Office

REVIEWED BY:

Mr. Everett Baker, P.E.
Environmental Engineer
Northeast Regional Office

BOARD OF PUBLIC WORKS
CITY OF HANNIBAL
OFFICE 573-221-8050
FAX 573-221-7522
www.hannibalbpw.org
ELECTRIC, WATER AND SEWER DEPARTMENTS
3 INDUSTRIAL LOOP DRIVE • PO BOX 1589 • HANNIBAL, MISSOURI 63401-1589

Hannibal Board of Public Works
Permit Application July 2013
Satellite Image - Collection System-Bypass Map 6

N

Date: 06-11-13

BOARD OF PUBLIC WORKS
CITY OF HANNIBAL

TELEPHONE 314-221-8050
FAX 314-221-7522

ELECTRIC, WATER AND SEWER DEPARTMENTS

#3 INDUSTRIAL LOOP DRIVE
HANNIBAL, MISSOURI 63401

May 29, 1996

COPY

Missouri Department of
Natural Resources
1409 Prospect Drive
Macon, MO 63552

Attn: Charles S. Decker, P.E.
Regional Administrator

RE: City of Hannibal, Marion County
NPDES Permit MO-0093513

Dear Mr. Decker:

The Hannibal Board of Public Works (BPW) operates and maintains the publicly-owned treatment works serving the City of Hannibal, under the above referenced operating permit. This wastewater treatment system is subject to flooding by the Mississippi River, creating hydraulic overloading of affected portions of the wastewater system. The design of the various treatment works (pumping station, treatment plant) was based upon maintaining operation of the facilities up to a 25-year event and protecting the facilities from damages during a 100-year flood event. The City of Hannibal, in 1993, completed a major flood protection levee system, the purpose of which was to protect segments of downtown Hannibal from "severe property damages." Unfortunately, this flood protection levee crosses several major interceptor sewer lines, and the levee construction included installation of valves on such interceptor sewer lines. Once the river attains a specific flood stage, the floodwaters flow back through the interceptor sewer lines to threaten the protected side of the levee; and in such circumstances, the valve on the interceptor sewer line must be closed. The closing of the valve prevents backflow of the river, and also forces surcharging and overflow of the sewer system on the protected side of the levee. This overflow of the sewer system affects occupied areas of downtown Hannibal, creating unsanitary conditions and threats of personal injury. The by-passed raw wastewater then flows to the receiving pond of the flood control pumps, and is pumped with surface/ground waters over the levee into the Mississippi River. Under these circumstances, the BPW has found it necessary to remove sections of the manhole adjacent to the ponding

area at the flood control pumps, thereby allowing the by-passed wastewater to flow only a limited distance in open drainage before it is pumped over the levee and into the river.

Due to the current flood conditions, the BPW needs immediate approval to install a 12-inch valved relief line from the manhole at the ponding area to the intake channel of the flood control pumps. This valved relief line would only be used when the river is above the 25-year flood level, and the valve on the 18-inch interceptor sewer must be closed to prevent backflow of floodwaters through said sanitary sewer line. When this 18-inch valve is closed, the emergency operating procedures shall include opening of the 12-inch relief line valve, thereby carrying the by-passed raw wastewater flows, in a closed piping system, to the flood control pump's intake channel. This arrangement will not allow the raw wastewater to flow by open drainage in occupied areas, will mix the by-passed flows with ground/surface waters prior to pumping and will provide a direct and controlled release of by-passed flows into the river's floodwaters.

Under the Standard Conditions for NPDES Permits, 5. By-Passing, A, (i), such arrangements are permissible due to the fact that the by-passing is unavoidable to prevent personal injury and severe property damages.

The BPW requests approval to immediately install the valved relief line at the ponding area of the flood control pumps. This arrangement shall only be used in situations of extreme flooding when the 18-inch valved interceptor line must be shut down. The Board of Public Works shall notify the DNR offices in writing of the date and duration of any such by-passing operations. The Board of Public Works shall accept full responsibility for any actions, damages or claims arising from the use of the relief line.

A location map denoting the proposed configuration is enclosed for your reference.

Should you have any questions, please let me know.

Very truly yours,

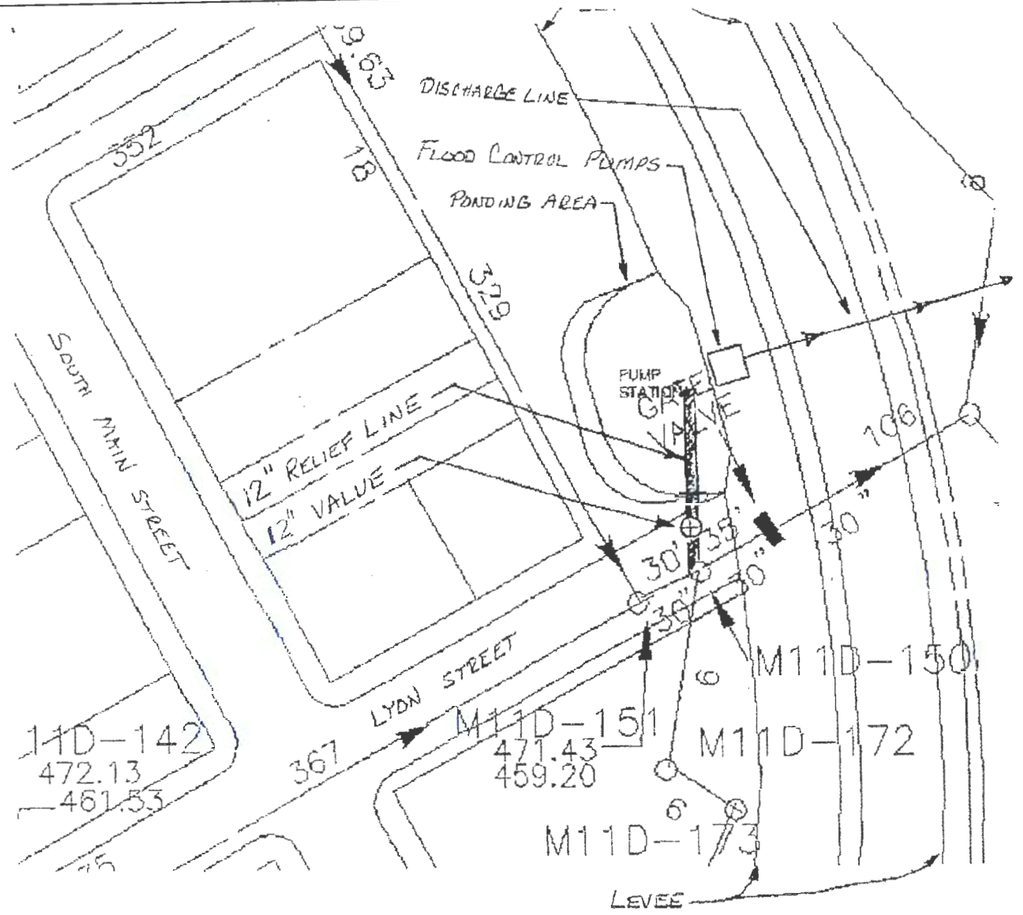
BOARD OF PUBLIC WORKS

Greg Boettcher, P.E.
General Superintendent

GB:rj

CC: Bennie Oenning, Water and Sewer Supt.

Enclosure



NORTH

FLOOD BYPASS LINE - 12" VALVED LINE
FROM MANHOLE 11D-150 TO PONDING AREA

CITY OF HANNIBAL, MISSOURI MAY 1996

BOARD OF PUBLIC WORKS
CITY OF HANNIBAL
OFFICE 573-221-8050
FAX 573-221-7522
www.hannibalbpw.org
ELECTRIC, WATER AND SEWER DEPARTMENTS
3 INDUSTRIAL LOOP DRIVE • PO BOX 1589 • HANNIBAL, MISSOURI 63401-1589

Hannibal Board of Public Works
Permit Application July 2013 - Collection Schematic Drawing
Collection System-Bypass - Diagram 3

N

Date: 06-11-2013

ATTACHMENT 10
Form B2 - Section 20.0
Plans to Minimize Inflow and Infiltration

The following table indicates the Wastewater Treatment Plant influent flows for the period of January 2008 through December 2012. The table also shows the number of days that the Mississippi River was above technical flood stage and the amount of precipitation received for the same period. This data allows correlations to be drawn between precipitation received, days above flood stage and increases in influent flows. Hannibal's average precipitation is 40.17 inches per year, based upon the period of 1933 through 2008. The years 2008 (61.40 inches) and 2009 (65.15) were two of the wettest years in Missouri history. The years 2006 and 2012 were used to calculate the average daily volume of inflow and infiltration (I & I) entering the plant because it had near average precipitation and had no days above technical flood stage. The calculation included subtracting lowest flow production day, weekday and not a holiday, by month from that month's average flow. The average generated by this calculation for the years 2006 and 2012 was 0.230 mgd.

The Hannibal Board of Public Works (HBPW) has been utilizing an owned sewer-televising camera since 1996 to inspect the condition of the sanitary sewer collection system for deficiencies. This equipment has been significantly upgraded since the first camera in 1996 with an upgrade in 2002 to increase camera resolution and another upgrade in 2009 to add pan and tilt to the camera. These upgrades allow for more thorough inspection of service connections and suspected deficient areas. In addition to televising sewer collection mains for deficiencies, HBPW personnel utilized dye tracing and smoke testing to identify cross connections and other illegal connections to the sanitary sewer system in the attempt to prevent amounts of I & I from entering the system.

Also included in Attachment 10 is a letter dated May 31, 2013 outlining activities that the HBPW undertook in 2012 to help curb the volume of I/I that enters the sanitary sewer collection system.

ATTACHMENT 10

HANNIBAL BOARD OF PUBLIC WORKS

ELECTRIC, WATER AND WASTEWATER

3 INDUSTRIAL LOOP DRIVE
PO BOX 1589
HANNIBAL, MISSOURI 63401-1589
573-221-8050
www.hannibalbpw.org

Reliable Public Power Provider

May 31, 2013

Missouri Department of Natural Resources
Northeast Regional Office
1709 Prospect Drive
Macon, MO 63552-2602

Attn: Scott Adams, E.I.

Dear Mr. Adams,

In accordance with the latest NPDES permit for the Hannibal WWTP (MO-0093513) issued February 1, 2013, we are required to submit a yearly report by February 28th on the activities that the Hannibal Board of Public Works (*HBPW*) undertook the previous calendar year to help curb the volume of I/I that enters the sanitary sewer collection system. This report is being submitted late due to the fact that HBPW personnel were not aware of the issuance of the new permit and the fact that the new permit was not in effect the previous calendar year delaying the reporting until the year 2014. At your request the letter contains an update on I/I related activities and progress made toward the elimination of the constructed sanitary sewer overflow located at the downtown stormwater basin during the 2012 calendar year.

During the past year HBPW personnel have spent numerous hours trying to locate and remove sources of I/I from the sanitary sewer collection system. Enclosed with this letter is a spreadsheet detailing operational activities that are collected for the Sewer Department. As can been seen in this information a large volume of the system was televised (95,972 feet), manholes inspected (449) and manholes raised to grade (409) making them accessible for maintenance activities. Also enclosed are completed copies of a CCTV Inspection Report and Manhole Inspection Report.

In addition to the activities listed in the spreadsheet, HBPW personnel also monitor the following parameters: hours on lift station pumps weekly, the flows at the WWTP and Wilson Street Lift Station compared to river levels and precipitation received, and the flow in two key points in the downtown area through the use of two portable flowmeters, see enclosed location map. These parameters are monitored to determine the magnitude and location of potential I/I sources. This background data will be beneficial when determining the areas that need rebuilt or rehabilitated first during future improvement projects.

HBPW has also expended resources to further train employees and bring additional staff in during key periods of the year to maintain production during vacations and help increase production during the summer months. Examples of this are that the five fulltime sewer crew employees are certified in PACP pipeline inspection and MACP manhole inspection practices as defined by NASSCO. For the past three years beginning in 2011, two seasonal helpers have been employed during the summer months to cover holes created by vacations of the fulltime personnel, but also help increase production during times of the year which more maintenance activities can be completed.

Focusing specifically on the elimination of the constructed sanitary sewer overflow downtown, personnel have been compiling data through the previously mentioned flowmeter installations, manhole inspections, manhole raising and CCTV main inspections. This information is going to be used to set improvement priorities. The plan for the calendar year 2013 is to continue to gather data through CCTV inspections, manhole inspections, groundwater level monitoring, smoking of mains and the use of flowmeters focusing on areas closest to the river and outside the floodwall. The hope is to define a group of mains or manhole that can be rehabilitated through the use of contractors or in-house personnel. This could include CIPP lining of mains, CIPP point repairs, manhole lining and changing out manhole lids to prevent the introduction of I/I during periods of flash or prolonged flooding. Also enclosed is a list and map showing all of the sanitary sewer overflows and bypasses that occurred during the calendar year 2012.

Should you have any questions concerning the activities that the HBPW has taken during the 2012 calendar year to address I/I and elimination of the constructed sanitary sewer overflow downtown, do not hesitate to contact me directly at (573) 221-8050 extension 6041.

Sincerely,

Mathew N. Munzlinger, P.E.
Utility Planning & Construction Engineer

pc:

Robert Stevenson, P.E., HBPW General Manager
Heath Hall, HBPW Director of Operations
John Hummel, P.E., HBPW Plant Supervisor
Jeff Williams, HBPW Senior WWTP Operator
Jim Macy, Director, MDNR Financial Assistance Center

DAILY OPERATIONAL DATA
2012

	JANUARY				FEBRUARY				MARCH				APRIL			
	AVG	MIN	MAX	TOTALS	AVG	MIN	MAX	TOTALS	AVG	MIN	MAX	TOTALS	AVG	MIN	MAX	TOTALS
Main Replaced (ft)	1	0	13	21	3	0	60	76	0	0	0	0	0	0	0	0
Trenchless Repair (lf)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Main Televised (ft)	64	0	794	1,995	245	0	1,822	7,097	493	0	1,925	15,295	380	0	1,714	11,399
Main Smoked (ft)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Main Dyed (ft)	0	0	0	0	0	0	0	0	0	0	0	0	2	0	65	65
Main Inspected (ft)	404	0	2,877	12,539	724	0	3,881	20,983	851	0	4,734	26,391	748	0	3,686	22,445
Manholes Inspected (qty)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Main Cleaned (ft)	340	0	2,083	10,544	479	0	2,059	13,896	350	0	2,809	11,096	368	0	1,922	11,046
Main Root Cut (ft)	8	0	155	155	56	0	437	1,619	30	0	250	937	28	0	525	845
Taps (#)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Manholes exposed (qty)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manholes Raised	0	0	0	0	0	0	1	1	0	0	5	5	2	0	11	64
Interdepartmental (hours)	3	0	16	95	4	0	13	116	3	0	13	85	4	0	28	116
Pavement Repairs Completed (sq ft)	21	0	528	648	0	0	0	0	0	0	0	0	0	0	0	0

MAY				JUNE				JULY				AUGUST			
AVG	MIN	MAX	TOTALS	AVG	MIN	MAX	TOTALS	AVG	MIN	MAX	TOTALS	AVG	MIN	MAX	TOTALS
0	0	5	8	0	0	10	10	0	0	7	7	0	0	7	9
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
274	0	1,075	8,494	102	0	1,022	3,066	279	0	1,621	8,644	276	0	1,631	8,545
0	0	0	0	7	0	200	200	0	0	0	0	0	0	0	0
3	0	99	99	0	0	0	0	0	0	0	0	0	0	0	0
672	0	2,980	20,828	990	0	4,726	29,686	669	0	3,456	20,741	1,031	0	4,134	31,972
0	0	0	0	4	0	22	122	0	0	0	0	5	0	26	145
398	0	1,905	12,334	887	0	3,704	26,620	390	0	1,835	12,097	756	0	2,503	23,427
55	0	486	1,716	39	0	1,150	1,160	63	0	937	1,963	144	0	1,480	4,459
0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	9	78	3	0	10	82	3	0	11	82	2	0	7	49
2	0	10	59	2	0	11	52	3	0	21	80	2	0	10	65
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SEPTEMBER				OCTOBER				NOVEMBER				DECEMBER				YEARLY TOTALS
AVG	MIN	MAX	TOTALS	AVG	MIN	MAX	TOTALS	AVG	MIN	MAX	TOTALS	AVG	MIN	MAX	TOTALS	
1	0	27	30	0	0	10	15	0	0	5	5	0	0	0	0	180
0	0	0	0	0	0	0	0	0	0	0	0	1	0	12	10	10
8	0	242	242	428	0	1,575	13,274	306	0	1,960	9,191	282	0	1,208	8,730	95,972
23	0	380	680	10	0	300	308	13	0	300	400	10	0	300	300	1,880
0	0	0	0	0	0	0	0	10	0	295	295	10	0	300	300	759
745	0	2,662	22,350	1,637	0	4,173	50,741	1,035	0	3,533	31,053	533	0	3,074	16,511	306,240
5	0	29	158	1	0	12	24	0	0	0	0	0	0	0	0	449
737	0	2,662	22,108	1,209	0	2,914	37,467	729	0	2,640	21,862	305	0	2,106	9,465	211,952
267	0	5,354	8,009	126	0	1,293	3,903	92	0	572	2,756	32	0	553	994	28,516
0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	5
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	10	29	0	0	11	14	0	0	2	2	0	0	2	3	409
7	0	31	212	2	0	16	77	1	0	5	18	1	0	7	31	1,004
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	648

Hannibal Board of Public Works
3 Industrial Loop Drive
Hannibal, MO 63401

Ph: (573) 221-8050
Fax: (573) 221-7522

Surveyors name	Certificate Number	System Owner	Survey Customer	Drainage Area	Sheet
D david	14821	HBPW	Hannibal	M11b	1

P/O No.	Pipeline Segment Reference	Date	Time	Location (Street Name and number)	Locality
	GM-02098	20120713	07:46	North st	Hannibal

Further Location details	Upstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade
	M11B-31			

Downstream Manhole Number	Rim to Invert	Grade to Invert	Rim to Grade	Use of Sewer	Direction	Flow Control	Height
M11B-32				Sanitary	Downstream	N	18

Width	Shape	Material	Ln. Method	Pipe Joint Length	Total Length	Length Surveyed	Year Laid	Year Rehabilitated	Tape / Media Number
	Circular	PVC	ZZ		0				1

Purpose	Sewer Category	Pre-Cleaning	Cleaned	Weather	Additional Information
F	Z	Jetting		Dry	

Distance (Feet)	Code		Continuous defect	Value				Joint	Circumferential Location		Image Ref.	Struct. Grade	O&M Grade	Remarks
	Group/ Descriptor	Modifier/ severity		S/M/L	Inches 1st	Inches 2nd	%		At / From	To				
-1.5	AMH										AMH@-1.5			Starting Manhole: M11B-31 with flow
0.0	MWL						5				MWL@0			
40.4	TF				4				1		TF@40.4			
113.8	TF				4				2		TF@113.8			
268.0	TF				4				10		TF@268			
300.9	AEP										AEP@300.9			very clean

	Structural								O & M								Overall							
Segment	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Rating	Quick	Index
M11B-31_M11B-32_20120713	0	0	0	0	0	0	0000		0	0	0	0	0	0	0000		0	0	0	0	0	0	0000	

ATTACHMENT 10

Hannibal Board of Public Works
3 Industrial Loop Drive
Hannibal, MO 63401
Ph: (573) 221-8050
Fax: (573) 221-7522

Upstream MH	Downstream MH	Size	Material	Total Length	City
M11B-31	M11B-32	18	Polyvinyl Chloride	0	Hannibal

Surveyor's Name	Certificate Number	Street Address	Location Details
D david	14821	North st	

Direction	Purpose	Weather	Date	Time	Length Surveyed
Downstream	Routine Assessment	Dry	20120713	07:46	

Additional Information

Ftg.	Code	Description	Position	Comment
-1.5	AMH	Access Point - Manhole		Starting Manhole: M11B-31 with flow
0.0	MWL	Water Level		
40.4	TF	Tap, Factory Made	1	
113.8	TF	Tap, Factory Made	2	
268.0	TF	Tap, Factory Made	10	
300.9	AEP	Access Point - End of Pipe		very clean

Generated on Friday, 7/13/2012 at 08:40 AM by the PipeTech® TV inspection system.

Hannibal Board of Public Works
3 Industrial Loop Drive
Hannibal, MO 63401

Ph: (573) 221-8050
Fax: (573) 221-7522

Upstream MH	Downstream MH	Size	Material	Total Length	City
M11B-31	M11B-32	18	Polyvinyl Chloride	0	Hannibal

Surveyor's Name	Certificate Number	Street Address	Location Details
D david	14821	North st	

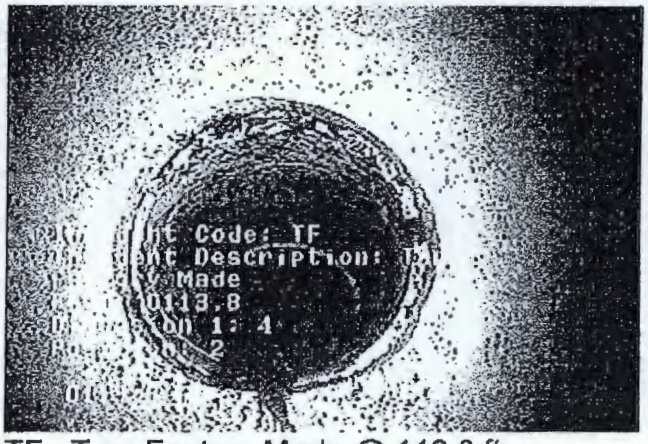
Direction	Purpose	Weather	Date	Time	Length Surveyed
Downstream	Routine Assessment	Dry	20120713	07:46	

Additional Information

AMH - Access Point - Manhole @ -1.5 ft.
Starting Manhole: M11B-31 with flow

MWL - Water Level @ 0.0 ft.

TF - Tap, Factory Made @ 40.4 ft.



TF - Tap, Factory Made @ 113.8 ft.

Generated on Friday, 7/13/2012 at 08:40 AM by the PipeTech® TV inspection system.

Hannibal Board of Public Works
3 Industrial Loop Drive
Hannibal, MO 63401

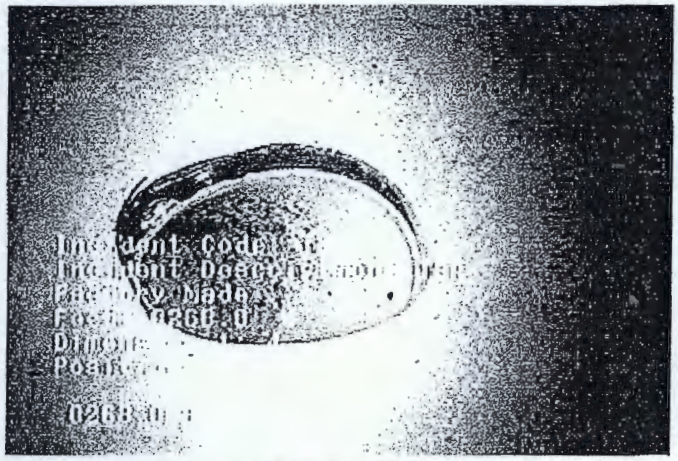
Ph: (573) 221-8050
Fax: (573) 221-7522

Upstream MH	Downstream MH	Size	Material	Total Length	City
M11B-31	M11B-32	18	Polyvinyl Chloride	0	Hannibal

Surveyor's Name	Certificate Number	Street Address	Location Details
D david	14821	North st	

Direction	Purpose	Weather	Date	Time	Length Surveyed
Downstream	Routine Assessment	Dry	20120713	07:46	

Additional Information



TF - Tap, Factory Made @ 268.0 ft.

AEP - Access Point - End of Pipe @ 300.9 ft. very clean

Hannibal Board of Public Works
3 Industrial Loop Drive
Hannibal, MO 63401
Ph: (573) 221-8050
Fax: (573) 221-7522

Upstream MH	Downstream MH	Size	Material	Total Length	City
M11B-31	M11B-32	18	Polyvinyl Chloride	0	Hannibal

Surveyor's Name	Certificate Number	Street Address	Location Details
D david	14821	North st	

Direction	Purpose	Weather	Date	Time	Length Surveyed
Downstream	Routine Assessment	Dry	20120713	07:46	

Additional Information

Flg.	Code	Description	Position	Comment
-1.5	AMH	Access Point - Manhole		Starting Manhole: M11B-31 with flow
0.0	MWL	Water Level		
40.4	TF	Tap, Factory Made	1	
113.8	TF	Tap, Factory Made	2	
268.0	TF	Tap, Factory Made	10	
300.9	AEP	Access Point - End of Pipe		very clean

Hannibal Board of Public Works
3 Industrial Loop Drive
Hannibal, MO 63401

Ph: (573) 221-8050
Fax: (573) 221-7522

Upstream MH	Downstream MH	Size	Material	Total Length	City
M11B-31	M11B-32	18	Polyvinyl Chloride	0	Hannibal

Surveyor's Name	Certificate Number	Street Address	Location Details
D david	14821	North st	

Direction	Purpose	Weather	Date	Time	Length Surveyed
Downstream	Routine Assessment	Dry	20120713	07:46	

Additional Information

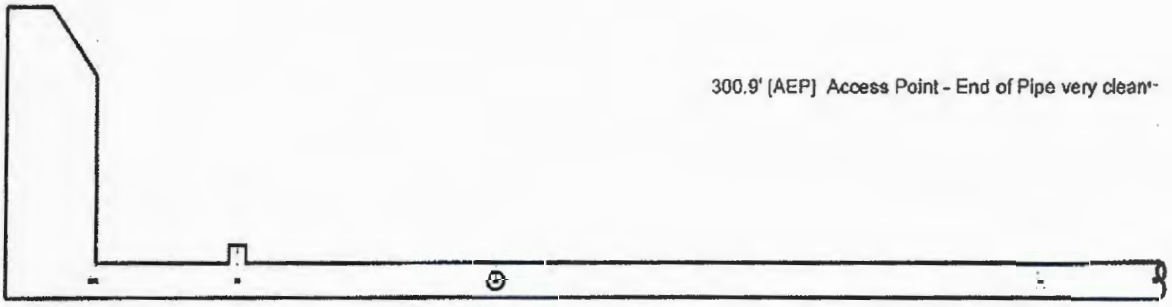
0' [MWL] Water Level

1.5' [AMH] Access Point - Manhole Starting Manhole: M11B-31 with flow

40.4' [TF] Tap, Factory Made 1

113.8' [TF] Tap, Factory Made 2

268' [TF] Tap, Factory Made 10



300.9' [AEP] Access Point - End of Pipe very clean

Generated on Friday, 7/13/2012 at 08:40 AM by the PipeTech® TV Inspection system.

Hannibal Board of Public Works
3 Industrial Loop Drive
Hannibal, MO 63401

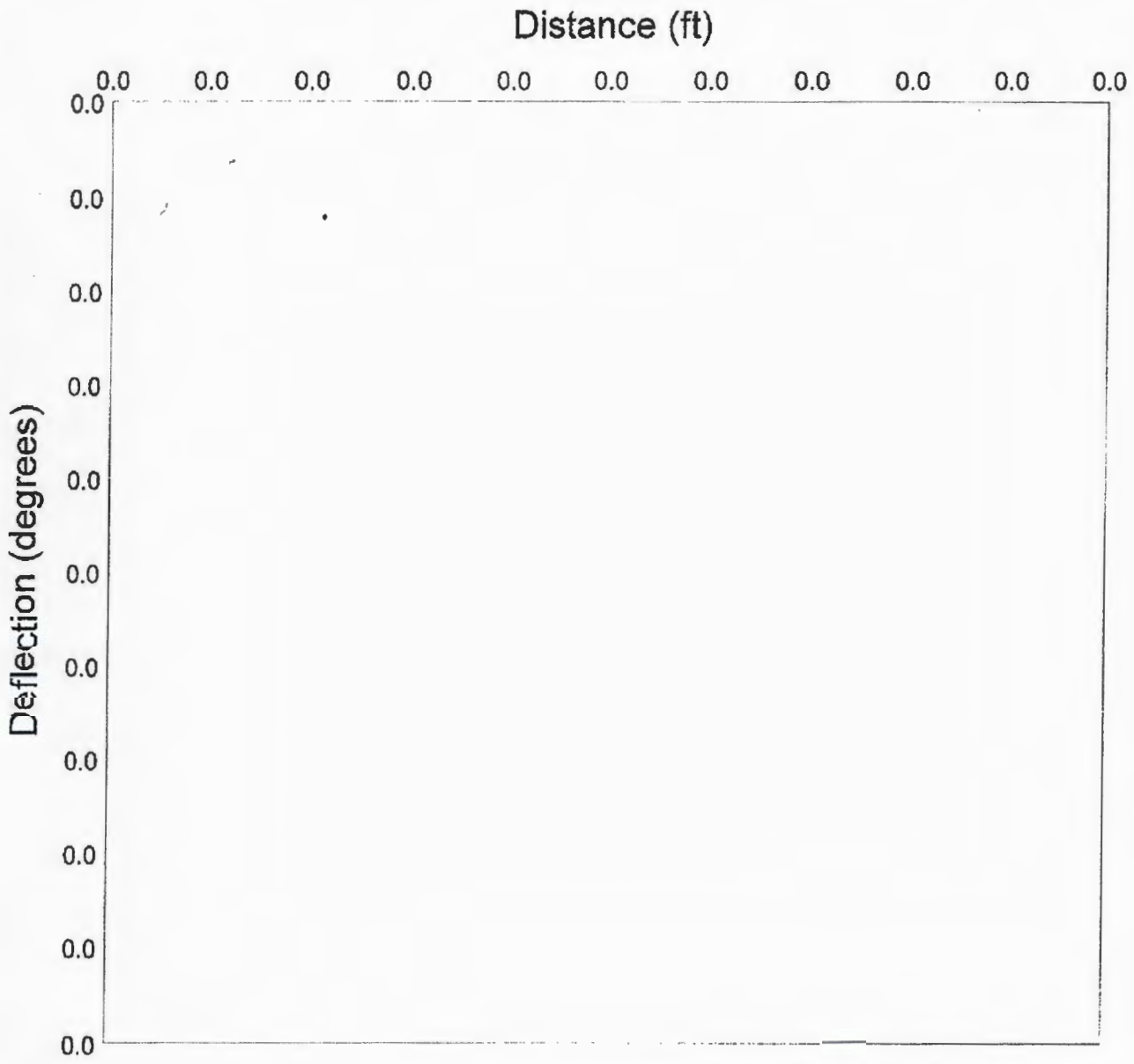
Ph: (573) 221-8050
Fax: (573) 221-7522

Upstream MH	Downstream MH	Size	Material	Total Length	City
M11B-31	M11B-32	18	Polyvinyl Chloride	0	Hannibal

Surveyor's Name	Certificate Number	Street Address	Location Details
D david	14821	North st	

Direction	Purpose	Weather	Date	Time	Length Surveyed
Downstream	Routine Assessment	Dry	20120713	07:46	

Additional Information



Generated on Friday, 7/13/2012 at 08:40 AM by the PipeTech® TV inspection system.

Manhole Inspection Report

Asset Information

System Owner:	BPW
Drainage Area:	M10d
Street:	Hill
City:	Hannibal
Manhole Number:	M10d 184
Rim to Invert:	14.8 ft.
Grade to Invert:	14.8 ft.
Rim to Grade:	0 ft.
MH Use:	Sanitary
Year Built:	
Year Renewed:	
Category:	
Location Code:	Main Highway - Urban
Runoff Potential:	Sheeting
Access Point Type:	Manhole

GPS Information

Coordinate System:	
Coordinates:	
Elevation:	

Inspection Information

Project:	
Work Order:	
Surveyed By:	D david
Certificate #:	14821
Survey Customer:	
PO Number:	
Date:	20120821 14:03
Media Label:	1
Purpose:	Infiltration and Inflow investigation
Pre-Cleaning:	Not Known
Surcharge Evidence:	False
Date Cleaned:	
Weather:	Very Dry
Pressure:	
Inspection Status:	Surface Inspection
Location Details:	
Surface Type:	Asphalt
Additional Info:	

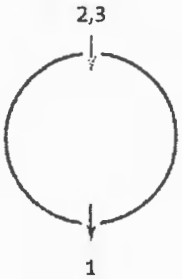
Sketch

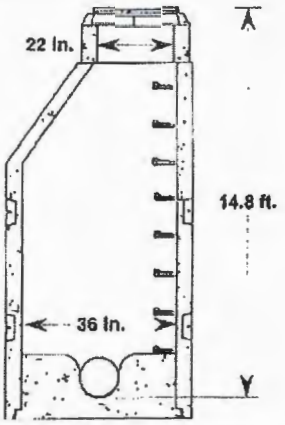
Legend

Inlet Symbol: -<-

Outlet Symbol: →

PipeID: #





Cover | Insert

Cover Shape:	Circular	Cover Size:	22 in.
Cover Material:	Cast Iron	Bearing Surface:	22 in.
Cover Condition:	Sound		
Cover Type:	Solid		
Hole Diameter:	> 1 inch, ≤ 1¼ inches	# of Holes:	2
Cover/Frame Fit:		Insert Type:	
Insert Condition:			
Adjustment Ring Type:		Ring Height:	
Adjustment Ring Condition:	Sound		

Frame

Frame Material:	Cast Iron		
Frame Bearing Surface Width:	0.8 in.	Depth:	1.3 in.
Frame Clear Opening Diameter:	20 in.	Frame Offset Distance:	0 in.
Frame Condition:	Sound		
Frame Seal Condition:	Sound		
Frame Seal Inflow:	None	Frame Depth:	4 in.

Chimney | Cone

Chimney Material:	Concrete Segments (unbolted)		
Chimney Infiltration/Inflow:	None		
Chimney Clear Opening:	16 in.	Chimney Depth:	8.3 ft.
Chimney Coating/Liner, Interior:	None - No Coating	Exterior:	None - No Coating
Cone Type:	Conical centered	Cone Depth:	8.3 ft.
Cone Material:	Concrete Segments (unbolted)		
Cone Coating/Liner, Interior:	None - No Coating	Exterior:	None - No Coating

Wall | Bench | Channel

Wall Material:	Concrete Segments (unbolted)		
Wall Size:	36 in. × 4 in.	Wall Depth:	6 ft.
Wall Coating/Liner, Interior:	None - No Coating	Exterior:	None - No Coating
Manhole Steps:	0	Step Material:	
Bench Material:			
Bench Coating/Liner:		Bench Present:	None
Channel Material:		Channel Installed:	No
Channel Type:		Channel Exposure:	

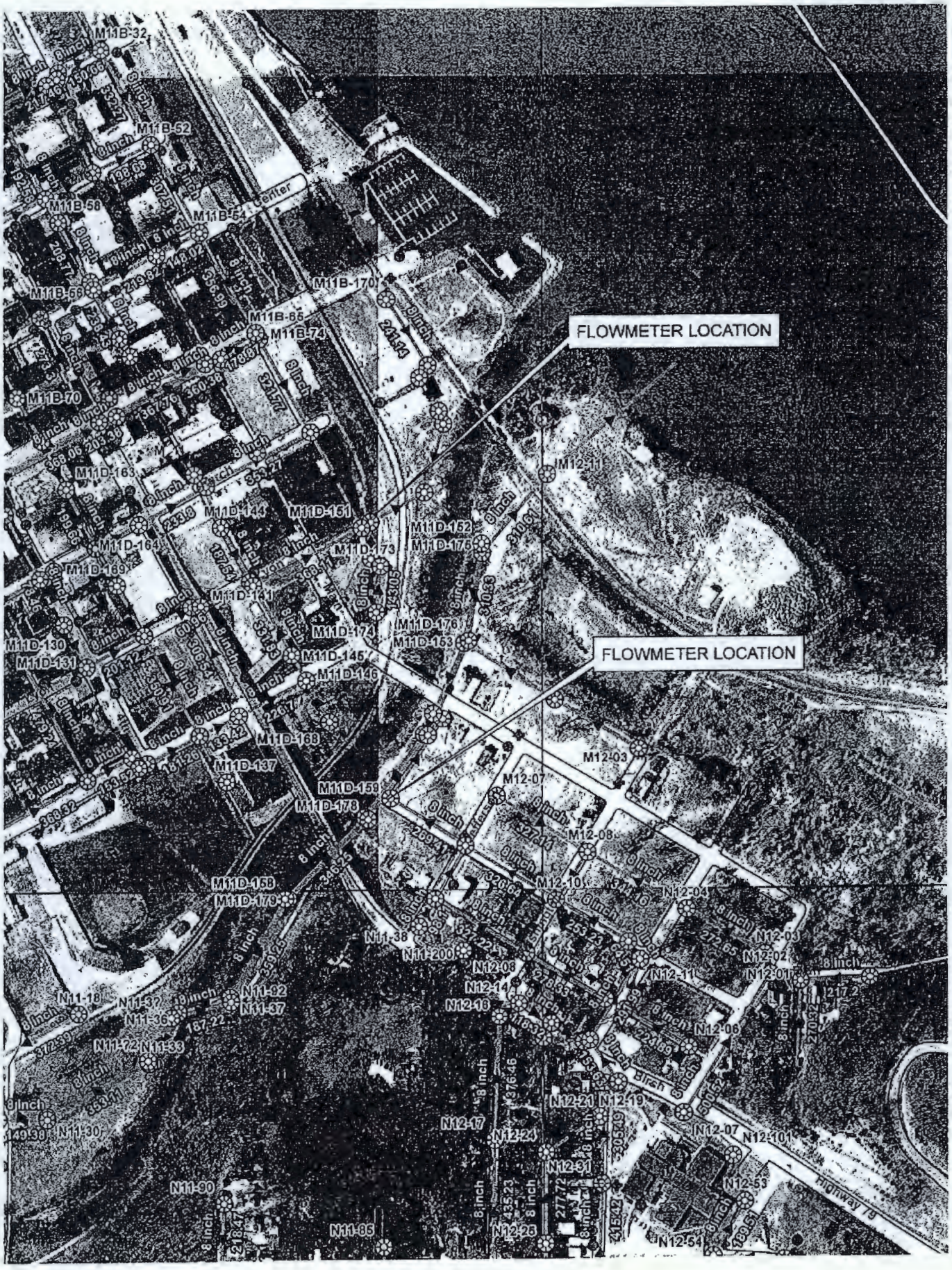
Pipe Connections

Pipe	Clock	Rim to Invert	Dir	Material	Shape	Size	Seal Condition	Special Condition
1	08	15.1 ft.	Out	CT	Circular	12 in.	Sound	
2	12	15.0 ft.	In	CT	Circular	8 in.	Sound	
3	12	5.0 ft.	In	CT	Circular	6 in.	Sound	

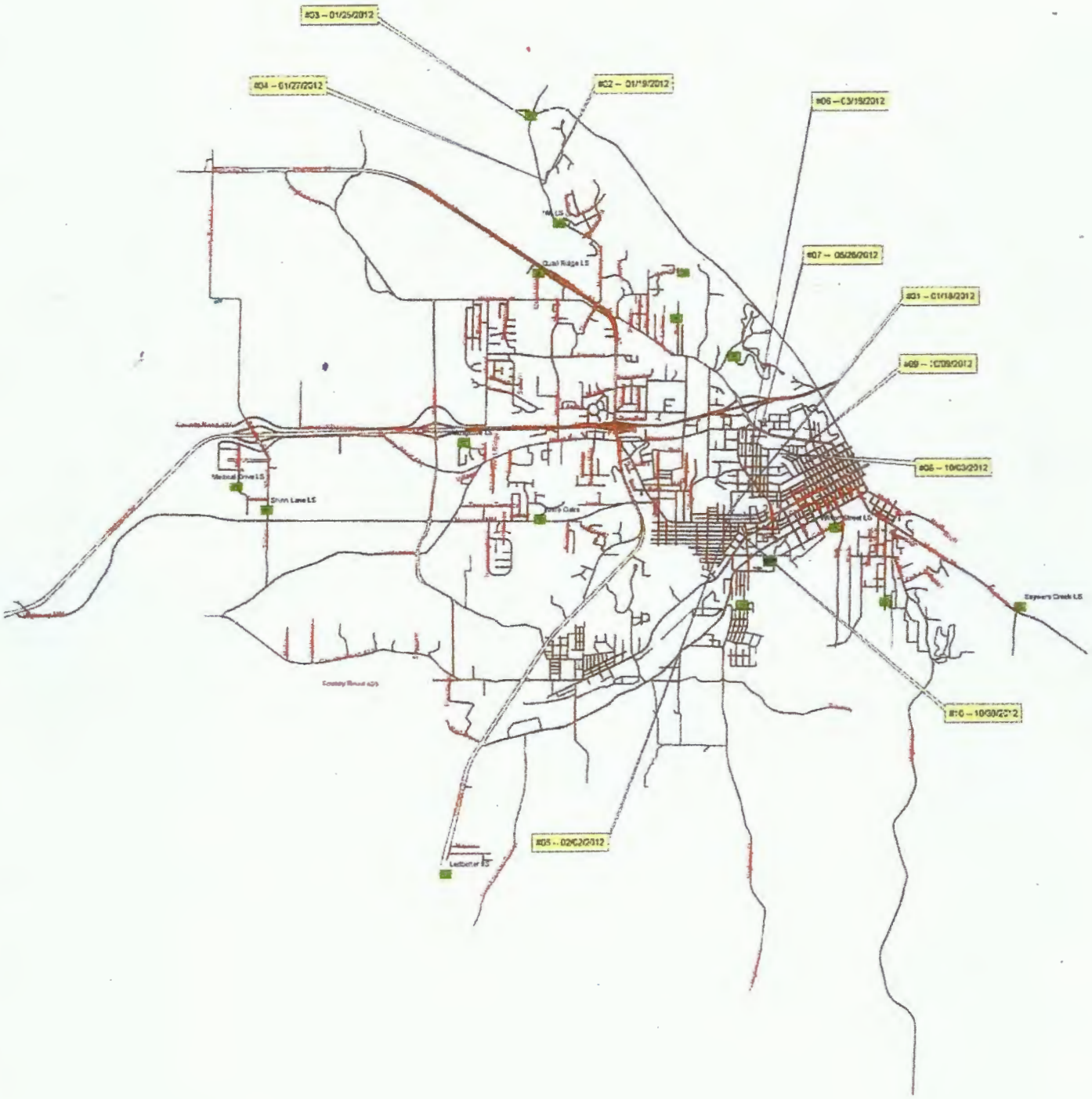
Incidents

Depth (ft.)	Manhole Component	Code	CT	Dimension 1st	2nd	%	J	Clock	Remarks

ATTACHMENT 10



Number	Date	Location
01	1/18/2012	1802 Grace (between manholes N9-81 and N9-82)
02	1/19/2012	49 El Rancho (forcemain in the street)
03	1/25/2012	Forcemain located on the westside of Highway 168, approximately 150 fet south of the Clear Creek Lift Station
04	1/27/2012	Forcemain located in the grass across from 49 El Rancho
05	2/2/2012	Behind 1703 Bird (manhole M10C-81)
06	3/16/2012	M10A-190
07	6/26/2012	1409 Paris Avenue (manhole M10A-06)
08	10/3/2012	1007 Paris Avenue (manhole M10B-152)
09	10/9/2012	600 Butler (between M10B-145 and M10B-146)
10	10/30/2012	113 North Griffith (manhole N9-80)


#03 – 01/25/2012
#04 – 01/27/2012
#02 – 01/19/2012
#06 – 03/19/2012
#07 – 05/26/2012
#01 – 01/18/2012
#09 – 10/03/2012
#08 – 10/03/2012
#10 – 10/30/2012
#05 – 02/02/2012
Quail Ridge LS
Divin Lane LS
Leibert LS
Keyser's Creek LS

HBPW
HANNIBAL
BOARD OF PUBLIC WORKS

ELECTRIC WATER SEWER STORMWATER
3 Industrial Loop Drive | PO Box 1589 | Hannibal, MO 63401 | (573)-221-8050
www.HANNIBALBPW.org
RP3 RELIABLE PUBLIC POWER PROVIDER
American Public Power Association

May 23, 2019

Mr. Timothy W. Bull
Chief, Domestic Wastewater Unit
Water Protection Program – Operating Permits Section
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, Missouri 65102-0176

RE: Hannibal Board of Public Works Wastewater Treatment Plant NPDES MO-0093513 Modification for Biosolids Testing Reduction – Form B2 Application

Dear Mr. Bull;

This letter and attached Form B2 for Hannibal Board of Public Works (HBPW) Wastewater Treatment Plant (WWTP) NPDES Operating Permit MO-0093513 to do a permit modification to reduce current biosolids testing frequency as per a follow-up to phone conversation and email with our Consultant, Tony Boone.

With the changes by MDNR in the Standard Conditions Part III to better reflect USEPA 40 CFR Part 503 Regulations; we would like to change or lower biosolids testing monitoring frequency taken from our current NPDES Operating Permit that reflects the design production of biosolids as outlined in the insert of this letter below.

C. 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 March 1, 2015, and hereby incorporated as though fully set forth herein. The permittee is required to conduct biosolids testing frequency in accordance with the monitoring frequency of the following table. This supersedes the requirement in Standard Conditions Part III, Section I – Monitoring Frequency.

Biosolids Testing Monitoring Frequency			
Metals, Pathogens and Vectors	Nitrogen TKN [1]	Nitrogen PAN [2]	Priority Pollutants and TCLP
1 every 60 days	quarterly	1 per month	1 per year

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

We would like the biosolids testing monitoring frequency to reflect annual biosolids production from the WWTP. The following table is taken from another draft NPDES Operating Permit that would reflect the same level of biosolids production and testing frequency for HBPW-WWTP. In past years almost all parameters were non-detects on the Priority Pollutant Scan (PPS); we are requesting that the PPS testing be conducted only at the renewal of the NPDES Permit every five (5) years.

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 March 1, 2015, and hereby incorporated as though fully set forth herein. The permittee is required to conduct biosolids testing frequency in accordance with the monitoring frequency of Table D-1 below. This supersedes the requirements in Standard Conditions Part III, Section I – Monitoring Frequency Table 5.

Table D-1: Biosolids Testing Monitoring Frequency (Notes 1, 2, and 3)

Metals, Pathogens, and Vectors	Nitrogen TKN [1]	Nitrogen PAN [2]	Priority Pollutants [3]
twice/year	twice/year	1 per month	1 per permit cycle

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

Note 1: Total Solids: A grab sample of sludge shall be tested once 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: Total Phosphorus and Total Potassium shall be tested twice per year.
Note 3: This table is not applicable for incineration and permit holders that landfill their sludge.

We think you will find everything in order with Form B2 and support documentation along with payment. It is our understanding that this will be the only change to the NPDES Permit for this modification. We truly appreciate your efforts in the matter of this permit modification. We would like to see the draft permit for our 10 day in order to review the permit and make comments prior to it being put on public notice. To avoid gaps in communication, please copy in the following address for all correspondence in regard to issues with this NPDES permit:

Hannibal Board of Public Works
#3 Industrial Loop Drive
P. O. Box 1589
Hannibal, MO 63401-1589
ATTENTION: Jeff Williams

If there are any questions, please feel free to contact me at 660-231-7112 or by email at jwilliams@hannibalbpw.org; or contact Tony Boone at 217-656-3668 or by e-mail at agboone@adams.net.

Sincerely,

Jeff Williams
Asst. Supervisor

JW:jg
cc: Heath Hall,
Matt Munzlinger
Tony Boone

HBPW
HANNIBAL
BOARD OF PUBLIC WORKS

ELECTRIC WATER SEWER STORMWATER
3 Industrial Loop Drive | PO Box 1589 | Hannibal, MO 63401 | (573)-221-8050
www.HANNIBALBPW.org
RP3 RELIABLE PUBLIC POWER PROVIDER
American Public Power Association

May 23, 2019

Mr. Timothy W. Bull
Chief, Domestic Wastewater Unit
Water Protection Program – Operating Permits Section
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, Missouri 65102-0176

RE: Hannibal Board of Public Works Wastewater Treatment Plant NPDES MO-0093513 Modification for Biosolids Testing Reduction – Form B2 Application

Dear Mr. Bull;

This letter and attached Form B2 for Hannibal Board of Public Works (HBPW) Wastewater Treatment Plant (WWTP) NPDES Operating Permit MO-0093513 to do a permit modification to reduce current biosolids testing frequency as per a follow-up to phone conversation and email with our Consultant, Tony Boone.

With the changes by MDNR in the Standard Conditions Part III to better reflect USEPA 40 CFR Part 503 Regulations; we would like to change or lower biosolids testing monitoring frequency taken from our current NPDES Operating Permit that reflects the design production of biosolids as outlined in the insert of this letter below.

C. 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 March 1, 2015, and hereby incorporated as though fully set forth herein. The permittee is required to conduct biosolids testing frequency in accordance with the monitoring frequency of the following table. This supersedes the requirement in Standard Conditions Part III, Section I – Monitoring Frequency.

Biosolids Testing Monitoring Frequency			
Metals, Pathogens and Vectors	Nitrogen TKN [1]	Nitrogen PAN [2]	Priority Pollutants and TCLP
1 every 60 days	quarterly	1 per month	1 per year

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

We would like the biosolids testing monitoring frequency to reflect annual biosolids production from the WWTP. The following table is taken from another draft NPDES Operating Permit that would reflect the same level of biosolids production and testing frequency for HBPW-WWTP. In past years almost all parameters were non-detects on the Priority Pollutant Scan (PPS); we are requesting that the PPS testing be conducted only at the renewal of the NPDES Permit every five (5) years.

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 March 1, 2015, and hereby incorporated as though fully set forth herein. The permittee is required to conduct biosolids testing frequency in accordance with the monitoring frequency of Table D-1 below. This supersedes the requirements in Standard Conditions Part III, Section I – Monitoring Frequency Table 5.

Table D-1: Biosolids Testing Monitoring Frequency (Notes 1, 2, and 3)

Metals, Pathogens, and Vectors	Nitrogen TKN [1]	Nitrogen PAN [2]	Priority Pollutants [3]
twice/year	twice/year	1 per month	1 per permit cycle

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

Note 1: Total Solids: A grab sample of sludge shall be tested once 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: Total Phosphorus and Total Potassium shall be tested twice per year.
Note 3: This table is not applicable for incineration and permit holders that landfill their sludge.

We think you will find everything in order with Form B2 and support documentation along with payment. It is our understanding that this will be the only change to the NPDES Permit for this modification. We truly appreciate your efforts in the matter of this permit modification. We would like to see the draft permit for our 10 day in order to review the permit and make comments prior to it being put on public notice. To avoid gaps in communication, please copy in the following address for all correspondence in regard to issues with this NPDES permit:

Hannibal Board of Public Works
#3 Industrial Loop Drive
P. O. Box 1589
Hannibal, MO 63401-1589
ATTENTION: Jeff Williams

If there are any questions, please feel free to contact me at 660-231-7112 or by email at jwilliams@hannibalbpw.org; or contact Tony Boone at 217-656-3668 or by e-mail at agboone@adams.net.

Sincerely,

Jeff Williams
Asst. Supervisor

JW:jg
cc: Heath Hall,
Matt Munzlinger
Tony Boone