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-0049531
Owner:	City of Kansas City
Address:	4800 E. 63rd St., Kansas City, MO 64130
Continuing Authority:	KCMO Water Services
Address:	4800 E 63rd Street Kansas City, MO 64130
Facility Name:	Birmingham Wastewater Treatment Facility
Facility Address:	10801 NE 28th Street, Kansas City, MO 64161
Legal Description:	NE ¼, SW ¼, Sec. 13, T50N, R32W, Clay County
UTM Coordinates:	X= 374888, Y= 4333467
Receiving Stream:	Missouri River (P)
First Classified Stream and ID:	Missouri River (P) (0356) 303(d) List
USGS Basin & Sub-watershed No.:	(10300101-0305)

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

FACILITY DESCRIPTION

Outfall #001 – POTW – SIC #4952
The use or operation of this facility shall be by or under the supervision of a Certified B Operator.
Two parallel complete mix activated sludge trains composed of aerated grit chamber, primary settling basin, aeration basin, two final settling basins and effluent pump station/chlorination/dechlorination/sludge is pumped to the Blue River facility (MO-0024911) for processing
Design population equivalent is 100,000.
Design flow is 20 million gallons per day.
Actual flow is 12.4 million gallons per day.
Design sludge production is 21,000 dry tons/year.
Actual sludge production is 4,127 dry tons/year.

This permit authorizes only wastewater 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.

September 1, 2013 July 1, 2014
Effective Date Modified

Sara Parker Pauley, Director, Department of Natural Resources

August 31, 2016
Expiration Date

John Madras, Director, Water Protection Program

FACILITY DESCRIPTION (continued)

Outfall #006 – Ground water monitoring wells discontinued.

ADDITIONAL FACILITY DESCRIPTION FOR OUTFALL #001

Biosolids from Birmingham, Westside, and Blue River Sewage Treatment Plants are anaerobically digested at the Blue River Sewage Treatment Plant. Biosolids from other facilities may also be land applied. The biosolids are then pumped to holding basins at Birmingham for on-site and off-site land application. This facility was previously approved to apply biosolids in excess of agronomic rates for nitrogen, and was required to monitor groundwater. This has been discontinued, and biosolids are to be applied in accordance with 40 CFR part 503. The groundwater monitoring well data showed no violations of water quality standards.

OUTFALL #001	TABLE A FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	PAGE NUMBER 3 of 7 PERMIT NUMBER MO-0049531

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 upon issuance 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/weekday***	24 hr. estimate
Biochemical Oxygen Demand$_5$	mg/L		45	30	once/weekday***	composite**
Total Suspended Solids	mg/L		45	30	once/weekday***	composite**
pH – Units	SU	****		****	once/weekday***	composite**
E. coli (Note 1, Page 4)	#/100 ml		1030	206	once/week	grab
Total Residual Chlorine (Note 2, Page 3)	µg/L	180 (130ML)		89.6 (130ML)	once/month	grab
Ammonia as N	mg/L	*		*	once/week	composite**
Oil & Grease	mg/L	15		10	once/month	composite**
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE NEXT REPORT IS DUE AUGUST 28, 2014. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Chlordane	mg/L	*			once/permit cycle	composite**
Total Toxic Organics	mg/L	*			once/permit cycle	composite**
MONITORING REPORTS SHALL BE SUBMITTED ONCE PER PERMIT CYCLE; THE FIRST REPORT IS DUE JANUARY 28, 2015. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Whole Effluent Toxicity (WET) test	% Survival	See Special Condition #18			once/year	24-hr Composite
WET TEST REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2015.						

* Monitoring requirement only.
** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.
*** Once each weekday means: Monday, Tuesday, Wednesday, Thursday, and Friday.
**** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.

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. Do not chlorinate during the non-recreational months.
(b) Do not chemically de-chlorinate **if it is not needed to meet the limits in your permit.**
(c) If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as “0 µg/L” TRC.

TABLE B. INFLUENT MONITORING REQUIREMENTS			
The facility is required to meet a removal efficiency of 85% or more as a monthly average. The monitoring requirements shall become effective upon issuance and remain in effect until expiration of the permit. To determine removal efficiencies, the influent wastewater shall be monitored by the permittee as specified below:			
SAMPLING LOCATION AND PARAMETER(S)	UNITS	MONITORING REQUIREMENTS	
		MEASUREMENT FREQUENCY	SAMPLE TYPE
Biochemical Oxygen Demand$_5$	mg/L	once/month	grab
Total Suspended Solids	mg/L	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE NEXT REPORT IS DUE AUGUST 28, 2014.			

C. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Parts I, II, & III standard conditions dated October 1, 1980, May 1, 2013, and August 15, 1994, and hereby incorporated as though fully set forth herein.

D. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) 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 Clean Water Act, 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) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

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

3. 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.

D. SPECIAL CONDITIONS (continued)

4. Water Quality Standards
   (a) To the extent required by law, discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
   (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
      (1) 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;
      (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
      (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
      (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
      (5) There shall be no significant human health hazard from incidental contact with the water;
      (6) There shall be no acute toxicity to livestock or wildlife watering;
      (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
      (8) 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.

5. Changes in Discharges of Toxic Substances

   The permittee shall notify the Director as soon as it knows or has reason to believe:
   (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
      (1) One hundred micrograms per liter (100 µg/L);
      (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
      (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
      (4) The level established by the Director in accordance with 40 CFR 122.44(f).
   (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

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

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

8. 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.

9. The permittee shall submit a report annually in January to the Kansas City Regional Office with the Discharge and Monitoring reports which address measures taken to locate and eliminate sources of infiltration and inflow into the collection system serving the facility for the previous year.

10. Bypasses are not authorized at this facility and are subject to 40 CFR 122.41(m). If a bypass occurs, the permittee shall report in accordance to 40 CFR 122.41(m)(3)(i), and with Standard Condition Part I, Section B, subsection 2.b. Bypasses are to be reported to the Kansas City Regional Office.

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

D. SPECIAL CONDITIONS (continued)

12. A 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, perform operational monitoring, sampling, maintenance, mowing, or for inspections by the Department. The gate shall be closed and locked when the facility is not staffed.

13. 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.

14. 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.

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

16. 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.

17. Permittee is authorized to operate the sludge and biosolids treatment, storage, use and disposal facilities listed in the facility description of this permit. This facility is granted an exception to the soil pH limitations in WQ 426 due to naturally occurring soil pH levels. Biosolids by be applied on land with a salt-based pH greater than 7.5, but not to exceed 8.5.

18. Whole Effluent Toxicity (WET) Test shall be conducted as follows:

SUMMARY OF ACUTE WET TESTING FOR THIS PERMIT				
OUTFALL	AEC	FREQUENCY	SAMPLE TYPE	MONTH
001	6.4%	annually	24 hr. composite*	Any

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

Dilution Series						
25.6% effluent	12.8% effluent	6.4% effluent	3.2% effluent	1.6% effluent	(Control) 100% upstream, if available	(Control) 100% Lab Water, also called synthetic water

(a) Test Schedule and Follow-Up Requirements

(1) Perform a MULTIPLE-dilution acute WET test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.

(i) Chemical and physical analysis of the upstream control 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.

(ii) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analysis performed upon any other effluent concentration.

(iii) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.

(2) The WET test will be considered a failure if mortality observed in effluent concentrations for either specie, equal to or less than the AEC, is significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available, synthetic laboratory control water may be used.

D. SPECIAL CONDITIONS (continued)

(3) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.

(4) If the effluent fails the test for BOTH test species, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met: Note: Written request regarding single species multiple dilution accelerated testing will be address by THE WATER PROTECTION PROGRAM on a case by case basis.

(i) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.

(ii) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

(5) Follow-up tests do not negate an initial failed test.

(6) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.

(7) Additionally, the following shall apply upon failure of the third follow up MULTIPLE DILUTION test The permittee should contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. If the permittee does not contact THE WATER PROTECTION PROGRAM upon the third follow up test failure, a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of the automatic trigger or DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

(8) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

(9) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.

(10) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.

(11) Submit a concise summary in tabular format of all WET test results with the annual report.

(b) Test Conditions

(1) Test Type: Acute Static non-renewal

(2) All tests, including repeat tests for previous failures, shall include both test species listed below unless approved by the department on a case by case basis.

(3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.

(4) Test period: 48 hours at the "Allowable Effluent Concentration" (AEC) specified above.

(5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.

(6) Tests will be run with 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent, and reconstituted water.

(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

(8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

(9) Whole-effluent-toxicity test shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms

Missouri Department of Natural Resources
Factsheet Addendum
For Construction Permit/Modification
#MO-0049531
Birmingham WWTF

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 – Proposed Construction

The City of Kansas City, Missouri has made improvements to the final clarifiers and installed an effluent disinfection system to the Birmingham WWTF.

Improvements to the existing two (2) final clarifiers will included converting them from square basins to circular basins along with the installation of new scum baffles, troughs, skimmers, sludge scraper mechanisms, and effluent weirs within each basin. The new circular clarifiers will each have a diameter of 113 feet and a side water depth of 20 feet. The new clarifiers are designed for an average flow of 13 MGD and a peak flow of 24 MGD.

The effluent disinfection system includes storage tanks for sodium hypochlorite (chlorination), storage totes for sodium bisulfite (dechlorination), two (2) Watson-Marlow, Inc. Model 620 DuN/RE feed pumps for chlorination, two (2) Watson-Marlow, Inc. Model 520 DuN/RE feed pumps for dechlorination, and a chlorine contact basin with a volume of 273,840 gallons with two (2) channels and baffling to prevent short circuiting.

Facility Description:
Two parallel complete mix activated sludge trains composed of aerated grit chamber, primary settling basin, aeration basin, final settling basin, chlorination and dechlorination, and effluent pump station /sludge is pumped to the Blue River facility (MO-0024911) for processing

Part II – Reason for the Modification

This operating permit is hereby modified to reflect the construction of the chlorination and dechlorination.

This modification is to include total residual chlorine.

Part III – Effluent Limits Determination (Outfall #001)

- **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: $C_e = ((31 + 2{,}633)10 – (2{,}633 * 0.0))/31$
  $C_e = 859$ µg/L

  Acute WLA: $C_e = ((31 + 263)19 – (263 * 0.0))/31$
  $C_e = 180$ µg/L

  $LTA_c = 859\ (0.527) = 453$ µg/L [CV = 0.6, 99th Percentile]
  $LTA_a = 180\ (0.321) = 57.8$ µg/L [CV = 0.6, 99th Percentile]

  Use most protective number of LTA_c or LTA_a.

  MDL = 57.8 (3.11) = **180** µg/L [CV = 0.6, 99th Percentile]
  AML = 57.8 (1.55) = **89.6** µg/L [CV = 0.6, 95th Percentile, n = 4]

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT IMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Total Residual Chlorine (Note)	µg/L	180 (130ML)		89.6 (130ML)	once/month	grab

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

(d) Disinfection is required during the recreational season from April 1 through October 31. Do not chlorinate during the non-recreational months.
(e) Do not chemically de-chlorinate **if it is not needed to meet the limits in your permit.**
(f) If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as "0 µg/L" TRC.

Part IV – Finding of Affordability

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 upon which to base such permits and decisions, to the extent allowable under this chapter and the Federal Water Pollution Control Act. Where permit modifications, permit renewals, or sewer extensions do not impose new requirements and/or do not require rate increases, the affordability finding may receive a less detailed review. Permits that do not include new requirements may be deemed affordable.

☒ Applicable; 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.**

Finding of affordability - 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 – Affordability Analysis**

Date of addendum: May 28, 2014

Completed by:

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APPENDIX – AFFORDABILITY ANALYSIS:

Missouri Department of Natural Resources
Water Protection Program
Affordability Finding
(In accordance with RSMo 644.145)

Birmingham WWTF, Permit Modification
City of Kansas City
Missouri State Operating Permit #MO-0049531

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."

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.

This finding of affordability is based on data available to the Department as provided by the permittee and what can be obtained from readily available sources. A request for information was sent to the permittee, seeking data for input into this analysis prior to its development. For the most accurate analysis, it is essential that the permittee provides the Department with current information about the community's financial and socioeconomic situation.

Facility Description:

Residential Connections:	31,330
Commercial Connections:	100
Industrial Connections:	
Total Connections for this facility[1]:	31,430

New Permit Requirements:

The permit requires compliance with new residual chlorine limits.

Range of Anticipated Costs Associated with Complying with the New Requirements:

The total cost estimated for new monthly sampling requirements is $240 annually. This cost, if financed through user fees, might cost each household an extra $0.01 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;

Due to the minimal cost associated with this new permit requirement, the Department anticipates City of Kansas City has the means to raise $240 annually.

(2) Affordability of pollution control options for the individuals or households of the community;

The total cost estimated for the new monthly monitoring requirements is $240 annually. This cost, if financed through user fees, might cost each household an extra $0.01 per month. This would make the additional cost per household minimal as a percent of median household income (MHI). 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;

Chlorine is added to the discharge for disinfection. Chlorine as well as chloramines are generally toxic to fish as well as harmful to aquatic biota at very low concentrations.

(4) 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.

Potentially Distressed Populations – City of Kansas City	
Unemployment [3]	%
Median Household Income (MHI)[4]	$ 47,096
Percent Change in MHI (1990-2012)	+69.4%
Percent Population Growth/Decline (1990-2012)[5]	+5.1%
Change in Median Age in Years (1990-2012)	+ 2.0
Percent of Households in Poverty[6]	18.2%
Percent of Households Relying on Food Stamps	13.7%

(5) An assessment of other community investments relating to environmental improvements;

Kansas City Missouri Water Services is currently preparing a request for proposals/qualifications for consulting services to improve the aeration system at Birmingham WWTP. The original surface aerators will be removed and high efficiency aeration will be installed. Project is currently scheduled to be completed in 2018.

(6) 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*;*

This is not a combined sewer overflow system. No new requirements for dealing with wet weather are imposed in this permit renewal.

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

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

<u>Conclusion and Finding</u>

The Department is proposing modifications to the current operating permit that requires the permittee to increase effluent testing. The Department identified the actions for which an affordability analysis is required under Section 644.145 RSMo.

The Department estimates the cost for monthly residual chlorine testing is $240 per year. Should these additional costs be financed through user fees, it may require user fees 0.000001% of the community's MHI.

The Department considered all seven (7) of the criteria presented in subsection 644.145.3 when evaluating the affordability of 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.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0049531
BIRMINGHAM WWTF

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollution 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 storm water 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)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:
Two parallel complete mix activated sludge trains composed of aerated grit chamber, primary settling basin, aeration basin, final settling basin and effluent pump station/sludge is pumped to the Blue River facility (MO-0024911) for processing

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

Application Date: 07/27/2012
Expiration Date: 1/25/2012

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
#001	31.0	Secondary	Domestic
#006	Groundwater monitoring associated with biosolids land application area.		

Receiving Water Body's Water Quality & Facility Performance History:
No stream survey data available.

The facility exceeded BOD limits on ten occasions, TSS on five occasions and fecal coliform on 1 occasion during the previous permit cycle. Facility received a record review on August 13, 2012 and was found to not be incompliance at that time due to not meeting effluent limits. Additionally, the facility received an ARRA inspection associated with SRF project C295588-04 on February 7, 2011 and also was found to not be in compliance.

Comments:
Monitoring well sampling has been discontinued.

Part II – Operator Certification Requirements

Applicable ☒; This facility is required to have a certified operator.

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], permittees 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:

Check boxes below that are applicable to the facility;

- Owned or operated by or for:
- Municipalities ☒
- Public Sewer District: ☐
- County ☐
- Public Water Supply Districts: ☐
- Private sewer company regulated by the Public Service Commission: ☐
- State or Federal agencies: ☐

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

- Department required: ☒
  The Department requires this facility to retain the services of a certified operator due to having a Population Equivalent greater than two hundred (200) and more than fifty (50) service connections.

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

Part III– Operational Monitoring

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

Part IV – Receiving Stream Information

10 CSR 20-7.031 Missouri Water Quality Standards, the Department defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and/or 1st classified receiving stream's beneficial water uses to be maintained are located in the Receiving Stream Table located below in accordance with [10 CSR 20-7.031(3)].

RECEIVING STREAM(S) TABLE:

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
Missouri River	P	0356	IRR, LWW, AQL, WBC(B), SCR, DWS, IND	10300101-0305	0.0

* - Irrigation (IRR), Livestock & Wildlife Watering (LWW), Protection of Warm Water Aquatic Life and Human Health-Fish Consumption (AQL), Cool Water Fishery(CLF), Cold Water Fishery (CDF), Whole Body Contact Recreation (WBC), Secondary Contact Recreation (SCR), Drinking Water Supply (DWS), Industrial (IND), Groundwater (GRW).

RECEIVING STREAM(S) LOW-FLOW VALUES:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Missouri River (P)	8,211	10,530	16,271

From 2006 WQRS

MIXING CONSIDERATIONS

MIXING ZONE (CFS) [10 CSR 20-7.031(4)(A)4.B(III)(A)]		ZONE OF INITIAL DILUTION (CFS) [10 CSR 20-7.031(4)(A)4.B.(III)(B)]	
7Q10	30Q10	1Q10	7Q10
2,633	4,068	205	263

From 2006 WQRS

Mixing Zone: One quarter of stream width; cross sectional area or volume of flow; length of one quarter mile. [10 CSR 20-7.031(4)(A)4.B(III)(a)]

Zone of Initial Dilution: One tenth of the mixing zone width; cross-sectional area or volume of flow and no more than ten times the effluent design flow volume. [10 CSR 20-7.031(4)(A)4.B.(III)(b)]

RECEIVING STREAM MONITORING REQUIREMENTS:

No receiving water monitoring requirements recommended at this time.

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.

Not Applicable ☒; 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(c); 40 CFR Part 122.44(I)] 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.

ANTIDEGRADATION:
In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(2)], the Department is to document by means of Antidegradation Review that the use of a water body's available assimilative capacity is justified. Degradation is justified by documenting the socio-economic importance of a discharging activity after determining the necessity of the discharge.

☒ - 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.

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://dnr.mo.gov/env/wpp/pub/index.html, items WQ422 through WQ449.

☒ - This facility has been approved to land apply as per Permit Standard Conditions III but currently the sludge is taken to the Blue River WWTP. The facility has an aerobic digester that is presently not in service. Raw sludge from the facility is pumped to the Blue River WWTP (MO-0024911) for processing. The facility annually receives up to 15,000 dry tons of anaerobically digested biosolids from the Blue River WWTP (MO-0024911). These biosolids are a blend of processed sludge from six KCMO wastewater treatment facilities. There biosolids are land applied either at the Birmingham Land Application Facility or on a nearby privately-owned farm land.

The Birmingham Land Application Facility is that portion of the Birmingham WWTP which is dedicated to land application of biosolids. The facility currently comprises approximately 1,200 acres of Missouri River bottom ground surrounding the Birmingham WWTP. Biosolids are stored in lagoons until needed for agronomic land application. Crops grown include standard row crops and biomass, agri-forestry, and reforestation projects.

The Birmingham Land Application Facility has groundwater monitoring system to record upgradient background, on-site, and downgradient groundwater conditions. The groundwater monitoring wells are no longer required to be sampled unless the facility choses to modify this permit and apply for permission to apply nitrogen above agronomic rates.

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.

Applicable ☒;
The permittee/facility is currently under enforcement action due to violations observed and identified during the investigation into the May 11 to 19, 2010 wet weather bypass event at the Birmingham Pump Station.

- Failed to operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions. Second pump was not programmed to automatically start up when the first pump went offline. Additionally the two pumps were not programmed to run concurrently to increase the flow to the WWTP.

- Caused pollution of unnamed tributary of Shoal Creek, Waters of the State, or placed or caused or permitted to be placed (a) water contaminant(s) in a location(s) where it is reasonably certain to cause pollution of Waters of the State. Overflow caused erosion and deposited debris and sewage solids onto the ground and into Waters of the State. Failure to remove debris deposited during the May 11-19, 2010 wet weather discharge.

- Failure to operate the Birmingham Pump Station with the minimum of three operating pumps since 2002 in accordance with 10 CSR 20-8.130(4)(C)1.

- Caused or permitted construction, installation or modification of any sewer system or of any water contaminant source, point source or wastewater treatment facility without first receiving a construction permit [Section 644.051.2 and 644.076.1, RSMo and 10 CSR 20-6.010(1)(A) & (4)(A)].

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

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

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

In accordance with [40 CFR Part 122.44(d)(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.

Applicable ☒; A RPA was conducted for Ammonia as Nitrogen parameters. Please see **APPENDIX B– RPA RESULTS.** Additionally, monitoring for metals associated with pretreatment were removed via reasonable potential determination. All sample results were well below applicable water quality standards after considering available mixing. Most test results were nondetect for most parameters. This monitoring was included in the previous permit to verify efficacy of the pretreatment program. Given the relative environmental risk, and the demonstrated excellent performance of the pretreatment program, this monitoring has been decreased to only being required as part of the application for permit renewal.

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.

Applicable ☒; Secondary Treatment is 85% removal [40 CFR Part 133.102(a)(3) & (b)(3)].

SCHEDULE OF COMPLIANCE (SOC):
A schedule of remedial measures included in a permit, including 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.

Not Applicable ☒; This permit does not contain a SOC.

SANITARY SEWER OVERFLOWS (SSO) AND INFLOW AND INFILTRATION (I&I):
Sanitary Sewer Overflows (SSOs) are defined as an untreated or partially treated sewage release are considered bypassing under state regulation [10 CSR 20-2.010(11)] and should not be confused with the federal definition of bypass. SSO's have a variety of causes including blockages, line breaks, and sewer defects that allow excess storm water and ground water to (1) enter and overload the collection system, and (2) overload the treatment facility. Additionally, SSO's can be also be caused by lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs also include overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations.

Additionally, Missouri RSMo §644.026.1 mandates that the Department require proper maintenance and operation of treatment facilities and sewer systems and proper disposal of residual waste from all such facilities.

☒ - In accordance with Missouri RSMo §644.026.1.(15) and 40 CFR Part 122.41(e), the permittee is required to develop and/or implement a program for maintenance and repair of the collection system and shall be required in this operating permit by either means of a Special Condition or Schedule of Compliance. In addition, the Department considers the development of this program as an implementation of this condition. Additionally, 40 CFR Part 403.3(o) defines a POTW to include any device and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of liquid nature. It also includes sewers, pipes, and other conveyances only if they convey wastewater to a POTW Treatment Plant.

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). The CMOM identifies some of the criteria used by the EPA 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.

STORM WATER 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 storm water 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 Storm Water 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 storm water discharges.

Applicable ☒; A SWPPP shall be developed and implemented for each site and shall incorporate required practices identified by the Department with jurisdiction, incorporate erosion control practices specific to site conditions, and provide for maintenance and adherence to the plan.

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.

Not Applicable ☒; 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.

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

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

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

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

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

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

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

Not Applicable ☒; A WLA study was either not submitted or determined not applicable by Department staff.

WATER QUALITY STANDARDS:
Per [10 CSR 20-7.031(3)], 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:
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.

Applicable ☒; 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(3)(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 (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 or domestic discharger with a Design Flow ≥ 22,500 gpd.
☐ Other – please justify.

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 20-2.010(11) defines a bypass as the diversion of wastewater from any portion of wastewater treatment facility or sewer system 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.

Not Applicable ☒; 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

Applicable ☒; The Missouri River is listed on the 2012 Missouri 303(d) List for *E. coli.*

☒ – It is unknown at this time if the facility is a source of the above listed pollutant(s) or considered to contribute to the impairment of the Missouri River. Once a TMDL is developed, the permit may be modified to include WLAs from the TMDL.

☒ –Total Maximum Daily Loads (TMDLs) for Chlordane and Polychlorinated Biphenyls in the Missouri River completed on October 5, 2006 and approved on November 3, 2006. Monitoring for Chlordane and Total Toxic Organics has been included in this permit.

Part VI – Effluent Limits Determination

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)]: ☒
Lake or Reservoir [10 CSR 20-7.015(3)]: ☐
Losing [10 CSR 20-7.015(4)]: ☐
Metropolitan No-Discharge [10 CSR 20-7.015(5)]: ☐
Special Stream [10 CSR 20-7.015(6)]: ☐
Subsurface Water [10 CSR 20-7.015(7)]: ☐
All Other Waters [10 CSR 20-7.015(8)]: ☐

OUTFALL #001 – MAIN FACILITY OUTFALL
Effluent limitations derived and established in the below Effluent Limitations Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit.

EFFLUENT LIMITATIONS TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Modified	Previous Permit Limitations
Flow	MGD	1	*		*	No	
BOD_5	mg/L	1		45	30	No	
TSS	mg/L	1		45	30	No	
pH	SU	1	6.5-9.0		6.5-9.0	Yes	6.0-9.0
Ammonia as N	mg/L	2, 3, 5	*		*	No	
Escherichia coli	***	1, 3		1030	206	Yes	Change from Fecal Coliform
Oil & Grease (mg/L)	mg/L	1, 3	15		10	No	
Chlordane	mg/L	10	*			No	
Total Toxic Organics	mg/L	10	*			No	
Whole Effluent Toxicity (WET) Test	% Survival	11	Please see WET Test in the Derivation and Discussion Section below.				

* - Monitoring requirement only.
** - For DO the Daily Maximum is a Daily Minimum and the Monthly Average is a Monthly Average Minimum.
*** - # of colonies/100mL; the Monthly Average for *E. coli* is a geometric mean.
**** - Parameter not previously established in previous state operating permit.

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

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 **Receiving Stream Information.**

- **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 **Receiving Stream Information.**

- **pH**. Effluent limitation range is 6.5 – 9.0 Standard pH Units (SU), as per the applicable section of 10 CSR 20-7.015. pH is not to be averaged.

- **Total Ammonia Nitrogen**. Monitoring requirement only. Monitoring for Total Ammonia Nitrogen is included to determine whether reasonable potential to exceed water quality standards exists after the discharge begins.

- ***Escherichia coli (E. coli)***. Monthly average of 206 per 100 ml as a geometric mean and Weekly Average of 1030 during the recreational season (April 1 – October 31), to protect Whole Body Contact Recreation (B) designated use of the receiving stream, as per 10 CSR 20-7.031(4)(C). An effluent limit for both monthly average and weekly average is required by 40 CFR 122.45(d).

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

  - **WET Test**. 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

  ☒ No less than **ONCE/YEAR:**
  - ☒ Facility is designated as a Major facility or has a design flow ≥ 1.0 MGD.
  - ☐ Facility continuously or routinely exceeds their design flow.
  - ☐ Facility exceeds its design population equivalent (PE) for BOD_5 whether or not its design flow is being exceeded.
  - ☐ Facility has Water Quality-based effluent limitations for toxic substances (other than NH_3).

  Acute and/or Chronic Allowable Effluent Concentrations (AECs) for facilities that discharge to unclassified, Class C, Class P (with default Mixing Considerations), or Lakes [10 CSR 20-7.031(4)(A)4.B.(IV)(b)] are 100%, 50%, 25%, 12.5%, & 6.25%.

Sampling Frequency Justification:
Previous Sampling and Reporting Frequencies were reevaluated and determined to be protective of water quality standards. Therefore sampling and reporting frequencies were retained from the previous permit.

Except for *E. coli*, weekly sampling is required per 10 CSR 20-7.015

Sampling Type Justification
As per 10 CSR 20-7.015, samples collected for mechanical plants shall be 24 hour composite samples.

Part VII – Finding of Affordability

Pursuant to Section 644.145, RSMo., the Department is required to determine whether a permit or decision is affordable and makes a finding of affordability for certain permitting and enforcement decisions. This requirement applies to discharges from combined or separate sanitary sewer systems or publically-owned treatment works.

☒ Not Applicable; The Department is not required to determine findings of affordability because the permit contains no new conditions or requirements that convey a new cost to the facility.

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.

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.

The Public Notice period for this operating was from June 21, to July 22, 2013. The permittee submitted the following comments:

- Requested the words “to the extent required by law” be placed at the beginning of the prohibition of causing violations of water quality standards. This request was granted.
- Requested that omitted language on soil pH associated with land application be replaced. This request was granted (Special Condition 17).
- Requested striking reference to blending in the Fact Sheet, in light of a recent Federal court decision. This request was granted.
- The permittee waived any rights to a Finding of Affordability. This is noted, but did not affect the permit.

DATE OF FACT SHEET: JANUARY 17, 2013, REVISED MAY 30, 2013

COMPLETED BY:

CURT B. GATELEY, CHIEF
DOMESTIC WASTEWATER UNIT
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
573-526-1155
curtis.gateley@dnr.mo.gov

Appendices

APPENDIX A- 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.	10
Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)	1 pt. / MGD or major fraction thereof.	10
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	
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	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	3
Additional procedures such as DO, COD, BOD, titrations, solids, volatile content	5	
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	7	
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	
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)**	----	37

APPENDIX A - 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	
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	
Dechlorination	2	
On-site generation of disinfectant (except UV light)	5	
UV light	4	
SOLIDS HANDLING - SLUDGE		
Solids Handling Thickening	5	
Anaerobic digestion	10	
Aerobic digestion	6	
Evaporative sludge drying	2	
Mechanical dewatering	8	
Solids reduction (incineration, wet oxidation)	12	
Land application	6	6
Total from page **TWO (2)**	----	21
Total from page **ONE (1)**	---	37
Grand Total	---	60

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

APPENDIX B– RPA RESULTS:

Parameter	CMC	RWC Acute	CCC	RWC Chronic	n	Max/Min	CV	MF	Reasonable Potential
Ammonia as Nitrogen (Summer)	12.1	3.43	1.5	0.25	30.00	28.5/11.3	0.22	1.32	NO
Ammonia as Nitrogen (Winter)	12.1	3.80	3.1	0.27	29.00	30.6/11.3	0.25	1.36	NO

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

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

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

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

FACILITY NAME	
Birmingham Wastewater Treatment Facility	
PERMIT NO.	COUNTY
MO-0049531	Clay County

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.

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.

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.

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

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

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

APPROVED

CHECK NUMBER	
3504354	
DATE RECEIVED	FEE SUBMITTED
5/23/14	$200.00 SK

1. This application is for:

- ☐ An operating permit and antidegradation review public notice.
- ☐ A construction permit following an appropriate operating permit and antidegradation review public notice.
- ☐ A construction permit, a concurrent operating permit and antidegradation review public notice.
- ☐ A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required).
- ☐ An operating permit for a new or unpermitted facility. Construction Permit # _____
- ☐ An operating permit renewal: Permit #MO- _____ Expiration Date _____
- ☒ An operating permit modification: Permit #MO-0049531 Reason: Install Sodium Hypochlorite disinfection system

1.1 Is this a Federal/State Funded Project? ☐ Yes ☒ No Funding Agency/Project #: _____

1.2 Is the appropriate fee included with the application (See instructions for appropriate fee)? ☒ Yes ☐ No

2. FACILITY

NAME		TELEPHONE NUMBER WITH AREA CODE	
Birmingham Wastewater Treatment Facility			
ADDRESS (PHYSICAL)	CITY	STATE	ZIP
10801 NE 28th Street	Kansas City	Missouri	64161

2.1 **LEGAL DESCRIPTION** (Plant Site): ¼, ¼, ¼, Sec. , T , R County Clay

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

3. OWNER City of Kansas City

NAME	TITLE	TELEPHONE NUMBER WITH AREA CODE	
Mr. David Nelsen	Wastewater Utility Officer	816 213 3409	
ADDRESS	CITY	STATE	ZIP
4800 East 63rd Street	Kansas City	Missouri	64130

3.1 Request review of draft permit prior to Public Notice? ☐ Yes ☐ No

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

NAME		CITY	
KCMO Water Services		Kansas City	
ADDRESS	CERTIFICATE NUMBER (IF APPLICABLE)	STATE	ZIP
4800 East 63rd Street		Missouri	64130

5. OPERATOR

NAME	TITLE	TELEPHONE NUMBER WITH AREA CODE
Mr. Randy Williams	North Operations Superintendent	816 513 0602

6. FACILITY CONTACT

NAME	TITLE
Mr. David Nelsen	Wastewater Utility Officer

MO 780-1805 (09-08)

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Birmingham WWTP	MO- 0049531	001

7. ADDITIONAL FACILITY INFORMATION

7.1 BRIEF DESCRIPTION OF FACILITIES

Birmingham WWTP is a complete mix activated sludge process w/two parallel trains at 10 MGD each. Each w/an aerated grit chamber, primary settling basin, aeration basin, final settling basin, a NaOCl disinfection system, and effluent pump station.

7.2 TOPOGRAPHIC MAP. ATTACH TO THIS APPLICATION A TOPOGRAPHIC MAP OF THE AREA EXTENDING AT LEAST ONE MILE BEYOND FACILITY PROPERTY BOUNDARIES. THIS MAP MUST SHOW THE OUTLINE OF THE FACILITY AND THE FOLLOWING INFORMATION. (YOU MAY SUBMIT MORE THAN ONE MAP IF ONE MAP DOES NOT SHOW THE ENTIRE AREA.)

a. The area surrounding the treatment plant, including all unit processes.
b. The location of the downstream landowner(s). (See Item 10.)
c. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.
d. The actual point of discharge.
e. Wells, springs, other surface water bodies and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.
f. Any areas where the sewage sludge produced by the treatment works is stored, treated or disposed.
g. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act, or 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 PROCESS FLOW DIAGRAM OR SCHEMATIC. PROVIDE A DIAGRAM SHOWING THE PROCESSES OF THE TREATMENT PLANT. ALSO, PROVIDE A WATER BALANCE SHOWING ALL TREATMENT UNITS, INCLUDING DISINFECTION (E.G. CHLORINATION AND DECHLORINATION). THE WATER BALANCE MUST SHOW DAILY AVERAGE FLOW RATES AT INFLUENT AND DISCHARGE POINTS AND APPROXIMATE DAILY FLOW RATES BETWEEN TREATMENT UNITS. INCLUDE A BRIEF NARRATIVE DESCRIPTION OF THE DIAGRAM.

7.4 FACILITY SIC CODE	DISCHARGE SIC CODE:	FACILITY NAICS CODE:	DISCHARGE NAICS CODE:
_____.	4952 .	_____.	_____.

7.5 NUMBER OF SEPARATE DISCHARGE POINTS
1

7.6 NUMBER OF PEOPLE PRESENTLY CONNECTED OR POPULATION EQUIVALENT	DESIGN POPULATION EQUIVILENT
_____	

NUMBER OF UNITS PRESENTLY CONNECTED
HOMES 30000 APARTMENTS 1050 TRAILERS 280 OTHER Comm/Ind - 100

TOTAL DESIGN FLOW (ALL OUTFALLS)	ACTUAL FLOW
20 MGD	12.4 MGD

7.7 DOES ANY BYPASSING OCCUR ANYWHERE IN THE COLLECTION SYSTEM OR AT THE TREATMENT FACILITY?
Yes ■ No ☐ (If Yes, attach an explanation.)

7.8 LENGTH OF THE SANITARY SEWER COLLECTION SYSTEM IN MILES
_____

7.9 IS INDUSTRIAL WASTE DISCHARGED TO THE FACILITY IDENTIFIED IN ITEM 2? Yes ☑ No ☐

7.10 WILL THE DISCHARGE BE CONTINUOUS THROUGH THE YEAR? Yes ☑ No ☐

A. DISCHARGE WILL OCCUR DURING THE FOLLOWING MONTHS	B. HOW MANY DAYS OF THE WEEK WILL THE DISCHARGE OCCUR?
January thru December (12 months)	7 days a week, 24 hours per day

7.11 IS WASTEWATER LAND APPLIED? (If Yes, Attach Form I)	7.12 DOES THIS FACILITY DISCHARGE TO A LOSING STREAM OR SINKHOLE?
Yes ☐ No ☑	Yes ☐ No ☑

7.13 HAS A WASTE LOAD ALLOCATION STUDY BEEN COMPLETED FOR THIS FACILITY?
Yes ☐ No ☑

7.14 LIST ALL PERMIT VIOLATIONS, INCLUDING EFFLUENT LIMIT EXCEEDANCES IN THE LAST FIVE YEARS.
ATTACH A SEPARATE SHEET IF NECESSARY. IF NONE, WRITE NONE.

8. LABORATORY CONTROL INFORMATION

8.1 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 ☑

7.1 – Description of facility

KCMO Birmingham WWTP

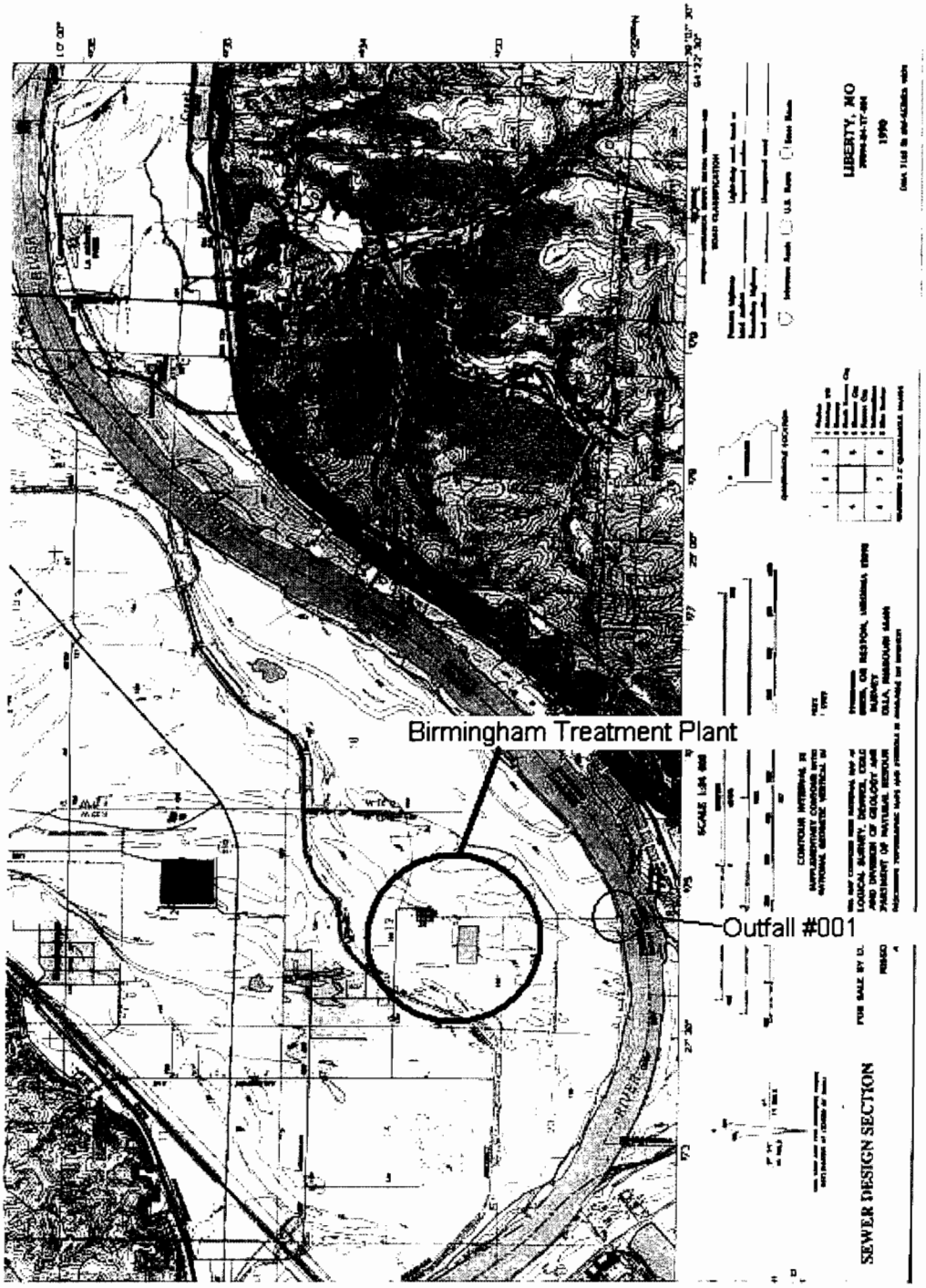
Birmingham Wastewater Treatment Plant is a complete mix activated sludge process. It has two parallel trains at 10 MGD each. Each train consists of an aerated grit chamber, primary settling basin, aeration basin and final settling basin. The plant utilizes a sodium hypochlorite disinfection system and an effluent pump station that only operates during high Missouri River levels. The facility has an aerobic digester that is presently not in service. Raw sludge from the facility is pumped to the Blue River WWTP (0024911) for processing.

The Birmingham Land application Facility is that portion of the Birmingham WWTP which is dedicated to land application of biosolids. The facility currently comprises approximately 1200 acres of Missouri River bottom ground surrounding the Birmingham WWTP. Biosolids are stored in lagoons until needed for agronomic land application. Crops grown include standard row crops and biomass, agri-forestry, and reforestation projects. Biosolids are to be applied in accordance with 40 CFR part 503.

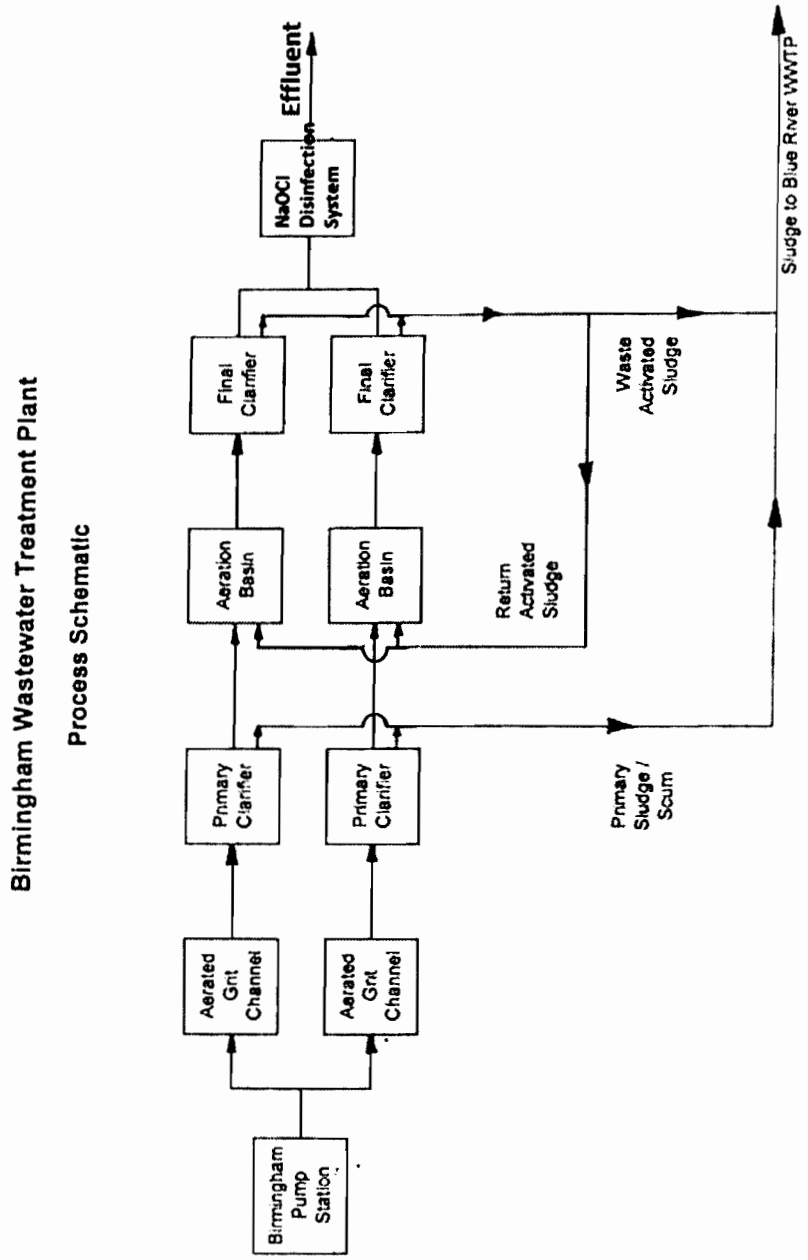
The facility annually receives up to 15,000 dry tons of anaerobically digested biosolids from the Blue River WWTP (MO – 0024911). These biosolids are a blend of processed sludges from five KCMO wastewater treatment facilities. Biosolids from other facilities may also be land applied. These biosolids are land applied either at the Birmingham Land Application Facility or on a nearby privately-owned farm land.

7.2 Topographic Map

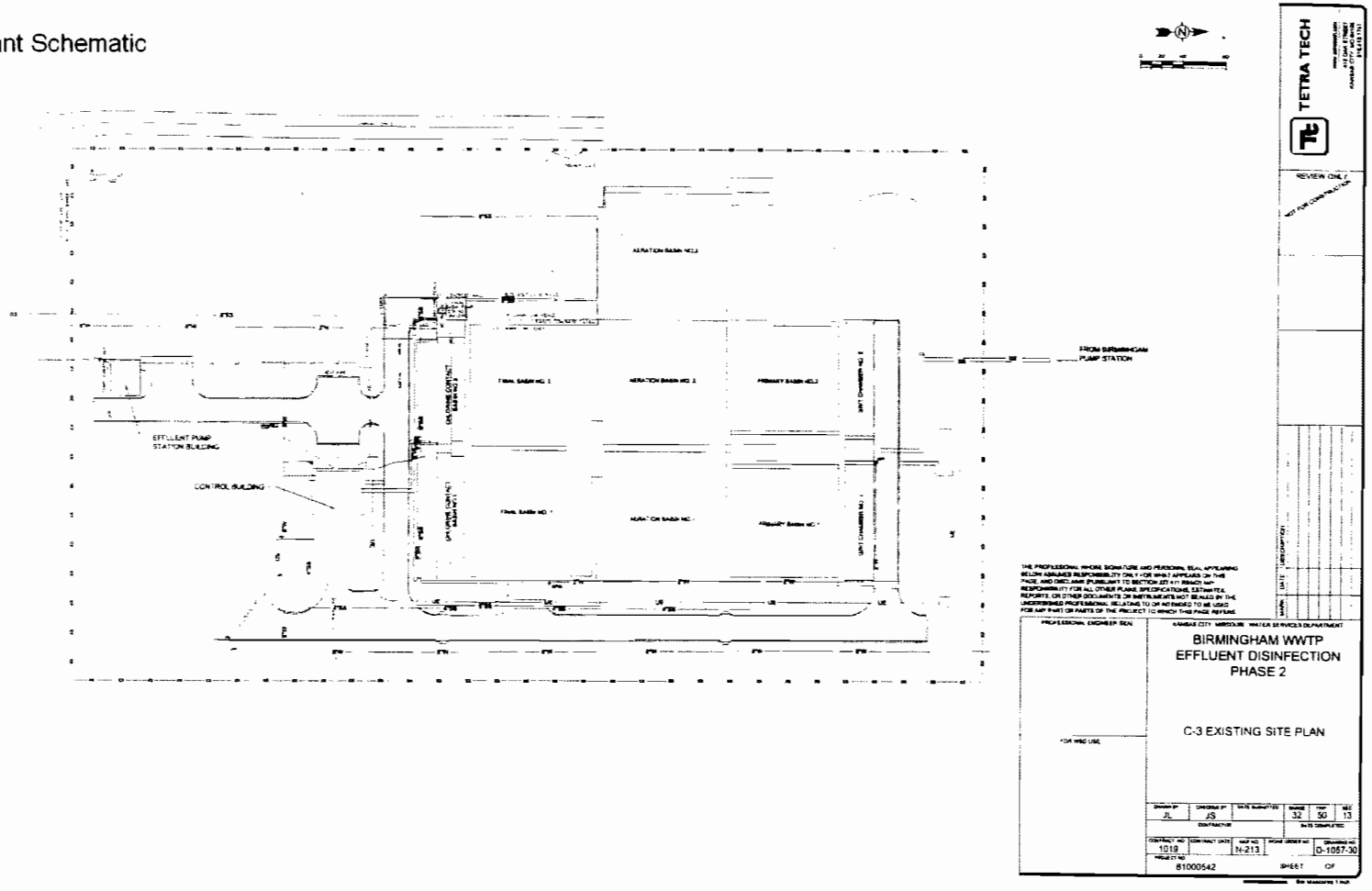
7.2



7.3 Process Flow Diagram and Schematic



7.3 Plant Schematic



7.7 – Bypassing

Rain events in excess of 2" or greater rainfall in a twenty four (24) hour period, may result in overflows at the Birmingham Pump Station Influent Structure, North Bank Interceptor and 40th and Kimball Street trunk line. Storm water surcharging of the sewer system can result in overflows at the pump station forebay and North Bank Interceptor manhole #17. Under severe weather conditions, the Kimball Street trunk line can spill at Man Hole #6 and 7 and potentially back up the Northland Business District sewer line.

7.14

Birmingham WWTP Permit Exceedances 2006 - 2013

2006		2007		2008		2009		2010		2011		2012		2013	
Month	violation	Month	violation	Month	violation	Month	violation	date	violation	date	violation	date	violation	date	violation
Jan	None	Jan	None	Jan	None	Jan	None	Jan	None	Jan	None	Jan	None	Jan	BOD % Removal
Feb	None	Feb	None	Feb	None	Feb	None	Feb	None	Feb	None	Feb	None		TSS % Removal
Mar	None	Mar	As-well 26	Mar	None	Mar	None	Mar	None	Mar	None	Mar	None	Feb	BOD Wk AVG 69/45
Apr	None	Apr	None	Apr	None	Apr	None	Apr	None	Apr	None	Apr	BOD WK AVG 83/45		BOD Mo AVG 45/30
May	None	May	None	May	None	May	None	May	None	May	None	May	None		BOD % Removal
June	None	June	None	June	None	June	None	June	None	June	None	June	BOD WK AVG 64/45		TSS Wk AVG 71/45
July	None	July	None	July	None	July	None	July	None	July	None		BOD MO AVG 40/30		TSS Mo AVG 41/30
Aug	None	Aug	None	Aug	None	Aug	None	Aug	BOD weekly avg 48/45	Aug	None		TSS WK AVG 51/45		TSS % Removal
Sept	None	Sept	BOD weeklyavg 59/45	Sept	None	Sept	None	Sept	None	Sept	None		TSS MO AVG 31/30		Oil & Grease Daily MAX 17/15
Oct	None		BOD monthly avg 35/30	Oct	None	Oct	None	Oct	None	Oct	None		E-Coli WK AVG 7710/1040	Mar	BOD Wk AVG 65/45
Nov	None	Oct	None	Nov	None	Nov	None	Nov	BOD weekly avg 51/45	Nov	Non-sample pH	July	BOD WK AVG 55/45		BOD Mo AVG 52/30
Dec	None	Nov	BOD weekly avg 90/45	Dec	BOD weekly avg 55/45	Dec	None		BOD mo avg 34/30	Dec	None		BOD MO AVG 37/30		BOD % Removal
			BOD monthly avg 46/30		BOD monthly avg 33/30			Dec	None				BOD Removal Eff		TSS Wk AVG 69/45
		Dec	BOD weekly avg 51/45		BOD % removal 84/85							Aug	BOD Mo AVG 42/30		TSS Mo AVG 50/30
			BOD monthly avg 39/30										BOD Week AVG 69/45		TSS % Removal
			BOD % removal 82/85										TSS Mo AVG 42/30	Apr	BOD Wk AVG 72/60
													TSS Week AVG 55/45		BOD Mo AVG 56/45
													TSS % Removal		BOD % Removal
													BOD % Removal		TSS Wk AVG 55/60
												Sept	BOD Mo AVG 53/30		TSS % Removal
													BOD Week AVG 62/45	May	BOD Wk AVG 95/60
													TSS Mo AVG 38/30		BOD Mo AVG 80/45
													TSS % Removal		BOD % Removal
													BOD % Removal		TSS Wk AVG 72/60
												Oct	BOD Mo AVG 79/30		TSS Mo AVG 51/45
													BOD Week AVG 132/45		TSS % Removal
													TSS Mo AVG 53/30		Fecal Coliform Daily Max 2,120/1,000
													TSS Week AVG 72/45		Fecal Coliform Mo AVG 423.64/400
													TSS % Removal	Jun	BOD Wk AVG 90/60
													BOD % Removal		BOD Mo AVG 60/45
												Nov	BOD Mo AVG 54/30		BOD % Removal
													BOD Week AVG 69/45		TSS Wk AVG 61/60
													TSS Mo AVG 42/30		TSS Mo AVG 49/45
													TSS Week AVG 57/45		TSS % Removal
													TSS % Removal		Oil & Grease Daily MAX 16/15
													BOD % Removal		Oil & Grease Daily MAX 18/15
												Dec	BOD Mo AVG 38/30		Oil & Grease Mon AVG 12.8/10
													BOD Week AVG 58/45		Fecal Coliform Daily Max 1,260/1,000
													TSS Mo AVG 44/30	Jul	BOD Wk AVG 89/45
													TSS Week AVG 71/45		BOD Mo AVG 84/30
													TSS % Removal		BOD % Removal
													BOD % Removal		TSS Wk AVG 72/45
													Oil & Grease 17/15		TSS Mo AVG 63/30
															TSS % Removal
															Oil & Grease Mon AVG 12/10
															Fecal Coliform Daily Max 48,000/1,000
															Fecal Coliform Mo AVG 9,306.7/400
														Aug	BOD Wk AVG 90/45
															BOD Mo AVG 74/30
															BOD % Removal
															TSS Wk AVG 52/45
															TSS Mo AVG 44/30
															TSS % Removal
															Fecal Coliform Daily Max 1,970,000/1,000
															Fecal Coliform Mo AVG 741,405/400
														Sep	BOD Wk AVG 87/45
															BOD Mo AVG 68/30
															BOD % Removal
															TSS Wk AVG 105/45
															TSS Mo AVG 65/30
															TSS % Removal
															pH Max 9.1/9.0
															E Coli Wk AVG 1,534,685/1,030
															E Coli Mo AVG 428,486.2/206
														Oct	BOD % Removal
														Nov	None
														Dec	BOD Wk AVG 84.5/45
															BOD Mo AVG 31/30
															TSS Wk AVG 58.3/45

FACILITY NAME	PERMIT NO.	OUTFALL NO
Birmingham WWTP	MO- 0049531	001

MAY 2 8 2014

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 ROM OTHERS
Design Dry Tons/Year 21,000 dry tons per year Actual Dry Tons/Year

9.3 CAPACITY OF SLUDGE HOLDING STRUCTURES

9.4 SLUDGE STORAGE PROVIDED
Cubic Feet Days of Storage Average Percent Solids of Sludge ☐ No Sludge Storage is Provided

9.5 TYPE OF STORAGE
☐ Holding Tank ☐ Basin ☐ Building ☐ Concrete Pad ☑ Other (Describe) Lagoon

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

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

9.8 PERSON RESPONSIBLE FOR HAULING SLUDGE TO DISPOSAL FACILITY

NAME			
City of Kansas City Missouri			
ADDRESS	CITY	STATE	ZIP
7300 Hawthorne Road	Kansas City	Missouri	64120
CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO	
Sherri Irving	816 513 7205	MO- 0049531	

9.9 SLUDGE USE OR DISPOSAL FACILITY
■ By Applicant ☐ By Others (Complete Below)

NAME			
Birmingham WWTP Land Application Facility			
ADDRESS	CITY	STATE	ZIP
10801 NE 28th Street	Kansas City	Missouri	64161
CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO	
Sherri Irving	816 513 7205	MO- 0049531	

9.10 DO THE SLUDGE OR BIOSOLIDS DISPOSAL COMPLY WITH FEDERAL SLUDGE REGULATIONS UNDER 40 CFR 503?
■ Yes ☐ No (Attach Explanation)

10. DOWNSTREAM LANDOWNER(S). (ATTACH ADDITIONAL SHEETS AS NECESSARY.)

NAME			
Deseret Title Holding Corporation			
ADDRESS	CITY	STATE	ZIP
922 Walnut 10th Floor	Kansas City	Missouri	64106

11. DRINKING WATER SUPPLY INFORMATION

11.1 SOURCE OF YOUR DRINKING WATER SUPPLY

A. PUBLIC SUPPLY (MUNICIPAL OR WATER DISTRICT WATER) (IF PUBLIC, PLEASE GIVE NAME OF PUBLIC SUPPLY)
Kansas City Missouri

B. PRIVATE WELL

C. SURFACE WATER (LAKE, POND OR STREAM)

11.2 DOES YOUR DRINKING WATER SOURCE SERVE AT LEAST 25 PEOPLE AT LEAST 60 DAYS PER YEAR (NOT NECESSARILY CONSECUTIVE DAYS)? Yes ☑ No ☐

11.3 DOES YOUR SPPLY SERVE HOUSING THAT IS OCCUPIED YEAR ROUND BY THE SAME PEOPLE? THIS DOES NOT INCLUDE HOUSING THAT IS OCCUPIED SEASONALLY? Yes ☑ No ☐

END OF PART A

MO 780-1805 (09-08)

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Birmingham WWTP	MO- 0049531	001

20. INFLOW AND INFILTRATION

ESTIMATE THE AVERAGE NUMBER OF GALLONS PER DAY THAT FLOW INTO THE TREATMENT WORKS FROM INFLOW AND INFILTRATION.

Gallons Per Day See attached

BRIEFLY EXPLAIN ANY STEPS UNDERWAY OR PLANNED TO MINIMIZE INFLOW AND INFILTRATION.

Future wet weather flow management is incorporated within the Federal Consent Decree

20.1 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 A 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

RESPONSIBILITIES OF CONTRACTOR

20.2 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. (IF NONE, GO TO QUESTION B-20.3.)

A. List the outfall number that is covered by this implementation schedule	B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies.
Outfall No. 001	Yes ☑ No ☐

20.3 WASTEWATER DISCHARGES:

COMPLETE QUESTIONS 20.4 THROUGH 20.7 ONCE FOR EACH OUTFALL (INCLUDING BYPASS POINTS) THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION ON COMBINED SEWER OVERFLOWS IN THIS SECTION.

20.4 DESCRIPTION OF OUTFALL

OUTFALL NUMBER

A. LOCATION

¼ ___ ¼ NE ¼ SW Section 13 Township 50N Range 32W ☐ E ☐ W

UTM Coordinates Easting (X): _____ Northing (Y): _____

For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

B. Distance from Shore (If Applicable)	C. Depth Below Surface (If Applicable)	D. Average Daily Flow Rate
_____ ft.	_____ ft.	11.04 mgd

E. Does this outfall have either an intermittent or periodic discharge?

☐ Yes ☑ No If Yes, Provide the following information:

Number of Days Per Year Discharge Occurs:	Average Duration of Each Discharge:	Average Flow Per Discharge:	Months in Which Discharge Occurs:
		mgd	

Is Outfall Equipped with a Diffuser? ☐ Yes ■ No

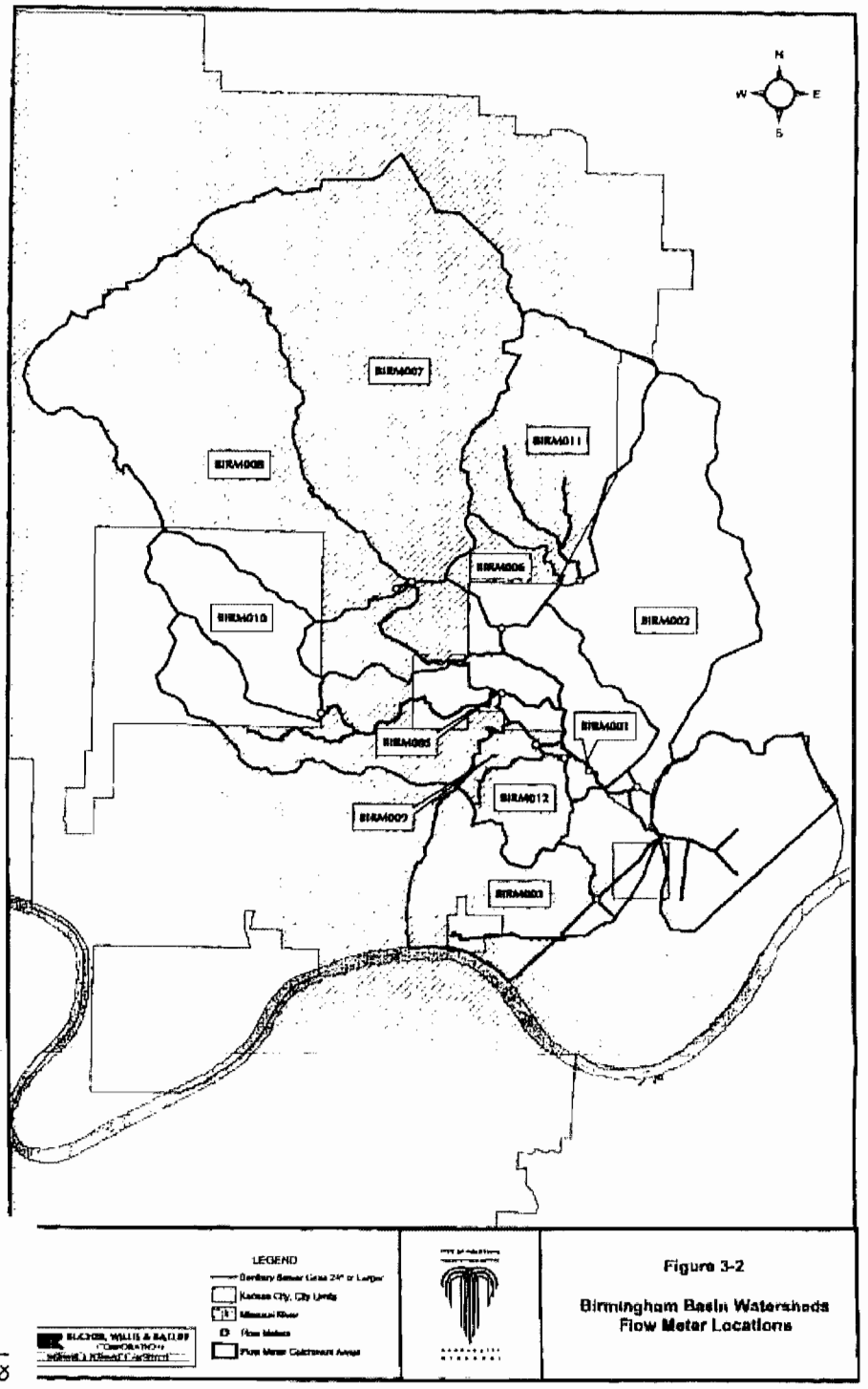
20.5 DESCRIPTION OF RECEIVING WATER

B. Name of Receiving Water

Missouri River

B. Name of Watershed (If Known)	U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)
Missouri River	N/A
B. Name of State Management/River Basin (If Known)	**U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known)**
Missouri River	10300101
B. Critical Flow of Receiving Stream (If Applicable)	**B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable)**
Acute _____ cfs Chronic _____ cfs	mg/L of $CaCO_3$

MO 780-1805 (09-08)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BIRM005
BIRM012
BIRM007
BIRM003
LEGEND
Kansas City, City Limits
Missouri River
Flow Meters
Flow Meter Catchment Areas
BLACK, VEATCH & HALDEN CORPORATION
Figure 3-2
Birmingham Basin Watersheds
Flow Meter Locations

20.01&1

20.01&1

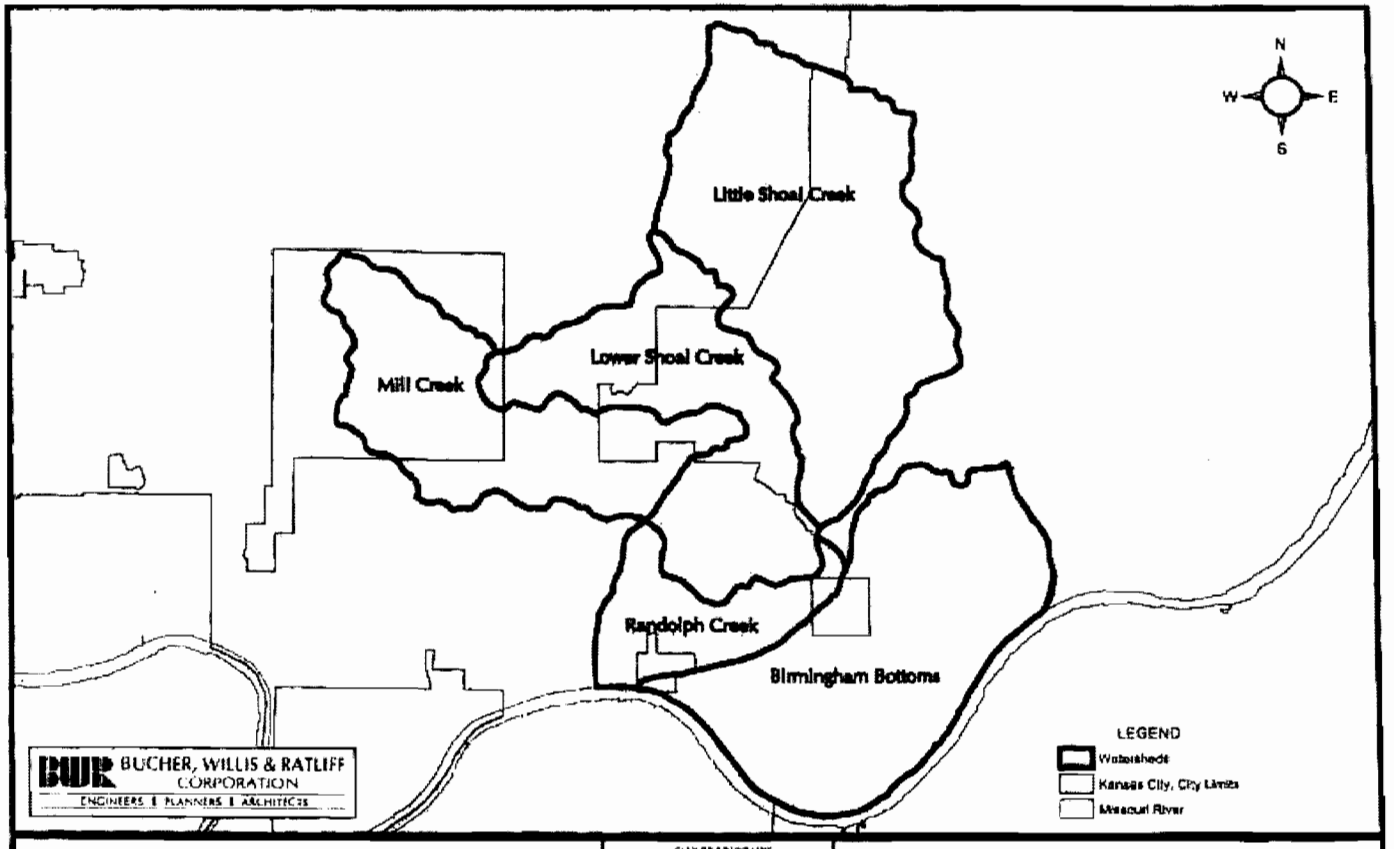

Figure 3-1

Birmingham Basin Watersheds

20.2 – Scheduled Improvements and Schedule – High Efficiency Aeration

Kansas City Missouri Water Services is currently preparing a RFP/Q for consulting services to improve the aeration system at Birmingham WWTP. The original surface aerators will be removed and high efficiency aeration will be installed.

Project is currently scheduled to be completed in 2018.

20.2 – Scheduled Improvements and Schedule – Disinfection Phase

This project has been finished as of January 1, 2014.

20.2 – Scheduled Improvements and Schedule – Final Clarifier Rehabilitation Phase

This project has been finished as of January 1, 2014.

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Birmingham WWTP	MO- 0049531	001

20.6 DESCRIPTION OF TREATMENT

A. WHAT LEVELS OF TREATMENT ARE PROVIDED? Check All That Apply

☑ Primary ☑ Secondary ☐ Advanced ■ Other (Describe) sodium hypochlorite disinfection

B. INDICATE THE FOLLOWING REMOVAL RATES (AS APPLICABLE)

Design BOD_5 Removal Or Design $CBOD_5$ Removal 85 % Design SS Removal 85 %

Design P Removal ___% Design N Removal ___% Other _____ ___%

C. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe:

Sodium hypochlorite

If disinfection is by chlorination, is dechlorination used for this outfall? ☑ Yes ☐ No

Does the treatment plant have post aeration? ☐ Yes ■ No

20.7 EFFLUENT TESTING DATA. ALL APPLICANTS THAT DISCHARGE TO WATERS OF THE U.S. 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.

OUTFALL NUMBER

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	VALUE	UNITS	VALUE	UNITS	NO. OF SAMPLES
pH (Minimum)	6.8	S.U.	7.3	S.U.	251
pH (Maximum)	7.8	S.U.	7.3	S.U.	251
FLOW RATE	27.8	MGD	14.3	MGD	251
TEMPERATURE (Winter)	20	°C	13.3	°C	123
TEMPERATURE (Summer)	24.4	°C	20	°C	128

*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	NO. OF SAMPLES		
Conventional and Nonconventional Compounds								
BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD_5	69	mg/L	15.6	mg/L	251		
	$CBOD_5$		mg/L		mg/L			
FECAL COLIFORM			#/100 mL		#/100 mL			
TOTAL SUSPENDED SOLIDS (TSS)		52	mg/L	8.3	mg/L	251		
AMMONIA (AS N)		22.6	mg/L	11.2	mg/L	251		
CHLORINE (TOTAL RESIDUAL, TRC)			mg/L		mg/L			
DISSOLVED OXYGEN		8.20	mg/L	5.1	mg/L	251		
TOTAL KJELDAHL NITROGEN (TKN)			mg/L		mg/L			
NITRATE PLUS NITRITE NITROGEN			mg/L		mg/L			
OIL AND GREASE			mg/L		mg/L			
PHOSPHORUS (TOTAL)		8.6	mg/L	4.5	mg/L	51		
TOTAL DISSOLVE SOLIDS (TDS)			mg/L		mg/L			
OTHER			mg/L		mg/L			

MO 780-1805 (09-08)

20.7

KANSAS CITY, MISSOURI WATER SERVICES
WASTEWATER TREATMENT FACILITY PERFORMANCE DATA

WWTP: Birmingham
MSOP# MO-0049531 Expiration Date 8/31/16
Design population equivalent 200,000 Design Flow 20.0 MGD 26263 96%
Activated sludge Disinfection No advanced treatment

	rainfall	ADF	peak day	Inf BOD			Inf TSS			Inf NH3		Eff BOD			%	Eff TSS			%	Eff NH3		%
Mo / Yr	inches	MGD	MGD	mg/l	#/da	#	mg/l	#/da	#	mg/l	#/da	mg/l	#/da	#	removal	mg/l	#/da	#	removal	mg/l	#/da	removal
Jan-06	1.11	10.1	11.8	436	37007	1147217	603	50921	1578551	24		14	1216	37696	97	3	234	7254	99	16		
Feb-06	0.04	10.3	11.7	404	33957	950796	758	64112	1795136	24		10	834	23352	98	6	503	14084	99	18		
Mar-06	1.78	11.1	22.8	360	36232	1123192	703	73493	2278283	20		12	1153	35743	97	5	489	15159	99	16		
Apr-06	4.15	11.1	14.6	471	42256	1267680	792	71075	2132250	25		8	720	21600	98	4	392	11760	99	19		
May-06	1.67	10.8	13.8	238	22114	685534	448	41251	1278781	19		10	946	29326	96	9	832	25792	98	16.7		
Jun-06	1.27	10.4	12.6	315	26643	799290	514	43380	1301400	25		6	554	16620	98	8	723	21690	98	20		
Jul-06	3.16	10.3	17.5	270	24593	762383	607	57008	1767248	25		7	569	17639	98	9	819	25389	99	20		
Aug-06	7.27	10.2	15.6	261	22282	690742	413	35375	1096625	23		7	576	17856	97	8	682	21142	98	18		
Sep-06	2.22	10.2	15.7	289	25657	769710	467	41639	1249170	25		17	1506	45180	94	7	623	18690	98	16		
Oct-06	3.04	10.8	15.9	299	26789	830459	515	46294	1435114	25		18	1601	49631	94	9	748	23188	98	17		
Nov-06	1.49	10.3	15.6	332	28431	852930	602	51001	1530030	22		18	1551	46530	94	5	463	13890	99	12		
Dec-06	1.90	11.4	19.2	322	30679	951049	665	63186	1958766	22		10	868	26908	97	5	503	15593	99	4.4		
Jan-07	0.83	11.2	13.8	281	26270	814370	473	44612	1382972	23		17	1648	51088	94	8	732	22692	98	7.8		
Feb-07	1.40	11.8	18.1	263	26365	738220	425	42039	1177092	21		18	1734	48552	93	13	1271	35588	97	13.6		
Mar-07	2.85	12.5	24.8	387	38475	1192725	637	64364	1995284	20		9	909	28179	98	8	828	25668	99	15.1		
Apr-07	3.09	14.2	25.7	267	30386	911580	457	52144	1564320	19		10	1148	34440	96	10	1188	35640	98	14.6		
May-07	5.94	18.5	29.4	194	26837	831947	389	56251	1743781	14		10	1529	47399	95	11	1818	56358	97	11.7		
Jun-07	4.16	16.7	32.5	249	29465	883950	488	56854	1705620	16		15	2068	62040	94	8	1003	30090	98	14.5		
Jul-07	0.99	12.5	21.7	403	40996	1270876	693	69005	2139155	20		13	1249	38719	97	7	652	20212	99	19.78		
Aug-07	1.71	10.5	13.7	315	27300	846300	513	45363	1406253	22		27	2445	75795	91	6	500	15500	99	10.61		
Sep-07	2.47	11.1	20.0	345	34604	1038120	503	51001	1530030	25		35	3668	110040	90	6	553	16590	99	13.48		
Oct-07	6.46	13.2	21.5	302	33940	1052140	511	57161	1771991	21		26	2764	85684	91	12	1344	41664	98	10.78		
Nov-07	0.20	10.0	13.8	364	29922	897660	491	40305	1209150	25		46	3739	112170	87	15	1197	35910	97	9.1		
Dec-07	2.91	13.5	19.0	218	23349	723819	251	27807	862017	21		39	4176	129456	82	30	3290	101990	88	17.52		
Jan-08	0.97	12.8	18.5	233	25238	782378	280	30616	949096	22		10	1042	32302	96	13	1439	44609	95	17.08		
Feb-08	3.00	19.6	29.2	280	44912	1302448	363	57399	1664571	12		7	1150	33350	97	5	825	23925	99	10.58		
Mar-08	2.72	16.2	24.6	272	34292	1063052	419	53328	1653168	18		8	1090	33790	97	9	1247	38657	98	11.9		
Apr-08	4.53	16.3	28.2	195	25929	777870	259	34339	1030170	17		7	947	28410	96	9	1291	38730	96	12.18		
May-08	3.96	15.7	25.5	264	32932	1020892	412	50692	1571452	39		6	782	24242	98	7	965	29915	98	13.92		
Jun-08	4.31	16.2	25.8	255	31154	934620	436	52266	1567980	17		11	1519	45570	96	11	1537	46110	97	13.34		
Jul-08	6.63	14.1	23.3	275	29267	907277	514	54684	1695204	18		8	937	29047	97	8	911	28241	98	15.57		
Aug-08	1.19	12.6	20.5	332	33824	1048544	548	55241	1712471	33		12	1214	37634	96	6	595	18445	99	14.64		
Sep-08	9.82	15.6	28.5	204	27123	813690	335	44753	1342590	91		16	2010	60300	92	5	645	19350	99	8.9		
Oct-08	4.01	13.2	23.7	308	34287	1062897	560	63538	1969678	46		24	2818	87358	92	7	808	25048	99	5.32		
Nov-08	1.59	13.3	18.5	215	24491	734730	306	35302	1059060	10		23	2755	82650	89	6	667	20010	98	4.77		
Dec-08	1.83	11.1	14.9	204	19430	602330	236	22947	711357	14		33	3122	96782	84	13	1178	36518	95	13.09		
Jan-09	0.05	12.3	16.0	256	24824	769544	310	30314	939734	15		16	1608	49848	94	7	669	20739	98			
Feb-09	0.81	11.3	16.8	321	31125	871500	834	81224	2274272	27		18	1764	49392	94	5	532	14896	99	17		
Mar-09	4.62	15.2	27.5	134	15434	478454	168	20037	621147	22		13	1623	50313	90	5	676	20956	97	12.49		
Apr-09	7.12	19.5	24.9	140	22430	672900	205	32875	986250	13.39		17	2712	81360	88	7	1147	34410	97	9.56		
May-09	2.84	16.1	22.8	105	13971	433101	130	17436	540516	14.8		12	1628	50468	89	5	658	20398	96	9.43		
Jun-09	6.87	16.2	23.3	111	14544	436320	116	15065	451950	16.4		15	2001	60030	87	5	641	19230	96	9.93		
Jul-09	4.51	13.5	23.3	212	23081	715511	291	31620	980220	19		22	2450	75950	89	7	767	23777	98	9.98		
Aug-09	8.51	14.0	23.3	184	21824	676544	255	31221	967851	19.16		26	3065	95015	86	8	947	29357	97	6.87		
Sep-09	2.02	12.2	23.3	256	26765	802950	287	29810	894300	23.4		30	3193	95790	88	7	750	22500	97	11.18		
Oct-09	3.66	12.9	21.0	196	20327	630137	209	21773	674963	21.12		30	3226	100006	85	9	937	29047	96	9.44		
Nov-09	2.25	14.2	23.3	198	24872	746160	231	29417	882510	18.8		23	2775	83250	89	8	1019	30570	96	9.25		
Dec-09	1.69	12.3	16.6	300	31148	965588	393	40396	1252276	22.77		20	2116	65596	93	7	734	22754	98	14.17		
Jan-10	0.43	15.1	21.0	186	22924	710644	207	26516	821996	17.76		21	2534	78554	89	17	2030	62930	92	15.77		
Feb-10	1.33	13.9	21.3	180	20873	584444	167	19479	545412	20.6		5	547	15316	97	3	399	11172	98	16.8		
Mar-10	2.77	18.1	27.1	149	23374	724594	204	33366	1034346	14.76		4	636	19716	97	6	884	27404	97	12.29		
Apr-10	4.19	17.4	24.7	166	23240	697200	245	35634	1069020	16.79		5	756	22680	97	6	810	24300	98	7.8		
May-10	6.20	17.6	27.8	118	17072	529232	212	31410	973710	14.0		5	859	26629	95	6	852	26412	97	11.67		
Jun-10	5.37	15.2	24.0	227	26875	806250	385	45883	1376490	19.13		7	832	24960	97	8	958	28740	98	15.82		
Jul-10	6.93	13.5	20.1	236	26263	814153	428	47442	1470702	20.0		15	1741	53971	94	7	778	24118	98	14.0		
Aug-10	3.74	11.8	23.2	262	23781	737211	408	37068	1149108	23.07		29	2577	79887	89	8	717	22227	98	9.9		
Sep-10	7.58	15.4	24.1	132	15306	459180	251	29945	898350	17.84		19	2323	69690	85	10	1186	35580	96	6.61		
Oct-10	1.00	11.3	13.9	190	17603	545693	262	24583	762073	23.88		28	2684	83204	85	12	1069	33139	96	5.38		
Nov-10	1.85	11.1	15.2	226	20137	402734	298	26788	535762	24.24		34	3040	254810	85	10	942	18847	97	6.75		
Dec-10	0.52	11.1	23.3	264	23603	495656	428	38431	807052	26.12		15	1337	28078	94	9	778	16332	98	6.14		
Jan-11	1.24	10.6	13.9	182	10650	330147	360	20002	620072	26.01		8	502	15550	95	6	342	10612	98	15.77		
Feb-11	2.15	13.4	23.3	224	17173	480841	321	24592	688590	22.13		9	721	20177	96	12	947	26523	96	18.73		
Mar-11	1.37	16.2	25.9	173	17033	528015	261	26058	807792	17.31		9	919	28490	95	10	1117	34633	96	14.87		
Apr-11	3.39	15.2	26.9	225	19431	582932	336	28778	863335	20.59		8	733	21997	97	8	737	22096	98	16.45		
May-11	2.81	15.4	26.5	183	15722	487393	260	22432	695400	20.78		6	563	17441	96	6	563	17441	98	17.26		
Jun-11	4.30	13.1	21.2	212	17126	513770	347	27964	838922	21.64		10	813	24378	95	7	598	17954	98	18.14		
Jul-11	3.28	12.9	20.2	169	11466	355460	192	13548	419998	22.34		22	1430	44343	87	15	994	30799	92	18.88		
Aug-11	5.41	12.2	23.9	176	12460	386268	179	12628	391460	23.75		12	841	26069	93	10	735	22779	94	20.94		
Sep-11	0.89	10.6	12.6	196	11818	354533	185	11161	334817	26.29		10	619	18579	95	5	290	8712	97	22.27		
Oct-11	0.17	9.9	12.2	202	11356	352035	218	12284	380811	28.45		11	622	19276	95	9	532	16478	96	23.18		
Nov-11	3.53	11.8	21.1	176	10958	328740	171	10891	326739	23.72		8	499	14965	96	7	458	13730	96	18.62		
Dec-11	1.77	13.2	27.6	155	11019	341574	150	10509	325764	22.03		12	873	27069	92	10	730	22619	94	16.90		
Jan-12	0.22	10.8	13.7	272	10911	338244	194	11012	341386	28.00		20	534	16546	93	9	532	16491	95	23.49		
Feb-12	2.00	11.9	16.1	90	12453	361143	204	13453	390144	19.22		5	1115	32349	94	14	940	27270	93	15.93		
Mar-12	3.24	17.0	29.5	146	13110	406419	193	17925	555674	16.86		8	784	24317	95	9	909	28186	95	14.02		
Apr-12	1.34	11.9	14.5	201	13827	414813	258	17691	530730	23.85		20	1392	41752	90	19	1304	39128	93	18.98		
May-12	1.84	11.1	16.9	181	11714	363137	188	12218	378752	25.42		18	1181	36619	90	17	1181	36619	91	20.47		
Jun-12	2.24	10.3	12.8	164	9458	283737	151	9085	272554	26.46		40	2223	66694	76	31	1898	56931	79	20.69		
Jul-12	0.85	9.6	12.0	130	6990	216683	106	5737	177851	24.90		37	1965	60909	71	30	1566	48542	72	22.26		
Aug-12	3.55	9.4	12.1	146	8422	261079	129	7497	232418	26.09		42	2418	74955	71	40	2300	71293	69	22.54		
Sep-12	2.99	11.1	20.0	100	5437	163122	93	5207	156217	22.94		53	2901	87034	47	38	2082	62452	59	21.24		
Oct-12	1.14	9.7	11.7	129	7717	239214	88	5260	163057	27.13		79	4775	148030	38	53	3183	98662	40	25.54		
Nov-12	1.55	10.1	14.6	169	9385	281552	109	6046	181387	26.37		54	2991	89733	68	42	2303	69097	62	24.73		
Dec-12	0.76	9.9	12.0	181	9375	290628	112	5841	181086	26.61		38	1953	60557	79	44	2261	70098	61	22.80		
Jan-13	0.96	10.3	16.7	220	8460	262260	84	4748	147184	28.44		46	1754	54387	79	29	1695	52548	65	23.18		
Feb-13	1.49	11.1	15.4	105	9036	252994	87	5303	148477	19.47		21	2758	77210	80	41	2479	69400	53	15.20		
Mar-13	0.75	14.2	22.5	118	9394	291199	88	7151	221669	18.61		52	4287	132887	56	50	4235	131297	43	16.72		
Apr-13	3.73	16.6	28.6	127	11150	334506	125	11218	336547	18.66		56	5262	157855	56	41	4228	126854	67	15.43		
May-13	5.97	15.6	26.9	122	10925	338689	129	12576	389858	18.48		80	6943	215227	35	51	6943	215227	61	17.47		
Jun-13	4.92	17.1	34.3	82	7038	211143	65	5603	168104	15.21		60	5399	161977	26	48	4460	133815	26	14.13		
Jul-13	1.43	10.7	14.8	82	6811	211143	65	5423	168104	15.21		60	5225	161977	26	48	4317	133815	26	14.13		
Aug-13	1.48	10.4	12.3	124	7757	240478	110	6925	214684	25.78		74	4617	143116	41	44	2739	84894	60	25.72		
Sep-13	5.47	10.4	19.7	147	8352	250554	149	8516	255476	28.00		68	3886	116576	54	65	3766	112987	56	26.97		
Oct-13	3.19	10.3	17.4	164	10060	311858	180	10990	340689	No Data		30	1868	57910	82	25	1572	48731	86	23.55		
Nov-13	0.65	11.6	23.4	202	11568	347027	244	14158	424753	No Data		14	870	26090	93	12	735	22042	95	22.33		
Dec-13	0.24	10.1	13.3	235	12907	400128	170	9357	290062	No Data		31	1708	52933	87	26	1411	43728	85	24.60		

Annual Summary

2006	29.10	10.6	22.8	333	29674	10830982	591	53154	19401354	23		11	1008	368081	97%	7	585	213631	99%	16		
2007	33.01	13.0	32.5	299	30690	11201707	486	50651	18487665	20		22	2256	823562	93%	11	1199.732	437902	98%	13		
2008	44.56	14.7	29.2	253	30193	11050728	389	46248	16926797	28		14	1615.943	591435	95%	8	1009.721	369558	98%	12		
2009	44.95	14.1	27.5	201	22462	8198709	286	31414	11465989	19		20	2347.995	857018	90%	6.7	791	288634	97%	10.8		
2010	41.91	14.3	27.8	195	20567	7506991	291	31353	11444021	20		16	2075.329	757495	90%	8.5	907	331201	97%	10.7		
2011	30.31	12.9	27.6	189	13813	5041708	248	18339	6693699	23		10	762.5628	278335	94%	8.8	670	244376	96%	18.5		
2012	21.72	11.1	33.3	159	9890	3619772	152	9730	3561257	24		34	2020.483	739497	80%	28.8	1707	624770	82%	21.1		
2013	30.28	12.4	34.3	144	9457	3451981	125	8509	3105606	21		49	3720.946	1358145	61%	40.0	3220	1175338	62%	20.0		

30. CERTIFICATION

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

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

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

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

Terry Leeds, PE

SIGNATURE

TELEPHONE NUMBER WITH AREA CODE

816 513 0203

DATE SIGNED

5/15/14

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

For Design Flows Less than 1 Million Gallons Per Day, Send Completed Form to:	For Design Flows of 1 Million Gallons Per Day or Greater, Send Completed Form to:
Appropriate Regional Office Map of regional offices with addresses and phone numbers is available on the Web at www.dnr.mo.gov/regions/ro-map.pdf.	Department of Natural Resources Water Protection Program ATTN: NPDES Permits and Engineering Section P.O. Box 176 Jefferson City, MO 65102

Do not complete the remainder of this application, unless:

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

MO 780-1805 (09-08)

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Birmingham WWTP	MO- 0049531	001

40. EXPANDED EFFLUENT TESTING DATA

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

40.1 EFFLUENT TESTING: IF THE TREATMENT WORKS HAS A DESIGN FLOW GREATER THAN OR EQUAL TO 1 MILLION GALLONS PER DAY OR IT HAS (OR IS REQUIRED TO HAVE) A PRETREATMENT PROGRAM, OR IS OTHERWISE REQUIRED BY THE PERMITTING AUTHORITY TO PROVIDE THE DATA, THEN PROVIDE EFFLUENT TESTING DATA FOR THE FOLLOWING POLLUTANTS. PROVIDE THE INDICATED EFFLUENT TESTING INFORMATION **FOR EACH OUTFALL THROUGH WHICH EFFLUENT IS DISCHARGED**. DO NOT INCLUDE INFORMATION ON COMBINED SEWER OVERFLOWS IN THIS SECTION. ALL INFORMATION REPORTED MUST BE BASED ON DATA COLLECTED THROUGH ANALYSIS CONDUCTED USING 40 CFR PART 136 METHODS. IN ADDITION, THIS DATA MUST COMPLY WITH QA/QC REQUIREMENTS OF 40 CFR PART 136 AND OTHER APPROPRIATE QA/QC REQUIREMENTS FOR STANDARD METHODS FOR ANALYTES NOT ADDRESSED BY 40 CFR PART 136. INDICATE IN THE BLANK ROWS PROVIDED BELOW ANY DATA YOU MAY HAVE ON POLLUTANTS NOT SPECIFICALLY LISTED IN THIS FORM. EFFLUENT TESTING MUST NOT BE MORE THAN FOUR AND ONE-HALF YEARS OLD.

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	CONC	UNITS	MASS	UNITS	CONC	UNITS	MASS	UNITS	NO. OF SAMPLES		
METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS AND HARDNESS											
ANTIMONY	0.0012	MG/L			0.0005	MG/L			3	EPA 200.8	0.0025
ARSENIC	0.008	MG/L			ND	MG/L			8	EPA 200.8	0.0025
BERYLLIUM	ND	MG/L			ND	MG/L			4	EPA 200.7	0.002
CADMIUM	ND	MG/L			ND	MG/L			8	EPA 200.7	0.002
CHROMIUM	0.003	MG/L			ND	MG/L			8	EPA 200.7	0.002
COPPER	0.019	MG/L			0.007	MG/L			8	EPA 200.7	0.002
LEAD	ND	MG/L			ND	MG/L			8	EPA 200.8	0.0025
MERCURY	ND	MG/L			ND	MG/L			8	EPA 245.2	0.0002
NICKEL	0.019	MG/L			0.013	MG/L			8	EPA 200.7	0.002
SELENIUM	ND	MG/L			ND	MG/L			4	EPA 200.7	0.0025
SILVER		MG/L			ND	MG/L			8	EPA 200.7	0.005
THALLIUM	ND	MG/L				MG/L			2	EPA 200.8	0.0025
ZINC	0.049	MG/L			0.03	MG/L			8	EPA 200.7	0.002
CYANIDE											
TOTAL PHENOLIC COMPOUNDS											
HARDNESS (as $CaCO_3$)											
USE THIS SPACE (OR A SEPARATE SHEET) TO PROVIDE INFORMATION ON OTHER METALS REQUESTED BY THE PERMIT WRITER.											

MO 780-1805 (09-08)

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Birmingham WWTP	MO- 0049531	001

40.1 EXPANDED EFFLUENT TESTING DATA (CONTINUED)

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	CONC	UNITS	MASS	UNITS	CONC	UNITS	MASS	UNITS	NO. OF SAMPLES		
VOLATILE ORGANIC COMPOUNDS											
ACROLEIN	ND	UG/L			ND	UG/L			4	EPA 624	5
ACRYLONITRILE	ND	UG/L			ND	UG/L			4	EPA 624	5
BENZENE	ND	UG/L			ND	UG/L			4	EPA 624	5
BROMOFORM	ND	UG/L			ND	UG/L			4	EPA 624	5
CARBON TETRACHLORIDE	ND	UG/L			ND	UG/L			4	EPA 624	5
CHLOROBENZENE	ND	UG/L			ND	UG/L			4	EPA 624	5
CHLORODIBROMO-METHANE	ND	UG/L			ND	UG/L			4	EPA 624	5
CHLOROETHANE	ND	UG/L			ND	UG/L			4	EPA 624	5
2-CHLORO-ETHYLVINYL ETHER	ND	UG/L			ND	UG/L			4	EPA 624	5
CHLOROFORM	ND	UG/L			ND	UG/L			4	EPA 624	5
DICHLOROBROMO-METHANE	ND	UG/L			ND	UG/L			4	EPA 624	5
1,1-DICHLORO-ETHANE	ND	UG/L			ND	UG/L			4	EPA 624	5
1,2-DICHLORO-ETHANE	ND	UG/L			ND	UG/L			4	EPA 624	5
TRANS-1,2-DICHLOROETHYLENE	ND	UG/L			ND	UG/L			4	EPA 624	5
1,1-DICHLORO-ETHYLENE	ND	UG/L			ND	UG/L			4	EPA 624	5
1,2-DICHLORO-PROPANE	ND	UG/L			ND	UG/L			4	EPA 624	5
1,3-DICHLORO-PROPYLENE	ND	UG/L			ND	UG/L			4	EPA 624	5
ETHYLBENZENE	ND	UG/L			ND	UG/L			4	EPA 624	5
METHYL BROMIDE	ND	UG/L			ND	UG/L			4	EPA 624	5
METHYL CHLORIDE	ND	UG/L			ND	UG/L			4	EPA 624	5
METHYLENE CHLORIDE	ND	UG/L			ND	UG/L			4	EPA 624	5
1,1,2,2-TETRA-CHLOROETHANE	ND	UG/L			ND	UG/L			4	EPA 624	5
TETRACHLORO-ETHANE											
TOLUENE	ND	UG/L			ND	UG/L			4	EPA 624	5
3,4-BENZO-FLUORANTHENE	ND	UG/L			ND	UG/L			4	EPA 625	10
BENZO(GH) PHERYLENE	ND	UG/L			ND	UG/L			4	EPA 625	10
BENZO(K) FLUORANTHENE	ND	UG/L			ND	UG/L			4	EPA 625	10

MO 780-1805 (09-08)

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Birmingham WWTP	MO- 0049531	001

40.1 EXPANDED EFFLUENT TESTING DATA (CONTINUED)

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	CONC	UNITS	MASS	UNITS	CONC	UNITS	MASS	UNITS	NO. OF SAMPLES		
BIS (2-CHLOROTHOXY) METHANE	ND	UG/L			ND	UG/L			4	EPA 625	10
BIS (2-CHLOROETHYL) – ETHER											
BIS (2-ETHYLHEXYL) PHTHALATE	ND	UG/L			ND	UG/L			4	EPA 625	10
4-BROMOPHENYL PHENYL ETHER	ND	UG/L			ND	UG/L			4	EPA 625	10
BUTYL BENZYL PHTHALATE	ND	UG/L			ND	UG/L			4	EPA 625	10
2-CHLORONAPH-THALENE	ND	UG/L			ND	UG/L			4	EPA 625	10
4-CHLORPHENYL PHENYL ETHER	ND	UG/L			ND	UG/L			4	EPA 625	10
CHRYSENE	ND	UG/L			ND	UG/L			4	EPA 625	10
DI-N-BUTYL PHTHALATE	ND	UG/L			ND	UG/L			4	EPA 625	10
DEBENZO (A,H) ANTHRACENE	ND	UG/L			ND	UG/L			4	EPA 625	10
1,2-DICHLORO-BENZENE	ND	UG/L			ND	UG/L			4	EPA 625	10
1,3-DICHLORO-BENZENE	ND	UG/L			ND	UG/L			4	EPA 625	10
1,4-DICHLORO-BENZENE	ND	UG/L			ND	UG/L			4	EPA 625	10
3,3-DICHLORO-BENZIDINE	ND	UG/L			ND	UG/L			4	EPA 625	10
DIETHYL PHTHALATE	ND	UG/L			ND	UG/L			4	EPA 625	10
DIMETHYL PHTHALATE	ND	UG/L			ND	UG/L			4	EPA 625	10
2,4-DINITRO-TOLUENE	ND	UG/L			ND	UG/L			4	EPA 625	10
2,6-DINITRO-TOLUENE	ND	UG/L			ND	UG/L			4	EPA 625	10
1,2-DIPHENYL-HYDRAZINE	ND	UG/L			ND	UG/L			4	EPA 625	5
1,1,1-TRICHLORO-ETHANE	ND	UG/L			ND	UG/L			4	EPA 624	5
1,1,2-TRICHLORO-ETHANE	ND	UG/L			ND	UG/L			4	EPA 624	5
TRICHLORETHYLENE	ND	UG/L			ND	UG/L			4	EPA 624	5
VINYL CHLORIDE	ND	UG/L			ND	UG/L			4	EPA 624	5
USE THIS SPACE (OR A SEPARATE SHEET) TO PROVIDE INFORMATION ON OTHER VOLATILE ORGANIC COMPOUNDS REQUESTED BY THE PERMIT WRITER											

MO 780-1805 (09-08)

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Birmingham WWTP	MO- 0049531	001

40.1 EXPANDED EFFLUENT TESTING DATA (CONTINUED)

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	CONC	UNITS	MASS	UNITS	CONC	UNITS	MASS	UNITS	NO. OF SAMPLES		
ACID-EXTRACTABLE COMPOUNDS											
P-CHLORO-M-CRESOL	ND	UG/L			ND	UG/L			4	EPA 625	10
2-CHLOROPHENOL	ND	UG/L			ND	UG/L			4	EPA 625	10
2,4-DICHLOROPHENOL	ND	UG/L			ND	UG/L			4	EPA 625	10
2,4-DIMETHYLPHENOL	ND	UG/L			ND	UG/L			4	EPA 625	10
4,6-DINITRO-O-CRESOL	ND	UG/L			ND	UG/L			4	EPA 625	10
2,4-DINITROPHENOL	ND	UG/L			ND	UG/L			4	EPA 625	10
2-NITROPHENOL	ND	UG/L			ND	UG/L			4	EPA 625	10
4-NITROPHENOL	ND	UG/L			ND	UG/L			4	EPA 625	10
PENTACHLOROPHENOL	ND	UG/L			ND	UG/L			4	EPA 625	10
PHENOL	ND	UG/L			ND	UG/L			4	EPA 625	10
2,4,6-TRICHLOROPHENOL	ND	UG/L			ND	UG/L			4	EPA 625	10
USE THIS SPACE (OR A SEPARATE SHEET) TO PROVIDE INFORMATION ON OTHER ACID-EXTRACTABLE COMPOUNDS REQUESTED BY THE PERMIT WRITER.											

MO 780-1805 (09-08)

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Birmingham WWTP	MO- 0049531	001

40.1 EXPANDED EFFLUENT TESTING DATA (CONTINUED)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	CONC	UNITS	MASS	UNITS	CONC	UNITS	MASS	UNITS	NO. OF SAMPLES		
BASE-NEUTRAL COMPOUNDS											
ACENAPHTHENE	ND	UG/L			ND	UG/L			4	EPA 625	10
ACENAPHTHYLENE	ND	UG/L			ND	UG/L			4	EPA 625	10
ANTHRACENE	ND	UG/L			ND	UG/L			4	EPA 625	10
BENZIDINE	ND	UG/L			ND	UG/L			4	EPA 625	10
BENZO(A)ANTHRACENE	ND	UG/L			ND	UG/L			4	EPA 625	10
BENZO(A)PYRENE	ND	UG/L			ND	UG/L			4	EPA 625	10
FLUORANTHENE	ND	UG/L			ND	UG/L			4	EPA 625	10
FLUORENE	ND	UG/L			ND	UG/L			4	EPA 625	10
HEXACHLOROBENZENE	ND	UG/L			ND	UG/L			4	EPA 625	10
HEXACHLOROCYCLO-PENTADIENE	ND	UG/L			ND	UG/L			4	EPA 625	10
HEXACHLOROETHANE	ND	UG/L			ND	UG/L			4	EPA 625	10
INDENO (1,2,3-CD) PYRENE	ND	UG/L			ND	UG/L			4	EPA 625	10
ISOPHORONE	ND	UG/L			ND	UG/L			4	EPA 625	10
NAPHTHALENE	ND	UG/L			ND	UG/L			4	EPA 625	10
NITROBENZENE	ND	UG/L			ND	UG/L			4	EPA 625	10
N-NITROSODI-PROPYLAMINE	ND	UG/L			ND	UG/L			4	EPA 625	10
N-NITROSODI-METHYLAMINE	ND	UG/L			ND	UG/L			4	EPA 625	10
N-NITROSODI-PHENYLAMINE											
PHENANTHRENE	ND	UG/L			ND	UG/L			4	EPA 625	10
PYRENE	ND	UG/L			ND	UG/L			4	EPA 625	10
1,2,4-TRICHLOROBENZENE	ND	UG/L			ND	UG/L			4	EPA 625	10
USE THIS SPACE (OR SEPARATE SHEET) TO PROVIDE INFORMATION ON OTHER BASE-NEUTRAL COMPOUNDS REQUESTED BY THE PERMIT WRITER.											

MO 780-1805 (09-08)

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.		
FACILITY NAME Birmingham WWTP	PERMIT NO. MO- 0049531	OUTFALL NO. 001

50. TOXICITY TESTING DATA

Refer to the Supplemental Application Information to determine whether Part E applies to the treatment works.

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

A. POTWs with a design flow rate greater than or equal to 1 million gallons per day.

B. POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403).

C. POTWs required by the permitting authority to submit data for these parameters

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

50.1 REQUIRED TESTS. INDICATE THE NUMBER OF WHOLE EFFLUENT TOXICITY TESTS CONDUCTED IN THE PAST FOUR AND ONE-HALF YEARS.

CHRONIC	ACUTE

INDIVIDUAL TEST DATA. Complete the following chart **for the last three whole effluent toxicity tests.** Allow one column per test (where each species constitutes a test). Copy this page if more than three tests are being reported.

	MOST RECENT	2ND MOST RECENT	3RD MOST RECENT
A. TEST INFORMATION			
TEST NUMBER			
TEST SPECIES AND TEST METHOD NUMBER			
AGE AT INITIATION OF TEST			
OUTFALL NUMBER			
DATES SAMPLE COLLECTED			
DATE TEST STARTED			
DURATION			
B. GIVE TOXICITY TEST METHODS FOLLOWED			
MANUAL TITLE			
EDITION NUMBER AND YEAR OF PUBLICATION			
PAGE NUMBER(S)			
C. GIVE THE SAMPLE COLLECTION METHOD(S) USED. FOR MULTIPLE GRAB SAMPLES, INDICATE THE NUMBER OF GRAB SAMPLES USED.			
24-HOUR COMPOSITE			
GRAB			
D. INDICATE WHERE THE SAMPLE WAS TAKEN IN RELATION TO DISINFECTION. (CHECK ALL THAT APPLY FOR EACH)			
BEFORE DISINFECTION	☐	☐	☐
AFTER DISINFECTION	☐	☐	☐
AFTER DECHLORINATION	☐	☐	☐
E. DESCRIBE THE POINT IN THE TREATMENT PROCESS AT WHICH THE SAMPLE WAS COLLECTED			
SAMPLE WAS COLLECTED			
F. FOR EACH TEST, INCLUDE WHETHER THE TEST WAS INTENDED TO ASSESS CHRONIC TOXICITY, ACUTE TOXICITY OR BOTH.			
CHRONIC TOXICITY	☐	☐	☐
ACUTE TOXICITY	☐	☐	☐
G. PROVIDE THE TYPE OF TEST PERFORMED			
STATIC	☐	☐	☐
STATIC STATIC-RENEWAL	☐	☐	☐
FLOW-THROUGH	☐	☐	☐
H. SOURCE OF DILUTION WATER. IF LABORATORY WATER, SPECIFY TYPE; IF RECEIVING WATER, SPECIFY SOURCE			
LABORATORY WATER			
RECEIVING WATER			

MO 780-1805 (09-08)

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Birmingham WWTP	MO- 0049531	001

50.1 WHOLE EFFLUENT TOXICITY TESTS DATA (CONTINUED)

	MOST RECENT	2ND MOST RECENT	3RD MOST RECENT
I. TYPE OF DILUTION WATER, IF SALT WATER, SPECIFY "NATURAL" OR TYPE OF ARTIFICIAL SEA SALTS OR BRINE USED.			
FRESH WATER			
SALT WATER			
J. GIVE THE PERCENTAGE EFFLUENT USED FOR ALL CONCENTRATIONS IN THE TEST SERIES.			
K. PARAMETERS MEASURED DURING THE TEST. (STATE WHETHER PARAMETER MEETS TEST METHOD SPECIFICATIONS)			
pH			
SALINITY			
TEMPERATURE			
AMMONIA			
DISSOLVED OXYGEN			
L. TEST RESULTS			
ACUTE:			
PERCENT IN SURVIVAL IN 100% EFFLUENT			
LC_{50}			
95% C.I.			
CONTROL PERCENT SURVIVAL			
OTHER (DESCRIBE)			
CHRONIC:			
NOEC			
IC_{25}			
CONTROL PERCENT SURVIVAL			
OTHER (DESCRIBE)			
M. QUALITY CONTROL ASSURANCE			
IS REFERENCE TOXICANT DATA AVAILABLE?			
WAS REFERENCE TOXICANT TEST WITHIN ACCEPTABLE BOUNDS?			
WHAT DATE WAS REFERENCED TOXICANT TEST RUN (MM/DD/YYYY)?			
OTHER (DESCRIBE)			

50.2 TOXICITY REDUCTION EVALUATION

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

If yes, describe:

50.3 SUMMARY OF SUBMITTED BIOMONITORING TEST INFORMATION

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

Date Submitted (MM/DD/YYYY)

Summary of Results (See Instructions)

MO 780-1805 (09-08)

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.		
FACILITY NAME Birmingham WWTP	PERMIT NO. MO- 0049531	OUTFALL NO. 001

60. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

Refer to the Supplemental Application Information to determine whether Part F applies to the treatment works.

All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete this form.

GENERAL INFORMATION

60.1 PRETREATMENT PROGRAM

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

☐ Yes ☐ No

60.2 NUMBER OF NON-CATEGORICAL SIGNIFICANT INDUSTRIAL USERS, or SIUs AND CATEGORICAL INDUSTRIAL USERS, or CIUs. PROVIDE THE NUMBER OF EACH OF THE FOLLOWING TYPES OF INDUSTRIAL USERS THAT DISCHARGE TO THE TREATMENT WORKS.

A. Number of Non-Categorical SIUs	B. Number of CIUs

60.3 SIGNIFICANT INDUSTIRAL USER INFORMATION

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

NAME

MAILING ADDRESS	CITY	STATE	ZIP

60.4 INDUSTRIAL PROCESSES

DESCRIBE ALL OF THE INDUSTRIAL PROCESSES THAT AFFECT OR CONTRIBUTE TO THE SIU's DISCHARGE.

60.5 PRINCIPAL PRODUCT(S) AND RAW MATERIAL (S)

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

PRINCIPAL PRODUCT(S)

RAW MATERIAL(S)

60.6 FLOW RATE

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

gpd ☐ Continuous ☐ Intermittent

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

C.

gpd ☐ Continuous ☐ Intermittent

60.7 PRETREATMENT STANDARDS

Indicate whether the SIU is subject to the following

A. Local Limits ☐ Yes ☐ No

B. Categorical Pretreatment Standards ☐ Yes ☐ No

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

60.8 PROBLEMS AT THE TREATMENT WORKS ATTRIBUTED TO WASTE DISCHARGED BY THE SIU

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

☐ Yes ☐ No If Yes, describe each episode

MO 780-1805 (09-08)

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Birmingham WWTP	MO- 0049531	001

60.9 RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE

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

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

WASTE DESCRIPTION. Give EPA hazardous waste number and amount (volume or mass, specify units).

EPA HAZARDOUS WASTE NUMBER	AMOUNT	UNITS

60.10 CERCLA, OR SUPERFUND, WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER AND OTHER REMEDIAL ACTIVITY WASTEWATER

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

60.11 WASTE ORIGIN

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

60.12 POLLUTANTS

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

60.13 WASTE TREATMENT

A. Is this waste treated (or will it be treated) prior to entering the treatment works?
☐ Yes ☑ No

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

B. Is the discharge (or will the discharge be) continuous or intermittent?
☐ Continuous ☐ Intermittent

If intermittent, describe the discharge schedule:

MO 780-1805 (09-08)

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.		
FACILITY NAME Birmingham WWTP	PERMIT NO. MO- 0049531	OUTFALL NO. 001

70. COMBINED SEWER SYSTEMS (COMPLETE THIS PART IF THE TREATMENT WORKS HAS A COMBINED SEWER SYSTEM.)

Refer to the Supplemental Application Information to determine whether Part G applies to the treatment works.

70.1 SYSTEM MAP

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

A. All CSO Discharges.

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

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

70.2 SYSTEM DIAGRAM

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

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

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

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

D. Locations of Flow-Regulating Devices.

E. Locations of Pump Stations.

70.3 PERCENT OF COLLECTION SYSTEM THAT IS COMBINED SEWER

70.4 POPULATION SERVED BY COMBINED SEWER COLLECTION SYSTEM

70.5 NAME OF ANY SATELLITE COMMUNITY WITH COMBINED SEWER COLLECTION SYSTEM

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

70.7 DESCRIPTION OF OUTFALL

A. Outfall Number

B. Location

C. Distance from Shore (if applicable)
_____ ft

D. Depth Below Surface (if applicable)
_____ ft

E. Which of the following were monitored during the last year for this CSO?
☐ Rainfall ☐ CSO Pollutant Concentrations ☐ CSO ☐ CSO Flow Volume ☐ Receiving Water Quality

F. How many storm events were monitored last year?

70.8 CSO EVENTS

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

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

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

D. GIVE THE MINIMUM RAINFALL THAT CAUSED A CSO EVENT IN THE LAST YEAR _____ INCHES OF RAINFALL

70.9 DESCRIPTION OF RECEIVING WATERS

A. Name of Receiving Water

B. Name of Watershed/River/Stream System

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

Name of State Management/River Basin

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

70.10 CSO OPERATIONS

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

70.3 – Percent of Collection System that is Combined Sewers? None
70.4 – Population Served by Combined Sewer Collection System? None
70.5 – Name of any Satellite Community with Combined Sewer Collection System? None
70.6 – CSO Outfalls. Complete the Following once for each CSO Discharge Point. Not Applicable.

BIRMINGHAM
EXPANDED EFFLUENT TESTING DATA

	CONC JUNE 2013	CONC MARCH 2013	CONC NOVEMBER 2012	CONC SEPTEMBER 2012	CONC JUNE 2012	CONC MARCH 2012	MARCH 2011	MARCH 2010	**MAXIMUM**	**AVERAGE**	**UNITS**	**NO. OF SAMPLES**	**ANALYTICAL METHOD**	**ML**
ANTIMONY	0.0012	.0005J				ND			**0.0012**	**0.0005**	**MG/L**	**3**	**EPA 200.8**	**0.0025**
ARSENIC	<.002	.0010J	<.005	0.008	<0.0025	ND	<0.010	<0.010	**0.008**	**ND**	**MG/L**	**8**	**EPA 200.8**	**0.0025**
BERYLLIUM		ND				ND	<0.005	<0.005	**ND**	**ND**	**MG/L**	**4**	**EPA 200.7**	**0.002**
CADMIUM	<.002	ND	<.002	<0.002	<0.002	ND	<0.005	<0.005	**ND**	**ND**	**MG/L**	**8**	**EPA 200.7**	**0.002**
CHROMIUM	<0.010	0.002	<.010	<0.010	0.003	0.002	<0.005	<0.005	**0.003**	**ND**	**MG/L**	**8**	**EPA 200.7**	**0.002**
COPPER	0.009	0.012	0.019	0.008	0.01	ND	<0.005	<0.005	**0.019**	**0.007**	**MG/L**	**8**	**EPA 200.7**	**0.002**
LEAD	<0.0025	.0015J	<.0025	<0.0025	<0.0025	ND	<0.005	<0.005	**ND**	**ND**	**MG/L**	**8**	**EPA 200.8**	**0.0025**
MERCURY	<.0002	.0001J	<0.0002	<0.0002	<0.0002	ND	<0.0002	<0.0002	**0.0001J**	**ND**	**MG/L**	**8**	**EPA 245.2**	**0.0002**
NICKEL	0.025	.019J	0.009	0.005	0.015	0.015	0.01	0.006	**.019J**	**0.013**	**MG/L**	**8**	**EPA 200.7**	**0.002**
SELENIUM		.0023J				ND	<0.0025	<0.0025	**.0023J**	**ND**	**MG/L**	**4**	**EPA 200.8**	**0.0025**
SILVER	<0.005	ND	<0.005	<0.005	<0.005	ND	<0.005	<0.005		**ND**	**MG/L**	**8**	**EPA 200.7**	**0.005**
THALLIUM		.0023J				ND			**0.0023J**		**MG/L**	**2**	**EPA 200.8**	**0.0025**
ZINC	0.03	0.049	0.04	0.042	0.038	0.014	0.016	0.011	**0.049**	**0.03**	**MG/L**	**8**	**EPA 200.7**	**0.002**
CYANIDE	<0.008*	ND*	0.008*	<0.008*	<0.008*	0.011*	<0.008*	<0.008*	**0.008***	**ND**	**MG/L**	**8**	**SM 4500-CN E**	**0.01**
TOTAL PHENOLIC														
HARDNESS (as CaCO3)														

*ammenable

BIRMINGHAM

EXPANDED EFFLUENT TESTING DATA

	CONC MARCH 2013	CONC MARCH 2012	CONC MARCH 2011	CONC MARCH 2010	MAXIMUM	AVERAGE	UNITS	NO. OF SAMPLES	ANALYTICAL METHOD	ML	MDL
ACROLEIN	ND	ND	ND		ND	ND	UG/L	3	EPA 624	5	
ACRYLONITRILE	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	
BENZENE	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	
BROMOFORM	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	
CARBON TETRACHLORIDE	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	
CHLORODIBROMO-METHANE	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	
CHLOROETHANE	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	
2-CHLORO-ETHYLVINYL ETHER	ND	ND	ND		ND	ND	UG/L	3	EPA 624	5	
CHLOROFORM	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	
DICHLOROBROMO-METHANE	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	
1,1-DICHLORO-ETHANE	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	
1,2-DICHLORO-ETHANE	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	
TRANS-1,2-DICHLOROETHYLENE	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	
1,1-DICHLORO-ETHYLENE	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	
1,2-DICHLORO-PROPANE	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	
1,3-DICHLORO-PROPYLENE	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	
ETHYLBENZENE	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	
METHYL BROMIDE	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	
METHYL CHLORIDE	ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5	

METHYLENE CHLORIDE		ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5
1,1,2,2-TETRA-CHLOROETHANE		ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5
TETRACHLORO-ETHANE	*							UG/L			5
TOLUENE		ND	ND	ND	ND	ND	ND	UG/L	4	EPA 624	5
3,4-BENZO-FLUORANTHENE								UG/L			
BENZO(GH) PHERYLENE		ND	ND	ND	ND	ND	ND	UG/L	4	EPA 625	10
BENZO(K) FLUORANTHENE		ND	ND	ND	ND	ND	ND	UG/L	4		
BIS (2-CHLOROTHOXY) METHANE		ND	ND	ND	ND	ND	ND	UG/L	4	EPA 625	10
BIS (2-CHLOROETHYL) - ETHER	**							UG/L			
BIS (2-ETHYLHEXYL) PHTHALATE		7.64J	ND	ND	ND		7.64 ND	UG/L	4	EPA 625	10
4-BROMOPHENYL PHENYL ETHER		ND	ND	ND	ND	ND	ND	UG/L	4	EPA 625	10
BUTYL BENZYL PHTHALATE		ND	ND	ND	ND	ND	ND	UG/L	4	EPA 625	10
2-CHLORONAPH-THALENE		ND	ND	ND	ND	ND	ND	UG/L	4	EPA 625	10
4-CHLORPHENYL PHENYL ETHER		ND	ND	ND	ND	ND	ND	UG/L	4	EPA 625	10
CHRYSENE		ND	ND	ND	ND	ND	ND	UG/L	4	EPA 625	10
DI-N-BUTYL PHTHALATE		ND	ND	ND	ND	ND	ND	UG/L	4	EPA 625	10
DEBENZO (A,H) ANTHRACENE		ND	ND	ND	ND	ND	ND	UG/L	4	EPA 625	10
1,2-DICHLORO-BENZENE		ND	ND	ND	ND	ND	ND	UG/L	4	EPA 625	10
1 ,3-DICHLORO-BENZENE		ND	ND	ND	ND	ND	ND	UG/L	4	EPA 625	10
1,4-DICHLORO-BENZENE		ND	ND	ND	ND	ND	ND	UG/L	4	EPA 625	10
3,3-DICHLORO-BENZIDINE		ND	ND	ND	ND	ND	ND	UG/L	4	EPA 625	10
DIETHYL PHTHALATE		ND	ND	ND	ND	ND	ND	UG/L	4	EPA 625	10

DIMETHYL PHTHALATE	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
2,4-DINITRO-TOLUENE	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
2,6-DIN ITRO-TOLUENE	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
1,2-DIPHENYL-HYDRAZINE	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
1,1,1-TRICHLORO-ETHANE	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 624	5
1,1,2-TRICHLORO-ETHANE	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 624	5
TRICHLORETHYLENE	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 624	5
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 624	5
[redacted]									
P-CHLORO-M-CRESOL	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
2-CHLOROPHENOL	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
2A-DICHLOROPHENOL	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
2,4-DIMETHYLPHENOL	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
4,6-DINITRO-O-CRESOL	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
2,4-DINITROPHENOL	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
2-NITROPHENOL	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
4-NITROPHENOL	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
PENTACHLOROPHENOL	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
PHENOL	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
2,4,6-TRICHLOROPHENOL	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
[redacted]									
ACENAPHTHENE	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
ACENAPHTHYLENE	ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10

ANTHRACENE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
BENZIDINE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
BENZO(A)ANTHRACENE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
BENZO(A)PYRENE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
FLUORANTHENE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
FLUORENE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
HEXACHLOROBENZENE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
HEXACHLOROCYCLO-PENTADIENE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
HEXACHLOROETHANE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
INDENO (1,2,3-CD) PYRENE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
ISOPHORONE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
NAPHTHALENE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
NITROBENZENE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
N-NITROSODI-PROPYLAMINE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
N-NITROSODI-METHYLAMINE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
N-NITROSODI-PHENYLAMINE	**							UG/L	EPA 625	
PHENANTHRENE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
PYRENE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10
1 ,2,4-TRICHLOROBENZENE		ND	ND	ND	ND	ND	ND	UG/L	4 EPA 625	10

* TETRACHLOROETHENE

** NOT ADDED TO LAB'S ANALYTE LIST UNTIL JULY 2013

KANSAS CITY
MISSOURI

WATER
SERVICES

May 20, 2014

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

Ref: KC – Birmingham WWTP, MO-0049531
Modification Permit Application

Transmitted herewith is the Permit Modification Application for the Kansas City Birmingham Wastewater Treatment Plant along with a check for $200. The plant recently finished the construction of a sodium hypochlorite disinfection system which has been inspected by Mr. Scott Honig of the Kansas City Regional Office.

Please feel free to contact me at (816) 513 0382 or richard.parmeter@kcmo.org if you have any questions or require further information.

Sincerely,

Richard Parmeter, PE
Project Manager, Facilities Engineering, Water Services Department

Cc: David Nelson, WSD – WWTD
Brian Schroeder, WSD – Facilities Engineering

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

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(a)(1);
      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. **Twenty-Four Hour 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. **Sanitary Sewer Overflow Reporting.** The following requirements solely reflect reporting obligations, and reporting does not necessarily reflect noncompliance, which may depend on the circumstances of the incident reported.
   a. Twenty-Four Hour (24-Hour) Reporting. The permittee or owner shall report any incident in which wastewater escapes the collection system such that it reaches waters of the state or it may pose an imminent or substantial endangerment to the health or welfare of persons. 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 incident. A written submission shall also be provided within five (5) business days of the time the permittee or owner becomes aware of the incident. The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The five (5) day reports may be provided via the current electronic method approved by the Department.
   b. Incidents Reported via Discharge Monitoring Reports (DMRs). The permittee or owner shall report any event in which wastewater escapes the collection system, which does not enter waters of the state and is not expected to pose an imminent or substantial endangerment to the health or welfare of persons, which occur typically during wet weather events. Relevant information shall be provided with the permittee's or owner's DMRs.

4. **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.

5. **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.

6. **Other Noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs 2, 3, 4, and 7 of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph 2. a. of this section.

7. **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.

8. **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.
   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, 2014

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 removals unless the nitrogen content of the biosolids does not exceed 50,000 milligrams per kilogram of total nitrogen on a dry weight basis or biosolids application rate is less 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, 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 and 2)			
	Metals, Pathogens and Vectors	Nitrogen TKN[1]	Nitrogen PAN[2]	Priority Pollutants and TCLP[3]
0 to100	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, nitrogen content of the biosolids is greater than 50,000 milligrams per kilogram of total nitrogen on dry weight basis or if the biosolids application rate is 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.

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. If nitrogen content of the biosolids is greater than 50,000 milligrams per kilogram of total nitrogen on dry weight basis or if the biosolids application rate is greater than two dry tons per acre per year, report biosolids nitrogen results, PAN in pounds/acre crop nitrogen requirement.
        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.