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-0035009
Owner:	Sikeston Board of Municipal Utilities
Address:	P.O. Box 370, Sikeston, MO 63801
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Sikeston Wastewater Treatment Plant
Facility Address:	860 South Ingram Road, Sikeston, MO 63801
Legal Description:	SE ¼, NW ¼, Sec. 29, T26N, R14E, Scott County
UTM Coordinates:	X=806432, Y=4085903
Receiving Stream:	St. Johns Ditch (P)
First Classified Stream and ID:	St. Johns Ditch (P) (3707)
USGS Basin & Sub-watershed No.:	(08020201-0305)

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 "A" Operator.
Oxidation ditch / 2- contact stabilization basins/ UV disinfection / step aeration / sludge storage tank /sludge is land applied
Design population equivalent is 30,000.
Design flow is 5.0 million gallons per day.
Actual flow is 2.0 million gallons per day.
Design sludge production is 615 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.

March 1, 2014
Effective Date

Sara Parker Pauley, Director, Department of Natural Resources

March 31, 2017
Expiration Date

John Madras, Director, Water Protection Program

FACILITY DESCRIPTION (continued):

Outfall #002 – Eliminated

Outfall #003 – Eliminated

Permitted Feature #SM1 – Instream Monitoring – Downstream location – St. John's Ditch at Hwy. 60 Crossing

Legal Description:	SW ¼, SE ¼, Sec. 29, T26N, R14E, Scott County
UTM Coordinates:	X= 806681, Y=4085337
Receiving Stream:	St. Johns Ditch (P)
First Classified Stream and ID:	St. Johns Ditch (P) (3707)
USGS Basin & Sub-watershed No.:	(08020201-0305)

OUTFALL #001	TABLE A-1. INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	PAGE NUMBER 3 of 10 PERMIT NUMBER MO-0035009

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective on **March 1, 2014,** and remain in effect through **August 31, 2014**. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/day	24 hr. total
Carbonaceous Biochemical Oxygen Demand$_5$	mg/L		40	25	twice/week	composite**
Total Suspended Solids	mg/L		45	30	twice/week	composite**
E. coli (Note 1, Page 5)	#/100 ml		1030	206	twice/week	grab
pH – Units	SU	***		***	twice/week	grab
Ammonia as N (April 1 – Sept 30) (Oct 1 – March 31)	mg/L	5.3 *		2.0 *	twice/week	grab
Oil & Grease	mg/L	15		10	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE APRIL 28, 2014. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

EFFLUENT PARAMETER(S)	UNITS	DAILY MINIMUM	WEEKLY AVERAGE MINIMUM	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Dissolved Oxygen	mg/L	5.0		5.0	twice/week	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE APRIL 28, 2014.

EFFLUENT PARAMETER(S)	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Cadmium, Total Recoverable	µg/L	0.9		0.5	once/quarter****	grab
Copper, Total Recoverable	µg/L	19.6		9.8	once/quarter****	grab
Lead, Total Recoverable	µg/L	12.4		6.2	once/quarter****	grab
Zinc, Total Recoverable	µg/L	165.5		82.5	once/quarter****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE JULY 28, 2014.

EFFLUENT PARAMETER(S)	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Chromium III, Total Recoverable	µg/L	*		*	twice/year*****	grab
Chromium VI, Dissolved	µg/L	*		*	twice/year*****	grab
Nickel, Total Recoverable	µg/L	*		*	twice/year*****	grab

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2015.

Whole Effluent Toxicity (WET) test	% Survival	See Special Condition #19	once/year	composite**

WET TEST REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2015.

OUTFALL #001	TABLE A-2. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	PAGE NUMBER 4 of 10
		PERMIT NUMBER MO-0035009

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on **September 1, 2014,** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/day	24 hr. total
Carbonaceous Biochemical Oxygen Demand$_5$	mg/L		40	25	twice/week	composite**
Total Suspended Solids	mg/L		45	30	twice/week	composite**
E. coli (Note 1, Page 5)	#/100 ml		1030	206	twice/week	grab
pH – Units	SU	***		***	twice/week	grab
Ammonia as N (April 1 – Sept 30) (Oct 1 – March 31)	mg/L	5.3 *		2.0 *	twice/week	grab
Oil & Grease	mg/L	15		10	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE OCTOBER 28, 2014. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

EFFLUENT PARAMETER(S)	UNITS	DAILY MINIMUM	WEEKLY AVERAGE MINIMUM	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Dissolved Oxygen	mg/L	5.0		5.0	twice/week	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE OCTOBER 28, 2014.

EFFLUENT PARAMETER(S)	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Cadmium, Total Recoverable	µg/L	0.6		0.4	once/quarter****	grab
Copper, Total Recoverable	µg/L	16.9		7.8	once/quarter****	grab
Lead, Total Recoverable	µg/L	7.2		5.0	once/quarter****	grab
Zinc, Total Recoverable	µg/L	142.2		63.8	once/quarter****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE JANUARY 28, 2015.

EFFLUENT PARAMETER(S)	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Chromium III, Total Recoverable	µg/L	*		*	twice/year*****	grab
Chromium VI, Dissolved	µg/L	*		*	twice/year*****	grab
Nickel, Total Recoverable	µg/L	*		*	twice/year*****	grab

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2015.

Whole Effluent Toxicity (WET) test	% Survival	See Special Condition #19	once/year	composite**

WET TEST REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2015.

PERMITTED FEATURE SM1	TABLE A-3. INSTREAM MONITORING REQUIREMENTS

The monitoring requirements shall become effective on **March 1, 2014,** and remain in effect until expiration of the permit. Monitoring shall be conducted by the permittee as specified below:

EFFLUENT PARAMETER(S)	UNITS	MONITORING REQUIREMENTS				
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Hardness, Total	mg/L	*		*	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE APRIL 28, 2014.

* Monitoring requirement only.
** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.
*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.
**** See table below for quarterly sampling.
***** Sample twice per year, and report in July and January.

Minimum Sampling Requirements			
Quarter	**Months**	**Total Recoverable Cadmium, Total Recoverable Copper, Total Recoverable Lead, and Total Recoverable Zinc**	**Report is Due**
First	January, February, March	Sample at least once during any month of the quarter	April 28th
Second	April, May, June	Sample at least once during any month of the quarter	July 28th
Third	July, August, September	Sample at least once during any month of the quarter	October 28th
Fourth	October, November, December	Sample at least once during any month of the quarter	January 28th

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).

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 on **March 1, 2014,** 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
Carbonaceous Biochemical Oxygen Demand$_5$	mg/L	once/month	composite**
Total Suspended Solids	mg/L	once/month	composite**

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE APRIL 28, 2014.

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

C. STANDARD CONDITIONS

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

D. SPECIAL CONDITIONS

1. This permit establishes final ammonia limitations based on Missouri's current Water Quality Standard. On August 22, 2013, the U.S. Environmental Protection Agency (EPA) published a notice in the Federal Register announcing of the final national recommended ambient water quality criteria for protection of aquatic life from the effects of ammonia in freshwater. The EPA's guidance, Final Aquatic Life Ambient Water Quality Criteria for Ammonia – Fresh Water 2013, is not a rule, nor automatically part of a state's water quality standards. States must adopt new ammonia criteria consistent with EPA's published ammonia criteria into their water quality standards that protect the designated uses of the water bodies. The Department of Natural Resources intends to adopt the new ammonia criteria during the next water quality standards triennial review. Also, refer to Section VII of this permit's factsheet for further information including estimated future effluent limits for this facility. It is recommended the permittee view the Department's 2013 EPA criteria Factsheet located at http://dnr.mo.gov/pubs/pub2481.pdf .

2. 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.
   (d) Incorporate the requirement to develop a pretreatment program pursuant to 40 CFR 403.8(a) when the Director of the Water Protection Program determines that a pretreatment program is necessary due to any new introduction of pollutants into the Publically Owned Treatment Works or any substantial change in the volume or character of pollutants being introduced.

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

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

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

5. 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.

D. SPECIAL CONDITIONS (continued)

6. 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.

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

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

9. The permittee shall comply with any applicable requirements listed in 10 CSR 20-9, unless the facility has received written notification that the Department has approved a modification to the requirements. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. If a modification of the monitoring frequencies listed in 10 CSR 20-9 is needed, the permittee shall submit a written request to the Department for review and, if deemed necessary, approval.

10. The permittee shall submit a report annually in January to the Southeast 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.

11. 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 Southeast Regional Office.

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

13. 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.

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

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

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

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

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

D. SPECIAL CONDITIONS (continued)

19. 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	96%	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							
96%	100% effluent	50% effluent	25% effluent	12.5% effluent	6.25% 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.

(3) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (4) 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 availability 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.

D. SPECIAL CONDITIONS (continued)

(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

20. The permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 40 CFR Part 403. The approved pretreatment program is hereby incorporated by reference.

The permittee shall submit to the Department on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year. At a minimum, the report shall include the following:

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

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

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

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

As required in 40 CFR 122.21 (j)(4) the permittee shall, as part of its renewal application for this permit, submit to the Department a written technical evaluation of the need to revise local limits under 40 CFR 403.5(c)(1).

21. 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.

D. SPECIAL CONDITIONS (continued)

22. RECEIVING WATER MONITORING CONDITIONS

(a) Downstream samples should be taken immediately (10 yards or less) below the location established on Page 2 of this permit. In the event that a safe, accessible location is not present at this location, a suitable location can be negotiated with the Department. Samples should be taken at least four feet from the bank or from the middle of the stream (whichever is less) and 6-inches below the surface if possible.
(b) Samples shall not be collected from areas with especially turbulent flow, still water or from the stream bank, unless these conditions are representative of the stream reach or no other areas are available for sample collection. Sampling should not be made when significant precipitation has occurred recently. The sampling event should be terminated and rescheduled if; turbidity in the stream increases notably, or if rainfall over the past two weeks exceeds 2.5 inches or exceeds 1 inch in the last 24 hours
(c) Always use the correct sampling technique and handling procedure specified for the parameter of interest. Please refer to the latest edition of Standard Methods for the Examination of Water and Wastewater for further discussion of proper sampling techniques. All analyses must be conducted in accordance with an approved EPA method.
(d) If for any reason samples must be collected from an alternate site from the one listed in the permit, the permittee shall report the location with the sample results.
(e) Please contact the Department if you need additional instructions or assistance.

E. SCHEDULE OF COMPLIANCE

Total Recoverable Cadmium, Total Recoverable Copper, Total Recoverable Lead, and Total Recoverable Zinc

1. As soon as reasonably achievable, or no later than **6 months** from the effective date of this permit, the permittee shall attain compliance with the final effluent limits for Total Recoverable Cadmium, Total Recoverable Copper, Total Recoverable Lead, and Total Recoverable Zinc.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0035009
SIKESTON WASTEWATER TREATMENT PLANT

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:
Oxidation ditch / contact stabilization / UV disinfection / step aeration / sludge storage tank /sludge is land applied

Have any changes occurred at this facility or in the receiving water body that effects effluent limit derivation?
☒ - Yes; (please provide simple description or reference appropriate location in the Fact Sheet.)
☒ - No.

Application Date: 10/3/2012
Expiration Date: 04/03/2013

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
#001	7.75	Secondary	Domestic
#SM1	NA	Instream Monitoring	NA

Facility Performance History:
The facility failed to meet final effluent limitations for Cadmium and Lead from Outfall #001 on the September 2012 Discharge Monitoring Report (DMR). The facility failed to meet final effluent limitations for Oil & Grease from Outfall #001 on the December 2011 DMR. The facility failed to meet final effluent limitations for Dissolved Oxygen from Outfall #001 on the September, October, and November 2008 DMRs, and on the January, February, March, April, and May 2009 DMRs. The facility failed to meet final effluent limitations for Fecal Coliform from Outfall #001 on the April, May, and June 2008 DMRs, and on the April, May, and June 2013 DMRs. The facility failed to report Dissolved Oxygen from Outfalls #001 and #SM1 on the April, May, June, July, and August 2008 DMRs. This facility was last inspected on May 30, 2013. The conditions of the facility at the time of inspection were found to be satisfactory.

Comments:
Outfalls #002 and #003 were eliminated as there are no sources of contaminants that will enter stormwater from the facility.

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.

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

Operator's Name: Steven B. Baker
Certification Number: 2699
Certification Level: A

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

Part III– Operational 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: OUTFALL #001

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
St. Johns Ditch	P	3707	LWW, AQL, WBC-B**, SCR	08020201-0305	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).
**- EPA disapproved the removal of WBC-B protection from the receiving stream as the UAA was conducted under drought conditions. Therefore, WBC-B use is maintained in this permit.

RECEIVING STREAM(S) LOW-FLOW VALUES:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)*		
	1Q10	7Q10	30Q10
St. Johns Ditch	11.4	12.4	14.6

* - STREAM FLOW DATA PROVIDED BY MEC IN 2007 FOR WQRS

MIXING CONSIDERATIONS

MIXING CONSIDERATIONS TABLE:

MIXING ZONE (CFS) [10 CSR 20-7.031(4)(A)4.B.(II)(a)]			ZONE OF INITIAL DILUTION (CFS) [10 CSR 20-7.031(4)(A)4.B.(II)(b)]		
1Q10	7Q10	30Q10	1Q10	7Q10	30Q10
2.85	3.1	3.65	0.285	0.31	0.365

SM1. (Downstream)

PARAMETER(S)	SAMPLING FREQUENCY	SAMPLE TYPE	LOCATION
Hardness, Total	monthly	grab	St. John's Ditch at Hwy. 60 Crossing

Receiving Water Body's Water Quality
A Stream survey was conducted on August 24, 2011. No stream impacts were observed.

Comments:
Instream monitoring for Hardness was included in the permit to create a substantial body of data for calculation of calculation of effluent limitations for metals that have hardness dependent Water Quality Standards. This data collection effort is intended to validate the hardness value used in this renewal.

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.

☒ - Permittee land applies biosolids in accordance with Standard Conditions III and a Department approved biosolids management plan.

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.

Not Applicable ☒; The permittee/facility is not currently under Water Protection Program enforcement action.

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 CFR Part 403] and [10 CSR 20-6.100] and is expected to implement and enforce its approved program.

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

In accordance with [40 CFR Part 122.44(d)(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 on appropriate parameters. Please see **APPENDIX – RPA RESULTS.**

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

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

SANITARY SEWER OVERFLOWS (SSO) AND INFLOW AND INFILTRATION (I&I):
Sanitary Sewer Overflows (SSOs) are defined as untreated sewage releases and are considered bypassing under state regulation [10 CSR 20-2.010(11)] and should not be confused with the federal definition of bypass. SSOs result from a variety of causes including blockages, line breaks, and sewer defects that can either allow wastewater to backup within the collection system during dry weather conditions or allow excess stormwater and groundwater to enter and overload the collection system during wet weather conditions. SSOs can also result from lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs include overflows out of manholes, cleanouts, broken pipes, and other into waters of the state and onto city streets, sidewalks, and other terrestrial locations.

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

Missouri RSMo §644.026.1 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.

Applicable ☒; 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.

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

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

In order to provide guidance to Permit Writers in developing SOCs, and attain a greater level of consistency, on October 25, 2012 the Department issued a policy on development of SOCs. This policy provides guidance to Permit Writers on the standard time frames for schedules for common activities, and guidance on factors that may modify the length of the schedule such as an affordability analysis.

Applicable ☒; The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(10)]. The facility has been given a schedule of compliance to meet final effluent limits for Total Recoverable Cadmium, Total Recoverable Copper, Total Recoverable Lead, and Total Recoverable Zinc. The facility is given a 6 month schedule of compliance to give the facility time to review their local ordinances to determine if the pretreatment limits established by the City on the industrial users are sufficient to meet the final effluent limits or implement more stringent pretreatment limits on the industrial users.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP): In accordance with 40 CFR 122.44(k) *Best Management Practices (BMPs)* to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities: (2) Authorized under section 402(p) of the CWA for the control of 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.

Not Applicable ☒; At this time, the permittee is not required to develop and implement a SWPPP.

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

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 ☒; St. Johns Ditch, Water Body ID #3138 is listed on the 2012 Missouri 303(d) List for E. coli. This section of St. Johns Ditch is located approximately 4.4 miles downstream from the Sikeston WWTP.

☒ – 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 St. Johns Ditch. Once a TMDL is developed, the permit may be modified to include WLAs from the TMDL.

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	*/*
$CBOD_5$	mg/L	1		40	25	No	40/25
TSS	mg/L	1		45	30	No	45/30
pH	SU	1	6.5 – 9.0			Yes	6.0 – 9.0
Ammonia as N (April 1 – Sept 30)	mg/L	2, 3, 5	5.3		2.0	Yes	6.6/2.5
Ammonia as N (Oct 1 – March 31)	mg/L	2, 3, 5	*		*	Yes	11.1/4.2
Dissolved Oxygen (DO)**	mg/L	3, 9	5.0		5.0	No	5.0/5.0
Escherichia coli	***	1, 3		1030	206	Yes	Previously Fecal Coliform
Cadmium, TR	µg/L	2, 3	0.6		0.4	Yes	0.9/0.5
Copper, TR	µg/L	2, 3	16.9		7.8	Yes	19.6/9.8
Lead, TR	µg/L	2, 3	7.2		5.0	Yes	12.4/6.2
Zinc, TR	µg/L	2, 3	142.2		63.8	Yes	165.5/82.5
Chromium III, TR	µg/L	2, 3	*		*	Yes	485/242
Chromium VI, TR	µg/L	2, 3	*		*	No	15.9/7.9
Nickel, TR	µg/L	2, 3	*		*	Yes	158.6/79.1
Oil & Grease	mg/L	1, 3	15		10	No	15/10
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**. Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3] default pH 7.8 SU Background total ammonia nitrogen = 0.01 mg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion.

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

Summer: April 1 – September 30
Chronic WLA: $C_e = ((7.75 + 3.65)1.5 – (3.65 * 0.01))/7.75$
$C_e = 2.2$ mg/L

Acute WLA: $C_e = ((7.75 + 0.285)12.1 – (0.285 * 0.01))/7.75$
$C_e = 12.54$ mg/L

LTA_c = 2.2 mg/L (0.782) = 1.72 mg/L [CV = 0.59, 99th Percentile, 30 day avg.]
LTA_a = 12.54 mg/L (0.324) = 4.06 mg/L [CV = 0.59, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

MDL = 1.72 mg/L (3.09) = 5.3 mg/L [CV = 0.59, 99th Percentile]
AML = 1.72 mg/L (1.19) = 2.0 mg/L [CV = 0.59, 95th Percentile, n =30]

Winter: October 1 – March 31 - monitoring only as the facility did not show a reasonable potential to violate Water Quality Standards. The parameter will be reviewed at the next renewal.

- **Dissolved Oxygen**. Effluent limitations have been retained from previous state operating permit.

- ***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.

- **Temperature**. This parameter was removed as the discharge did not show a reasonable potential to violate Water Quality Standards.

- **Cyanide, Amenable to Chlorination.** This parameter was removed as the discharge did not show a reasonable potential to violate Water Quality Standards.

Metals

Effluent limitations for total recoverable metals were developed using methods and procedures outlined in the "Technical Support Document For Water Quality-based Toxic Controls" (EPA/505/2-90-001) and "The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion" (EPA 823-B-96-007). General warm-water fishery criteria apply and a water hardness of 118 mg/L is used in the conversion below. The water hardness was based on the 25 percentile of the downstream hardness provided by the facility.

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

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Cadmium	0.937	0.902
Chromium III	0.316	0.860
Copper	0.960	0.960
Lead	0.767	0.767
Nickel	0.998	0.997
Zinc	0.980	0.980

Conversion factors for Cd and Pb are hardness dependent. Values calculated using equation found in Section 1.3 of EPA 823-B-96-007 and hardness = 118 mg/L.

- **Cadmium, Total Recoverable**. Protection of Aquatic Life Chronic Criteria = 0.3 µg/L, Acute Criteria = 5.6 µg/L.

Chronic = 0.3/0.902 = 0.31 µg/L
Acute = 5.6/0.937 = 5.96 µg/L

Chronic WLA: $C_e = ((7.75 + 3.1)0.31 – (0.0 * 3.1))/7.75$
$C_e = 0.434$ µg/L

Acute WLA: $C_e = ((7.75 + 0.31)5.96 – (0.0 * 0.31))/7.75$
$C_e = 6.2$ µg/L

$LTA_c = 0.427\ (0.676) = 0.29$ µg/L [CV = 0.35, 99th Percentile]
$LTA_a = 6.2\ (0.479) = 3.0$ µg/L [CV = 0.35, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

MDL = 0.29 (2.09) = 0.6 µg/L [CV = 0.35, 99th Percentile]
AML = 0.29 (1.31) = 0.4 µg/L [CV = 0.35, 95th Percentile, n = 4]

- **Copper, Total Recoverable**. Protection of Aquatic Life Chronic Criteria = 10.3 µg/L, Acute Criteria = 15.7 µg/L.

  Chronic = 10.3/0.960 = 10.75 µg/L
  Acute = 15.7/0.960 = 16.36 µg/L

  Chronic WLA: C_e = ((7.75 + 3.1)10.75 – (0.0 * 3.1))/7.75
  C_e = 15.05 µg/L

  Acute WLA: C_e = ((7.75 + 0.31)16.36 – (0.0 * 0.31))/7.75
  C_e = 17.01 µg/L

  LTA_c = 15.05(0.4492) = 6.76 µg/L [CV = 0.76, 99th Percentile]
  LTA_a = 17.01 (0.257) = 4.37 µg/L [CV = 0.76, 99th Percentile]

  Use most protective number of LTA_c or LTA_a.

  MDL = 4.37 (3.90) = 17 µg/L [CV = 0.76, 99th Percentile]
  AML = 4.37 (1.725) = 7.5 µg/L [CV = 0.76, 95th Percentile, n = 4]

- **Lead, Total Recoverable**. Protection of Aquatic Life Chronic Criteria = 3 µg/L, Acute Criteria = 77 µg/L.

  Chronic = 3/0.767 = 3.93 µg/L
  Acute = 77/0.767 = 100.75 µg/L

  Chronic WLA: C_e = ((7.75 + 3.1)3.93 – (0.0 * 3.1))/7.75
  C_e = 5.50 µg/L

  Acute WLA: C_e = ((7.75 + 0.31)100.75 – (0.0 * 0.31))/7.75
  C_e = 104.78 µg/L

  LTA_c = 5.50 (0.734) = 4.04 µg/L [CV = 0.27, 99th Percentile]
  LTA_a = 104.78 (0.5538) = 58.03 µg/L [CV = 0.27, 99th Percentile]

  Use most protective number of LTA_c or LTA_a.

  MDL = 4.04 (1.81) = 7.3 µg/L [CV = 0.27, 99th Percentile]
  AML = 4.04 (1.24) = 5.0 µg/L [CV = 0.27, 95th Percentile, n = 4]

- **Zinc, Total Recoverable**. Protection of Aquatic Life Chronic Criteria = 135 µg/L, Acute Criteria = 135 µg/L.

  Chronic = 135/0.980 = 137.76 µg/L
  Acute = 135/0.980 = 137.76 µg/L

  Chronic WLA: C_e = ((7.75 + 3.1)137.76 – (0.0 * 3.1))/7.75
  C_e = 192.86 µg/L

  Acute WLA: C_e = ((7.75 + 0.31)137.76– (0.0 * 0.31))/7.75
  C_e = 143.27 µg/L

  LTA_c = 192.86 (0.4194) = 80.9 µg/L [CV = 0.85, 99th Percentile]
  LTA_a = 143.27 (0.23493) = 33.66 µg/L [CV = 0.85, 99th Percentile]

  Use most protective number of LTA_c or LTA_a.

  MDL = 33.66 (4.256) = 143.3 µg/L [CV = 0.85, 99th Percentile]
  AML = 33.66 (1.804) = 60.7 µg/L [CV = 0.85, 95th Percentile, n = 4]

- **Chromium III, TR.** Monitoring only as this parameter did not show a reasonable potential to violate Water Quality Standards. The parameter will be reviewed at the next renewal.

- **Chromium VI, Dissolved.** Monitoring only as this parameter did not show a reasonable potential to violate Water Quality Standards. The parameter will be reviewed at the next renewal.

- **Nickel, TR.** Monitoring only as this parameter did not show a reasonable potential to violate Water Quality Standards. The parameter will be reviewed at the next renewal.

- **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%.

  Classified P with other than default Mixing Considerations, the AEC% is determined as follows:

  Acute AEC% = $((\text{design flow}_{cfs} + \text{ZID}_{7Q10}) / \text{design flow}_{cfs})^{-1}] \times 100 = \#\#\%$
  Acute AEC% = $((7.75 + 0.31) / 7.75)^{-1}] \times 100 = 96\%$

Minimum Sampling and Reporting Frequency Requirements.

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
Flow	once/day	once/month
BOD_5	twice/week	once/month
TSS	twice/week	once/month
pH	twice/week	once/month
Ammonia as N	twice/week	once/month
E. coli	twice/week	once/month
Dissolved Oxygen	twice/week	once/month
Oil & Grease	once/month	once/month
Cadmium, TR	once/quarter	once/quarter
Copper, TR	once/quarter	once/quarter
Lead, TR	once/quarter	once/quarter
Zinc, TR	once/quarter	once/quarter
Chromium III, TR	twice/year	twice/year
Chromium VI, TR	twice/year	twice/year
Nickel, TR	twice/year	twice/year
WET Test	once/year	once/year

Sampling Frequency Justification:
Sampling and Reporting Frequency was retained from previous permit except for TR Chromium III, Dissolved Chromium VI, and TR Nickel which were reduced to twice per year.

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

OUTFALL #SM1 – INSTREAM MONITORING – DOWNSTREAM LOCATION

MONITORING REQUIREMENTS TABLE:

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Modified	Previous Permit Limitations
Dissolved Oxygen (DO)**	mg/L	9	*		*	No	*/*

* - Monitoring requirement only.

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:

- **Hardness, Total**. Monitoring requirement only.
- **Dissolved Oxygen**. This parameter was removed as the instream monitoring did not show any water quality violations.
- **Temperature**. This parameter was removed as the instream monitoring did not show any water quality violations.

Minimum Sampling and Reporting Frequency Requirements.

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
Hardness, Total	once/month	once/month

Sampling Frequency Justification:
Sampling and Reporting Frequency was retained from previous permit.

Sampling Type Justification
Hardness samples must be immediately preserved with acid, therefore these samples are to be collected as a grab.

Part VII –2013 Water Quality Criteria for Ammonia

Upcoming changes to the Water Quality Standard for ammonia may require significant upgrades to wastewater treatment facilities.

On August 22, 2013, the U.S. Environmental Protection Agency (EPA) finalized new water quality criteria for ammonia, based on toxicity studies of mussels and gill breathing snails. Missouri's current ammonia criteria are based on toxicity testing of several species, but did not include data from mussels or gill breathing snails. Missouri is home to 69 of North America's mussel species, which are spread across the state. According to the Missouri Department of Conservation nearly two-thirds of the mussel species in Missouri are considered to be "of conservation concern". Nine species are listed as federally endangered, with an additional species currently proposed as endangered and another species proposed as threatened.

The adult forms of mussels that are seen in rivers, lakes, and streams are sensitive to pollutants because they are sedentary filter feeders. They vacuum up many pollutants with the food they bring in and cannot escape to new habitats, so they can accumulate toxins in their bodies and die. But very young mussels, called glochidia, are exceptionally sensitive to ammonia in water. As a result of a citizen suit, the EPA was compelled to conduct toxicity testing and develop ammonia water quality criteria that would be protective if young mussels may be present in a waterbody. These new criteria will apply to any discharge with ammonia levels that may pose a reasonable potential to violate the standards. Nearly all discharging domestic wastewater treatment facilities (cities, subdivisions, mobile home parks, etc.), as well as certain industrial and stormwater dischargers with ammonia in their effluent, will be affected by this change in the regulations.

When new water quality criteria are established by the EPA, states must adopt them into their regulations in order to keep their authorization to issue permits under the National Pollutant Discharge Elimination System (NPDES). States are required to review their water quality standards every three years, and if new criteria have been developed they must be adopted. States may be more protective than the Federal requirements, but not less protective. Missouri does not have the resources to conduct the studies necessary for developing new water quality standards, and therefore our standards mirror those developed by the EPA; however, we will utilize any available flexibility based on actual species of mussels that are native to Missouri and their sensitivity to ammonia.

Many treatment facilities in Missouri are currently scheduled to be upgraded to comply with the current water quality standards. But these new ammonia standards may require a different treatment technology than the one being considered by the permittee. It is important that permittees discuss any new and upcoming requirements with their consulting engineers to ensure that their treatment systems are capable of complying with the new requirements. The Department encourages permittees to construct treatment technologies that can attain effluent quality that supports the EPA ammonia criteria.

Ammonia toxicity varies by temperature and by pH of the water. Assuming a stable pH value, but taking into account winter and summer temperatures, Missouri includes two seasons of ammonia effluent limitations. Typical effluent limits for ammonia for a facility in a location such as this, under current regulations, with mixing available, would be:

Summer – 5.3 mg/L daily maximum, 2.0 mg/L monthly average.
Winter – Monitoring Only

Under the new EPA criteria, where mussels of the family Unionidae are present or expected to be present, your <u>estimated</u> effluent limitations will be:

Summer – 2.5 mg/L daily maximum, 1.0 mg/L monthly average.
Winter – 5.5 mg/L daily maximum, 3.3 mg/L monthly average.

Actual effluent limits will depend in part on the actual performance of the facility.

Operating permits for facilities in Missouri must be written based on current statutes and regulations. It is expected that the new WQS will be adopted in the next review of our standards. Therefore permits will be written with the existing effluent limitations until the new standards are adopted. To aid permittees in decision making, an advisory will be added to permit Fact Sheets notifying permittees of the expected effluent limitations for ammonia. When setting schedules of compliance for ammonia effluent limitations, consideration will be given to facilities that have recently constructed upgraded facilities to meet the current ammonia limitations.

For more information on this topic feel free to contact the Missouri Department of Natural Resources, Water Protection Program, Water Pollution Control Branch, Operating Permits Section at (573) 751-1300.

Part VIII – 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.

☒ 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.** In a letter dated May 31, 2013, the facility waived the requirement for the Department to conduct an Affordability Analysis.

Part IX – Administrative Requirements

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

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

PUBLIC NOTICE:
The Department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in and water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and permittee must be notified of the denial in writing.

The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit.

For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.

☒ - The Public Notice period for this operating permit was from December 6, 2013 to January 6, 2013. No responses received.

DATE OF FACT SHEET: OCTOBER 8, 2013

COMPLETED BY:

BRANT FARRIS, ENVIRONMENTAL SPECIALIST III
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT
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Appendices

APPENDIX - CLASSIFICATION WORKSHEET:

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Maximum Population Equivalent (P.E.) served (Max 10 pts.)	1 pt./10,000 PE or major fraction thereof.	3
Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)	1 pt. / MGD or major fraction thereof.	5
EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY:		
Missouri or Mississippi River	0	
All other stream discharges except to losing streams and stream reaches supporting whole body contact	1	
Discharge to lake or reservoir outside of designated whole body contact recreational area	2	
Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation	3	3
PRELIMINARY TREATMENT - Headworks		
Screening and/or comminution	3	3
Grit removal	3	3
Plant pumping of main flow (lift station at the headworks)	3	3
PRIMARY TREATMENT		
Primary clarifiers	5	
Combined sedimentation/digestion	5	
Chemical addition (except chlorine, enzymes)	4	
REQUIRED LABORATORY CONTROL – performed by plant personnel (highest level only)		
Push – button or visual methods for simple test such as pH, Settleable solids	3	
Additional procedures such as DO, COD, BOD, titrations, solids, volatile content	5	
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	7	7
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	
ALTERNATIVE FATE OF EFFLUENT		
Direct reuse or recycle of effluent	6	
Land Disposal – low rate	3	
High rate	5	
Overland flow	4	
Total from page **ONE (1)**	----	27

APPENDIX - CLASSIFICATION WORKSHEET (CONTINUED):

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
VARIATION IN RAW WASTE (highest level only) (DMR exceedances and Design Flow exceedances)		
Variation do not exceed those normally or typically expected	0	0
Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow	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	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	4
SOLIDS HANDLING - SLUDGE		
Solids Handling Thickening	5	5
Anaerobic digestion	10	
Aerobic digestion	6	
Evaporative sludge drying	2	
Mechanical dewatering	8	8
Solids reduction (incineration, wet oxidation)	12	
Land application	6	6
Total from page **TWO (2)**	----	48
Total from page **ONE (1)**	---	27
Grand Total	---	75

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

APPENDIX – RPA RESULTS:

Parameter	CMC*	RWC Acute*	CCC*	RWC Chronic*	n**	Range min/max	CV***	MF	RP Yes/No
Total Ammonia as Nitrogen (Summer) mg/L	12.1	11.20	1.5	7.90	33.00	0.53- 6	0.59	1.94	YES
Total Ammonia as Nitrogen (Winter) mg/L	12.1	3.24	3.1	2.28	30.00	0.83 -2.41	0.27	1.39	NO
Cadmium, Total Recoverable	5.96	3.30	0.31	2.45	20	0.2 – 2.5	0.352	1.374	Yes
Copper, Total Recoverable	16.36	39.32	10.75	29.2	20	1.0 - 16	0.775	2.556	Yes
Lead, Total Recoverable	100.75	6.43	3.93	4.8	20	0.34 – 5.0	0.275	1.338	Yes
Zinc, Total Recoverable	137.76	268.82	137.76	199.7	20	1.0 - 96	0.855	2.912	Yes
Chromium III, Total Recoverable	2064.94	6.67	98.71	5.0	17	2.5 – 5.0	0.215	1.388	No
Chromium VI, Dissolved	15	6.63	10	4.9	17	2.5 – 5.0	0.215	1.379	No
Nickel, Total Recoverable	540.04	30.05	60.04	22.3	20	2.4 – 18	0.379	1.736	No
Cyanide, Amenable to Chlorination	22	4.83	5	3.6	20	2.5 – 5.0	0.213	1.004	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.

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
AUGUST 15, 1994

PART III – SLUDGE & BIOSOLIDS FROM DOMESTIC WASTEWATER TREATMENT FACILITIES

SECTION A – GENERAL REQUIREMENTS

1. This permit pertains to sludge requirements under the Missouri Clean Water Law and regulation and incorporates applicable federal sludge disposal requirements under 40 CFR 503. The Environmental Protection Agency (EPA) has principal authority for permitting and enforcement of the federal sludge regulations under 40 CFS 503 until such time as Missouri is delegated the new EPA sludge program. 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 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) and privately owned facilities.
3. Sludge and Biosolids Use and Disposal Practices.
   a. Permittee is authorized to operate the sludge and biosolids treatment, storage, use, and disposal facilities listed in the facility description of this permit.
   b. 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. Permittee is authorized to operate the storage, treatment or generating sites listed in the Facility Description section of this permit.
   d. A separate operating permit is required for each operating location where sludge or biosolids are generated, stored, treated, or disposed, unless specifically exempted in this permit or in 10 CSR 20, Chapter 6 regulations. For land application, see section H, subsection 3 of these standard conditions.
4. Sludge Received From Other Facilities
   a. Permitees 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.
   c. Sludge received from out-of-state generators shall receive prior approval of the permitting authority and shall be listed in the facility description or special conditions section of the permit.
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 du 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 Act or under Chapter 644 RsMo.
8. In addition to the STANDARD CONDITIONS, the department may include sludge limitations in the special conditions portion or other sections of this permit.
9. Alternate Limits in Site Specific Permit.
   Where deemed appropriate, the department may require an individual site specific permit in order to authorize alternate limitations:
   a. An individual permit must be obtained for each operating location, including application sites.
   b. To request a site specific permit, an individual permit application, permit fees, 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 public 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 owners of property located adjacent to each land application site, where appropriate.
    b. Exceptions cannot be grated where prohibited by the federal sludge regulations under 40 CFR 503.
11. Compliance Period
    Compliance shall be achieved as expeditiously as possible but no later than the compliance dates under 40 CFR 503.2.

SECTION B – DEFINITIONS

1. Biosolids means an organic fertilizer or soil amendment produced by the treatment of domestic wastewater sludge. Untreated sludge or sludge that does not conform to the pollutants and pathogen treatment requirements in this permit is not considered biosolids.
2. 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.
3. 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.
4. 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.
5. 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 public owned treatment works (POTW) or privately owned facility.
6. Mechanical treatment plants are wastewater treatment facilities that use mechanical devices to treat wastewater, including septic tanks, extended aeration, activated sludge, contact stabilization, trickling filters, rotating biological discs, and other similar facilities. It does not include unaerated wastewater treatment lagoons and constructed wetlands for wastewater treatment.
7. 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.
8. Plant Available Nitrogen (PAN) is the nitrogen that will be available to plants during the next growing season after biosolids application.
9. Sinkhole is a depression in the land surface into which surface water flows to join an underground drainage system.
10. Site Specific Permit is a permit that has alternate limits developed to address specific site conditions for each land application site or storage site.
11. Sludge is the solid, semisolid, or liquid residue removed during the treatment of wastewater. Sludge includes septage removed from septic tanks.
12. 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.
13. Wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamp, marshes, bogs, and similar areas. Wetlands do not include constructed wetlands used for wastewater treatment.

SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES

1. Sludge shall be routinely removed from the wastewater treatment facilities and handled according to the permit facility description and sludge conditions in this permit.
2. The permittee shall operate the facility so that there is no sludge loss into the discharged effluent in excess of permit limits, no sludge bypassing, and no discharge of sludge 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. The permittee shall require documentation from the contractor of the disposal methods used and permits obtained by the contractor.
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.

SECTION E – WASTEWATER TREATMENT LAGOONS AND STORMWATER RETENTION BASINS

1. Sludge that is retained within a wastewater treatment lagoon is subject to sludge disposal requirements when the sludge is removed from the lagoon or when the lagoon ceases to receive and treat wastewater.
2. If sludge is removed during the year, an annual sludge report must be submitted.
3. Storm water retention basins or other earthen basins, which have been used as sludge storage for a mechanical treatment system is considered a sludge lagoon and must comply with Section G of this permit.

SECTION F – 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 waste, shall be disposed in accordance 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 use or disposal method, quantity, and location. Permittee shall also provide the name of the disposal facility and the applicable permit number.
4. Additional limitations, monitoring, and reporting requirements may be addressed in the Special Conditions sections of this permit.

SECTION G – SURFACE DISPOSAL SITES AND SLUDGE LAGOONS

1. Surface disposal sites shall comply with the requirements in 40 CFR 503 Subpart C, and solid waste disposal regulations under 10 CSR 80.
2. Additional limitations, monitoring, and reporting requirements may be addressed in the Special Conditions section of this permit.
3. Effective February 19, 1995, a sludge lagoon that has been in use for more than two years without removal of accumulated sludge, or that has not been properly closed shall comply with one of the following options:
   a. Permittee shall obtain a site specific permit to address surface disposal requirements under 40 CFR 503, ground water quality regulations under 10 CSR 20, Chapter 7 and 8, and solid waste management regulations under 10 CSR 80;
   b. Permittee shall clean out the sludge lagoon to remove any sludge over two years old and shall continue to remove accumulated sludge at least every two years or an alternate schedule approved under 40 CFR 503.20(b). 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
   c. Permittee shall close the lagoon in accordance with Section 1.

SECTION H – LAND APPLICATION

1. The permittee shall not land apply sludge or biosolids unless land application is authorized in the Facility Description or special conditions section of the permit.
2. This permit replaces and terminates all previous sludge management plan approvals by the department for land application of sludge or biosolids.
3. Land application sites within a 20 mile 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 a site specific permit is required under Section A, Subsection 9.
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 sludge except when sludge meets the definition of biosolids.
   b. This permit authorizes “Class A or B” biosolids derived from domestic wastewater sludges to be land applied onto grass land, crop land, timber land 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. Applications for approval shall be in the form of an engineering report and shall address priority pollutants and dioxin concentrations. Authorization for land applications must be provided in the special conditions section of this permit or in a separate site-specific permit.

6. Agricultural and Silvicultural Sites.
   In addition to specified conditions herein, this permit is subject to the attached Water Quality Guides numbers WQ 422 through 426 published by the University of Missouri, and herby incorporated as though fully set forth herein. The guide topics are as follows:
   - WQ 422 Land Application of Septage
   - WQ 423 Monitoring Requirements for Biosolids Land Application
   - WQ 424 Biosolids Standards for Pathogens and Vectors
   - WQ 425 Biosolids Standards for Metals and Other Trace Substances
   - WQ 426 Best Management Practices for Biosolids Land Applications

SECTION I – CLOSURE REQUIREMENTS

1. This section applies to all wastewater treatment facilities (mechanical and lagoons) and sludge or biosolids storage and treatment facilities and incineration ash ponds. It does not apply to land application sites.
2. Permittees 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, and ash. Permittee must maintain this permit until the facility is properly closed 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 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, the sludge in the lagoon qualifies for Class B with respect to pathogens (see WQ 424, Table 3), and testing for fecal coliform is not required. For other lagoons, testing for fecal coliform is required to show compliance with Class B limitations. Se WQ 423 and 424.
   c. The allowable nitrogen loading that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. See WQ 426 for calculation procedures. For a grass cover crop, the allowable PAN is 300 pounds/acre.
4. When closing a 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 WQ 422. 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 the 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 plan available nitrogen (PAN) loading. 100 dry tons/acre of sludge may be left in the basin without testing for nitrogen. If more than 100 dry tons/acre will be left in the lagoon, test for nitrogen and determine the PAN in accordance with WQ 426. Allowable PAN loading is 300 pounds/acre.
5. Residuals left within the lagoon shall be mixed with soil on at least a 1 to 1 ratio, the lagoon berms shall be demolished, and the site shall be graded and vegetated so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion.
6. Lagoon closure activities shall obtain a storm water permit for land disturbance activities that equal or exceed five acres in accordance with 10 CSR 20-6.200.
7. If sludge exceeds agricultural loading rates under Section H or I, a landfill permit or solid waste disposal permit shall be obtained to authorize 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 J – MONITORING FREQUENCY

1. At a minimum, sludge or biosolids shall be tested for volume and percent total solids on a frequency that will accurately respresent sludge quantities produced and disposed.
2. Testing for land application is listed under Section H, Subsection 6 of these standard conditions (see WQ 423). Once per year is the minimum test frequency. Additional testing shall be performed for each 100 dry tons of sludge generated or stored during the year.
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. Monitoring requirements shall be performed in accordance with, “POTW Sludge Sampling and Analysis Guidance Document”, United States Environmental Protection Agency, August 1989, and subsequent revisions.

SECTION K – RECORD KEEPING AND REPORTING REQUIREMENTS

1. The permittee shall maintain records on file at the facility for at least five years for the items listed in 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. Report 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)

   EPA Region VII
   Water Compliance Branch (WACM)
   Sludge Coordinator
   901 N 5th Street
   Kansas City, KS 66101

5. Annual Report Contents. The annual report shall include the following:
   a. Sludge/biosolids testing performed. Include a copy or summary of all test results, even if not required by this 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 end of 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.
      (1) This must include the name, address and permit number for the hauler and the sludge facility. If hauled to a municipal wastewater treatment facility, sanitary landfill, or other approved treatment facility, give the name and permit number of that facility.
      (2) 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 or billing receipts 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 disposal or biosolids use permit.
   g. Land Application Sites.
      (1) 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 legal description for nearest ¼, ¼, Section, Township, Range, and County, or as latitude and longitude.
      (2) If biosolids application exceeds 2 dry tons/acre/year, report biosolids nitrogen results. Plant Available Nitrogen (PAN) in pounds/acre, crop nitrogen requirement, available nitrogen in the soil prior to biosolids application, and PAN calculations for each site.
      (3) If the "Low Metals" criteria is exceeded, report the annual and cumulative pollutant loading rates in pounds per acre for each applicable pollutant, and report the percent of cumulative loading which has been reached at each site.
      (4) Report the method used for compliance with pathogen and vector attraction requirements.
      (5) Report soil test results for pH, CEC, and phosphorus. If none was tested during the year, report the last date when tested and results.

C10227
AP13406

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

FOR AGENCY USE ONLY	
CHECK NUMBER	NO FEE Required.
DATE RECEIVED 10/3/12	FEE SUBMITTED Ø

PART A – BASIC APPLICATION INFORMATION

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- 0035009 Expiration Date April 3, 2013
- ☐ An operating permit modification: Permit #MO-____ Reason: ____

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	
Sikeston Wastewater Treatment Facility		573-471-3328	
ADDRESS (PHYSICAL)	CITY	STATE	ZIP
860 S. Ingram Road	Sikeston	Mo	63801

2.1 **LEGAL DESCRIPTION** (Plant Site): ¼, SE ¼, NW ¼, Sec. , T , R 14e County Scott

2.2 UTM Coordinates Easting (X): ____ Northing (Y): ____ +36520981/-0893349
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

3. OWNER Sikeston Board of Municipal Utilities

NAME	TITLE	TELEPHONE NUMBER WITH AREA CODE	
Jeffrey L. Winders, P.E.	Operations Manager	573-471-3328	
ADDRESS	CITY	STATE	ZIP
P.O. Box 370	Sikeston	Mo	63801

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	
Sikeston Board of Municipal Utilities		Sikeston	
ADDRESS	CERTIFICATE NUMBER (IF APPLICABLE)	STATE	ZIP
P.O. Box 370		Mo	63801

5. OPERATOR

NAME	TITLE	TELEPHONE NUMBER WITH AREA CODE
Steve Baker	WWTP Chief Operator	573-471-3328

6. FACILITY CONTACT

NAME	TITLE
Jeff Winders	Operations Manager

MO 780-1805 (09-08)

Board of Municipal Utilities
BMU Sikeston
"Your Hometown Municipal Utility Since 1931"

107 East Malone Avenue
P.O. Box 370
Sikeston, Missouri 63801

Phone: (573) 471-3328
Fax: (573) 471-7288
Webpage: www.sikestonbmu.org

Edward D. Throop, General Manager

September 28, 2012

RECEIVED
OCT 03 2012
WATER PROTECTION PROGRAM

Missouri Department of Natural Resources
Water Protection Program
P.O. Box 176
Jefferson City, Mo. 65102

Re: Sikeston WWTF; NPDES Permit No. Mo0035009 Renewal Application

To Whom It May Concern:

Enclosed are the following documents required to renew our operating permit No. MO0035009.

1. A completed copy of Form B2 – Application for Construction or Operating Permit for Facilities which receive basically Domestic Waste and Have a design flow more than 100,000 gallons per day, including Parts A through F.
2. A copy of a 1"=2000' USGS Topographic Map showing the location of all outfalls, including storm water, at the plant. (Item 7.2)
3. Copies of Google Earth maps showing the location of each sludge disposal site currently in use.
4. A schematic drawing of the plant showing the plant facilities and piping layout, including average daily flows through individual process units. (Item 7.2)
5. A list of current Significant Industrial dischargers into the system tributary to this plant. (Part F, Item 60.3)
6. A copy of the toxicity testing results. (Item E)

Please contact me if you need additional information to renew this permit,

Sincerely yours,

Jeffrey L. Winders, P.E.
Assistant Operations Manager

Cc. Mr. Ed Throop, General Manager, Board of Municipal Utilities
Enc.

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	
Sikeston Wastewater Treatment Facility	
PERMIT NO.	COUNTY
Mo-0035009	Scott

APPLICATION OVERVIEW

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

BASIC APPLICATION INFORMATION

A. Basic Application Information for all Applicants. All applicants must complete Part A.

B. Additional Application Information for all Applicants. All applicants must complete Part B.

C. Certification. All applicants must complete Part C.

SUPPLEMENTAL APPLICATION INFORMATION

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

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

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

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

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

SIUs are defined as:

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

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

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WATER PROTECTION PROGRAM

ALL APPLICANTS MUST COMPLETE PARTS A, B and C

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sikeston Wastewater Treatment Facility	MO- 0035009	001

PART A – BASIC APPLICATION INFORMATION

7. ADDITIONAL FACILITY INFORMATION

7.1 BRIEF DESCRIPTION OF FACILITIES

Combined oxidation ditch/contact stabilization plant sludge is land applied.

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 .	4952 .	____ .	____ .

7.5 NUMBER OF SEPARATE DISCHARGE POINTS
Three (3): 001 - Treated Effluent; 002/003 Stormwater

7.6 NUMBER OF PEOPLE PRESENTLY CONNECTED OR POPULATION EQUIVALENT	DESIGN POPULATION EQUIVILENT
17,000 MGD	30,000 MGD

NUMBER OF UNITS PRESENTLY CONNECTED
HOMES ____ APARTMENTS ____ TRAILERS ____ OTHER 7,429 Total

TOTAL DESIGN FLOW (ALL OUTFALLS)	ACTUAL FLOW
5.0 MGD	2.1

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
116

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?
All	Seven (7)

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. SEE Attached.

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 ☑

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sikeston Wastewater Treatment Facility	MO- 0035009	001

PART A – BASIC APPLICATION INFORMATION

9. SLUDGE HANDLING, USE AND DISPOSAL

9.1 IS THE SLUDGE A HAZARDOUS WASTE AS DEFINED BY 10 CSR 25?
Yes ☐ No ☑

9.2 SLUDGE PRODUCTION, INCLUDING SLUDGE RECEIVED ROM OTHERS
Design Dry Tons/Year 615 Actual Dry Tons/Year 607

9.3 CAPACITY OF SLUDGE HOLDING STRUCTURES

9.4 SLUDGE STORAGE PROVIDED
Cubic Feet 113,875 Days of Storage 30 Average Percent Solids of Sludge 2.7% ☐ No Sludge Storage is Provided

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

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			
Aplicant			
ADDRESS	CITY	STATE	ZIP
CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO	
		MO-	

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

NAME			
ADDRESS	CITY	STATE	ZIP
CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO	
		MO-	

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			
Robert Scott Mathews, Jr.			
ADDRESS	CITY	STATE	ZIP
1020 N. Ranney	Sikeston	Mo	63801

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)
Municipal; Sikeston, Mo. - 4010743

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.
Sikeston Wastewater Treatment Facility	MO- 0035009	001

PART B – ADDITIONAL APPLICATION INFORMATION

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 200,000

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

Purchased vac. truck & as cleaning/maint. on sewer system performed, breaks are repaired.

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 Outfall No.	B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies. 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 **001**

A. LOCATION

¼ SE ¼ NW ¼ ___ Section 29 Township 26N Range 14 ☑ E ☐ W

UTM Coordinates Easting (X): _____ Northing (Y): _____ Lat +36 52109 Long -089 33568

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

B. Distance from Shore (If Applicable) _____ ft.	C. Depth Below Surface (If Applicable) _____ ft.	D. Average Daily Flow Rate _____ 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: mgd	Months in Which Discharge Occurs:

Is Outfall Equipped with a Diffuser? ☐ Yes ■ No

20.5 DESCRIPTION OF RECEIVING WATER

B. Name of Receiving Water

St. Johns Ditch (P) (03138)

B. Name of Watershed (If Known) New Madrid Ditches Basin	U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)
B. Name of State Management/River Basin (If Known)	U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known) 08020201-030003
B. Critical Flow of Receiving Stream (If Applicable) Acute _____ cfs Chronic _____ cfs	B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable) mg/L of $CaCO_3$

MO 780-1805 (09-08)

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sikeston Wastewater Treatment Facility	MO- 0035009	001

PART B – ADDITIONAL APPLICATION INFORMATION (CONTINUED)

20.6 DESCRIPTION OF TREATMENT

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

☐ Primary ☑ Secondary ☐ Advanced ☐ Other (Describe)

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:

See Attachment

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

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

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)	6.89	S.U.	7.19	S.U.	112
pH (Maximum)	7.63	S.U.	7.19	S.U.	112
FLOW RATE	4.238	MGD	2.229	MGD	114
TEMPERATURE (Winter)	18	°C	13	°C	27
TEMPERATURE (Summer)	28	°C	25	°C	28

*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		mg/L		mg/L			
	$CBOD_5$	13	mg/L	7	mg/L	112	SM5210B	
FECAL COLIFORM		>40,000	#/100 mL	14,828	#/100 mL	12	SM9222D-97	
TOTAL SUSPENDED SOLIDS (TSS)		20	mg/L	10	mg/L	112	SM2540D	
AMMONIA (AS N)		1.9	mg/L	0.92	mg/L	110	SM4500D	
CHLORINE (TOTAL RESIDUAL, TRC)			mg/L		mg/L			
DISSOLVED OXYGEN		8.9	mg/L	7.1	mg/L	112	SM4500D	
TOTAL KJELDAHL NITROGEN (TKN)			mg/L		mg/L			
NITRATE PLUS NITRITE NITROGEN			mg/L		mg/L			
OIL AND GREASE		13	mg/L	<5	mg/L	12	EPA1664A	
PHOSPHORUS (TOTAL)			mg/L		mg/L			
TOTAL DISSOLVE SOLIDS (TDS)			mg/L		mg/L			
OTHER			mg/L		mg/L			

END OF PART B

MO 780-1805 (09-08)

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sikeston Wastewater Treatment Facility	MO- 0035009	002

PART B – ADDITIONAL APPLICATION INFORMATION

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 N/A

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

_____

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 Outfall No.	B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies. 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 **002**

A. LOCATION

¼ SE ¼ NW ¼ ___ Section 29 Township 26N Range 14 ☑ E ☐ W

UTM Coordinates Easting (X): _____ Northing (Y): _____ +3652101/-08933580

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

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

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

☑ Yes ☐ No If Yes, Provide the following information: **Storm water runoff**

Number of Days Per Year Discharge Occurs: **Unknown**	Average Duration of Each Discharge: **Unknown**	Average Flow Per Discharge: mgd 10 GPM(est)	Months in Which Discharge Occurs: Unknown

Is Outfall Equipped with a Diffuser? ☐ Yes ■ No

20.5 DESCRIPTION OF RECEIVING WATER

B. Name of Receiving Water

Ditch tributary to St. John's ditch

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

MO 780-1805 (09-08)

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sikeston Wastewater Treatment Facility	MO- 0035009	002

PART B – ADDITIONAL APPLICATION INFORMATION (CONTINUED)

20.6 DESCRIPTION OF TREATMENT

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

☐ Primary ☐ Secondary ☐ Advanced ■ Other (Describe) Storm water runoff at plant

B. INDICATE THE FOLLOWING REMOVAL RATES (AS APPLICABLE)

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

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:

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)		S.U.		S.U.	
pH (Maximum)	7.47	S.U.	7.41	S.U.	1
FLOW RATE	<0.001	MGD	<0.001	MGD	1
TEMPERATURE (Winter)		°C		°C	
TEMPERATURE (Summer)	22	°C	22	°C	1

*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	21	mg/L	21	mg/L	1	SM5210B	
	$CBOD_5$		mg/L		mg/L			
FECAL COLIFORM			#/100 mL		#/100 mL			
TOTAL SUSPENDED SOLIDS (TSS)		11	mg/L	11	mg/L	1	SM2540D	
AMMONIA (AS N)			mg/L		mg/L			
CHLORINE (TOTAL RESIDUAL, TRC)			mg/L		mg/L			
DISSOLVED OXYGEN			mg/L		mg/L			
TOTAL KJELDAHL NITROGEN (TKN)			mg/L		mg/L			
NITRATE PLUS NITRITE NITROGEN			mg/L		mg/L			
OIL AND GREASE		<5	mg/L	<5	mg/L	1	EPA1664A	
PHOSPHORUS (TOTAL)			mg/L		mg/L			
TOTAL DISSOLVE SOLIDS (TDS)			mg/L		mg/L			
OTHER			mg/L		mg/L			

END OF PART B

MO 780-1805 (09-08)

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sikeston Wastewater Treatment Facility	MO- 0035009	003

PART B – ADDITIONAL APPLICATION INFORMATION

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 N/A

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

_____

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 Outfall No.	B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies. 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 **003**

A. LOCATION

¼ SE ¼ NW ¼ ___ Section 29 Township 26N Range 14 ☑ E ☐ W

UTM Coordinates Easting (X): _____ Northing (Y): _____ +3652098/-08933560

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

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

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

☑ Yes ☐ No If Yes, Provide the following information: **Storm water runoff**

Number of Days Per Year Discharge Occurs: **Unknown**	Average Duration of Each Discharge: **Unknown**	Average Flow Per Discharge: 10 GPM(est) mgd	Months in Which Discharge Occurs: Unknown

Is Outfall Equipped with a Diffuser? ☐ Yes ■ No

20.5 DESCRIPTION OF RECEIVING WATER

B. Name of Receiving Water

Ditch tributary to St. John's ditch

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

MO 780-1805 (09-08)

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sikeston Wastewater Treatment Facility	MO- 0035009	003

PART B – ADDITIONAL APPLICATION INFORMATION (CONTINUED)

20.6 DESCRIPTION OF TREATMENT

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

☐ Primary ☐ Secondary ☐ Advanced ■ Other (Describe) Storm water runoff at plant

B. INDICATE THE FOLLOWING REMOVAL RATES (AS APPLICABLE)

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

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:

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)		S.U.		S.U.	
pH (Maximum)	7.52	S.U.	7.52	S.U.	1
FLOW RATE	<0.001	MGD	<0.001	MGD	1
TEMPERATURE (Winter)		°C		°C	
TEMPERATURE (Summer)	22	°C	22	°C	1

*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	22	mg/L	22	mg/L	1	SM5210B	
	$CBOD_5$		mg/L		mg/L			
FECAL COLIFORM			#/100 mL		#/100 mL			
TOTAL SUSPENDED SOLIDS (TSS)		9	mg/L	9	mg/L	1	SM2540B	
AMMONIA (AS N)			mg/L		mg/L			
CHLORINE (TOTAL RESIDUAL, TRC)			mg/L		mg/L			
DISSOLVED OXYGEN			mg/L		mg/L			
TOTAL KJELDAHL NITROGEN (TKN)			mg/L		mg/L			
NITRATE PLUS NITRITE NITROGEN			mg/L		mg/L			
OIL AND GREASE		<5	mg/L	<5	mg/L	1	EPA1664A	
PHOSPHORUS (TOTAL)			mg/L		mg/L			
TOTAL DISSOLVE SOLIDS (TDS)			mg/L		mg/L			
OTHER			mg/L		mg/L			

END OF PART B

MO 780-1805 (09-08)

PART C - CERTIFICATION

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)

Jeffrey L. Winders, P.E. Operations Manager

SIGNATURE

TELEPHONE NUMBER WITH AREA CODE

573-471-3328

DATE SIGNED

9/28/2012

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

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

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.

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sikeston Wastewater Treatment Facility	MO- 0035009	001

PART D – EXPANDED EFFLUENT TESTING DATA

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											
ARSENIC											
BERYLLIUM											
CADMIUM	<0.003	mg/L			<0.003	mg/L			4	SM3111B99	
CHROMIUM	<0.005	mg/L			<0.005	mg/L			4	SM3111B99	
COPPER	0.005	mg/L			<0.003	mg/L			4	SM3111B99	
LEAD	<0.01	mg/L			<0.01	mg/L			4	EPA-200-7	
MERCURY											
NICKEL	<0.01	mg/L			<0.01	mg/L			4	SM3111B99	
SELENIUM											
SILVER											
THALLIUM											
ZINC	0.063	mg/L			<0.02	mg/L			4	SM3111B99	
CYANIDE	<0.005	mg/L			<0.005	mg/L			4	SM4500CNg	
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.
Sikeston Wastewater Treatment Facility	MO- 0035009	001

PART D – EXPANDED EFFLUENT TESTING DATA (CONTINUED)

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											
ACRYLONITRILE											
BENZENE											
BROMOFORM											
CARBON TETRACHLORIDE											
CHLOROBENZENE											
CHLORODIBROMO-METHANE											
CHLOROETHANE											
2-CHLORO-ETHYLVINYL ETHER											
CHLOROFORM											
DICHLOROBROMO-METHANE											
1,1-DICHLORO-ETHANE											
1,2-DICHLORO-ETHANE											
TRANS-1,2-DICHLOROETHYLENE											
1,1-DICHLORO-ETHYLENE											
1,2-DICHLORO-PROPANE											
1,3-DICHLORO-PROPYLENE											
ETHYLBENZENE											
METHYL BROMIDE											
METHYL CHLORIDE											
METHYLENE CHLORIDE											
1,1,2,2-TETRA-CHLOROETHANE											
TETRACHLORO-ETHANE											
TOLUENE											
3,4-BENZO-FLUORANTHENE											
BENZO(GH) PHERYLENE											
BENZO(K) FLUORANTHENE											

MO 780-1805 (09-08)

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sikeston Wastewater Treatment Facility	MO- 0035009	001

PART D – EXPANDED EFFLUENT TESTING DATA (CONTINUED)

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											
BIS (2-CHLOROETHYL) – ETHER											
BIS (2-ETHYLHEXYL) PHTHALATE											
4-BROMOPHENYL PHENYL ETHER											
BUTYL BENZYL PHTHALATE											
2-CHLORONAPH-THALENE											
4-CHLORPHENYL PHENYL ETHER											
CHRYSENE											
DI-N-BUTYL PHTHALATE											
DEBENZO (A,H) ANTHRACENE											
1,2-DICHLORO-BENZENE											
1,3-DICHLORO-BENZENE											
1,4-DICHLORO-BENZENE											
3,3-DICHLORO-BENZIDINE											
DIETHYL PHTHALATE											
DIMETHYL PHTHALATE											
2,4-DINITRO-TOLUENE											
2,6-DINITRO-TOLUENE											
1,2-DIPHENYL-HYDRAZINE											
1,1,1-TRICHLORO-ETHANE											
1,1,2-TRICHLORO-ETHANE											
TRICHLORETHYLENE											
VINYL CHLORIDE											
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.
Sikeston Wastewater Treatment Facility	MO- 0035009	001

PART D – EXPANDED EFFLUENT TESTING DATA (CONTINUED)

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											
2-CHLOROPHENOL											
2,4-DICHLOROPHENOL											
2,4-DIMETHYLPHENOL											
4,6-DINITRO-O-CRESOL											
2,4-DINITROPHENOL											
2-NITROPHENOL											
4-NITROPHENOL											
PENTACHLOROPHENOL											
PHENOL											
2,4,6-TRICHLOROPHENOL											
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.
Sikeston Wastewater Treatment Facility	MO- 0035009	001

PART D – EXPANDED EFFLUENT TESTING DATA (CONTINUED)

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											
ACENAPHTHYLENE											
ANTHRACENE											
BENZIDINE											
BENZO(A)ANTHRACENE											
BENZO(A)PYRENE											
FLUORANTHENE											
FLUORENE											
HEXACHLOROBENZENE											
HEXACHLOROCYCLO-PENTADIENE											
HEXACHLOROETHANE											
INDENO (1,2,3-CD) PYRENE											
ISOPHORONE											
NAPHTHALENE											
NITROBENZENE											
N-NITROSODI-PROPYLAMINE											
N-NITROSODI-METHYLAMINE											
N-NITROSODI-PHENYLAMINE											
PHENANTHRENE											
PYRENE											
1,2,4-TRICHLOROBENZENE											
USE THIS SPACE (OR SEPARATE SHEET) TO PROVIDE INFORMATION ON OTHER BASE-NEUTRAL COMPOUNDS REQUESTED BY THE PERMIT WRITER.											

END OF PART D

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

MO 780-1805 (09-08)

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.		
FACILITY NAME Sikeston Wastwater Treatment Facility	PERMIT NO. MO- 0035009	OUTFALL NO. 001

PART E – TOXICITY TESTING DATA

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 See Attached Test Results

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.
Sikeston Wastewater Treatment Facility	MO- 0035009	001

PART E – TOXICITY TESTING DATA (CONTINUED)

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)

END OF PART E

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

MO 780-1805 (09-08)

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sikeston Wastewater Treatment Facility	MO- 0035009	001

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

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
4	2

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

See Attached SIU Table

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.

FACILITY NAME	PERMIT NO.	OUTFALL NO.
Sikeston Wastewater Treatment Facility	MO- 0035009	001

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES (CONTINUED)

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:

END OF PART F

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

MO 780-1805 (09-08)

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.		
FACILITY NAME Sikeston Wastewater Treatment Facility	PERMIT NO. MO- 0035009	OUTFALL NO. 001

PART G – COMBINED SEWER SYSTEMS

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.)

END OF PART G.

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

MO 780-1805 (09-08)

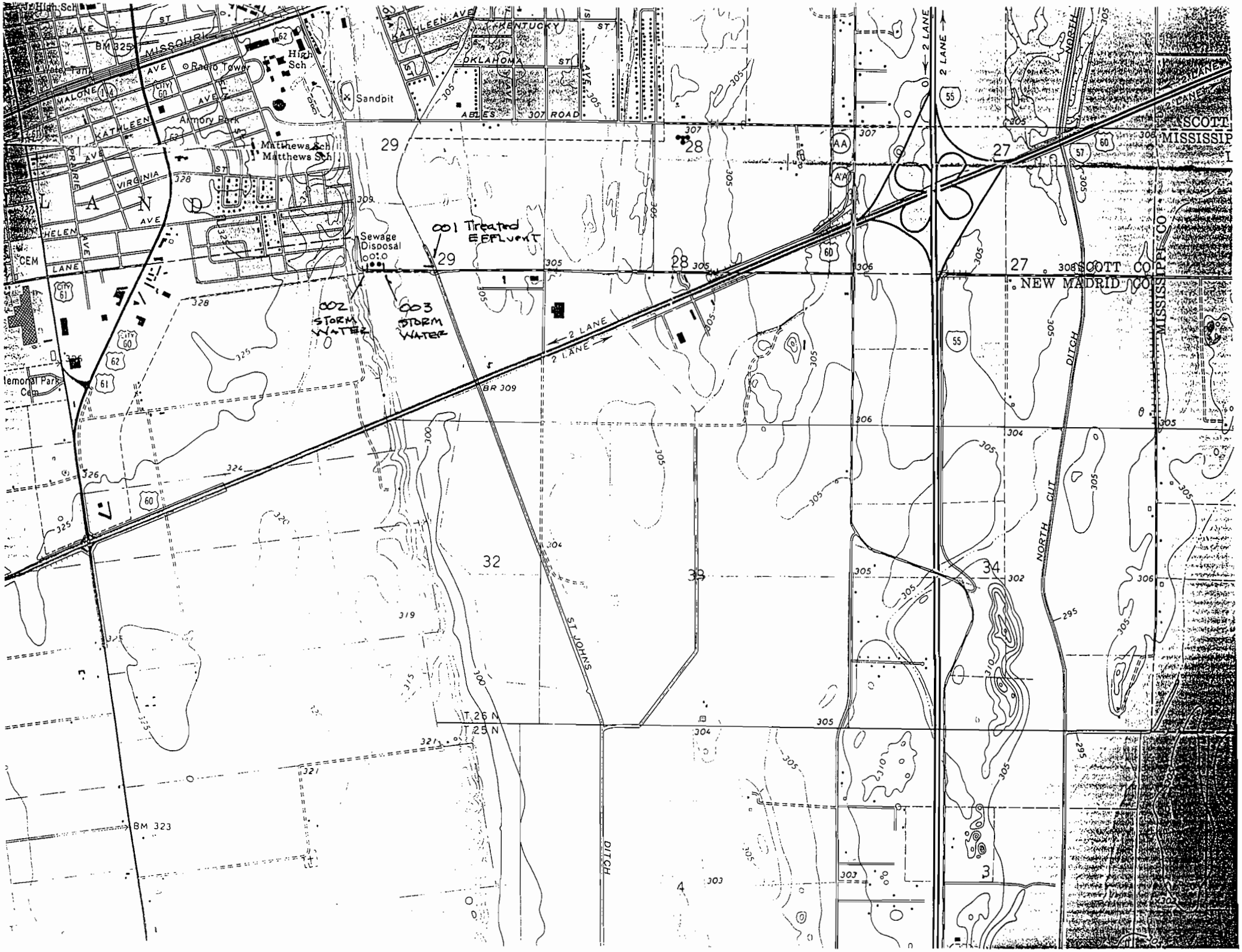
Attachement to Form B2:

Item 7.14 - LETTERS OF WARNING

Outfall	Monitoring Period End Date	Parameter	Units	Permit Limitations	Reported Values
001	12/31/2011	Oil and Grease (soxhlet extr.) tot.	Mg/L	10 Monthly Avg – 15 Daily Max	13
001	4/30/2009	D.O.		5.0 mg/L minimum – 5.0 mg/L avg	1.9 mg/L min – 3.3 mg/L avg
001	2/6/2009	D.O.		5.0 mg/L minimum – 5.0 mg/L avg	2.9 mg/L min.
001	10/01/2008 10/31/2008 11/27/2008 11/30/2008	D.O.		5.0 mg/L minimum – 5.0 mg/L avg	1.3 mg/L min 3.6 mg/L avg 2.9 mg/L min 4.8 mg/L avg
001	4/25/2008 5/20/2008	FECAL		400 avg-1000 max colonies	>40,000 colonies 1080 colonies

Item 9.6 – Other: Gravity Belt Thickener

Item 20.6 C – Plans for UV disinfection with post aeration are with the MoDNR for review.


Jr High Sch
LAKE ST
MISSOURI
BM 325
Water Tank
Radio Tower
High Sch
MALONE AVE
KATHLEEN AVE
Armory Park
Matthews Sch
Matthews Sch
VIRGINIA ST
HELEN AVE
LANE
CEM
Memorial Park Cem
Sandpit
KENTUCKY ST
OKLAHOMA ST
ABLES ROAD
Sewage Disposal
001 Treated EFFLUENT
002 STORM WATER
003 STORM WATER
2 LANE
BR 309
ST JOHNS DITCH
NORTH CUT DITCH
SCOTT CO
NEW MADRID CO
MISSISSIPPI CO
BM 323
T 26 N
T 25 N
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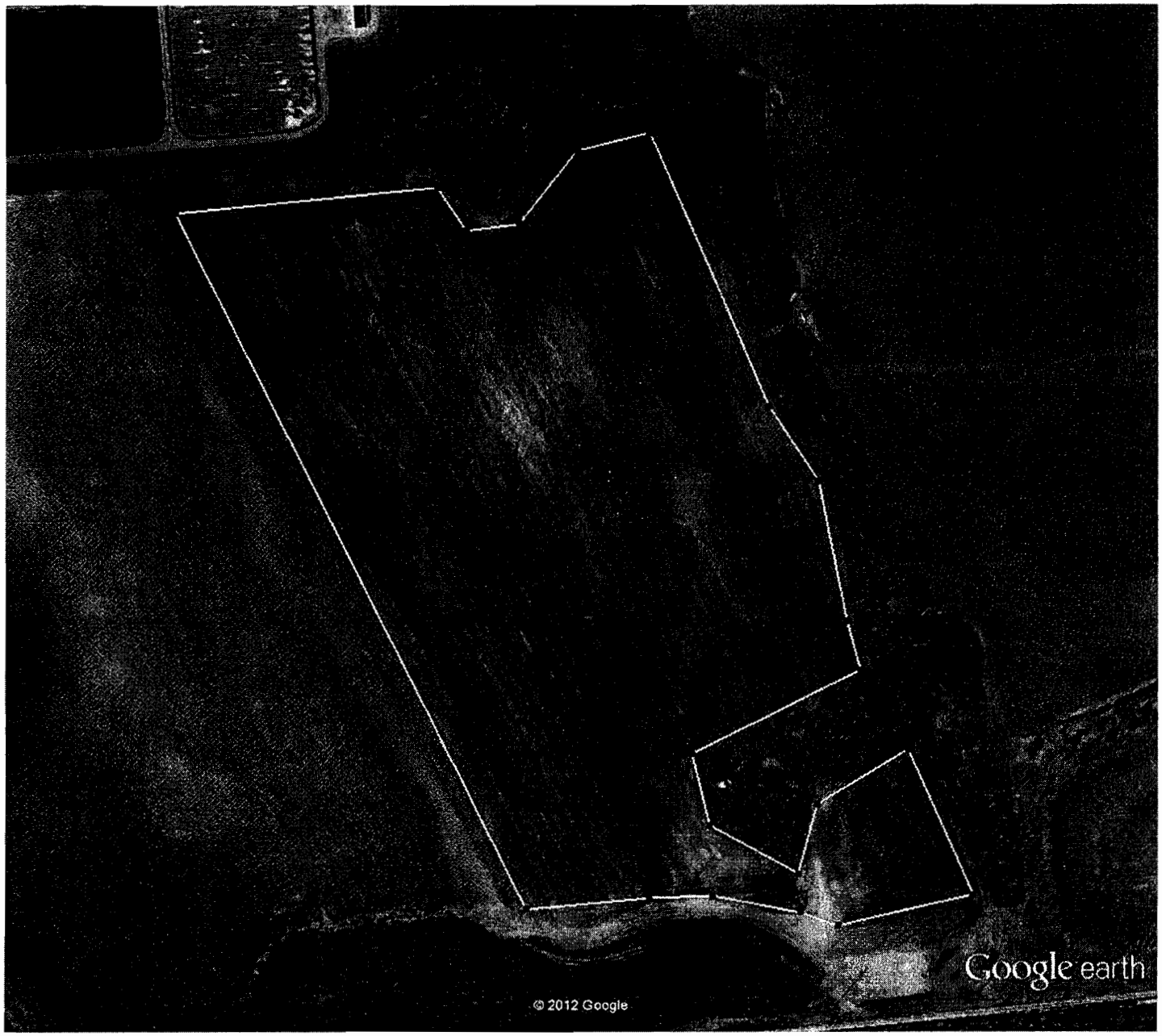


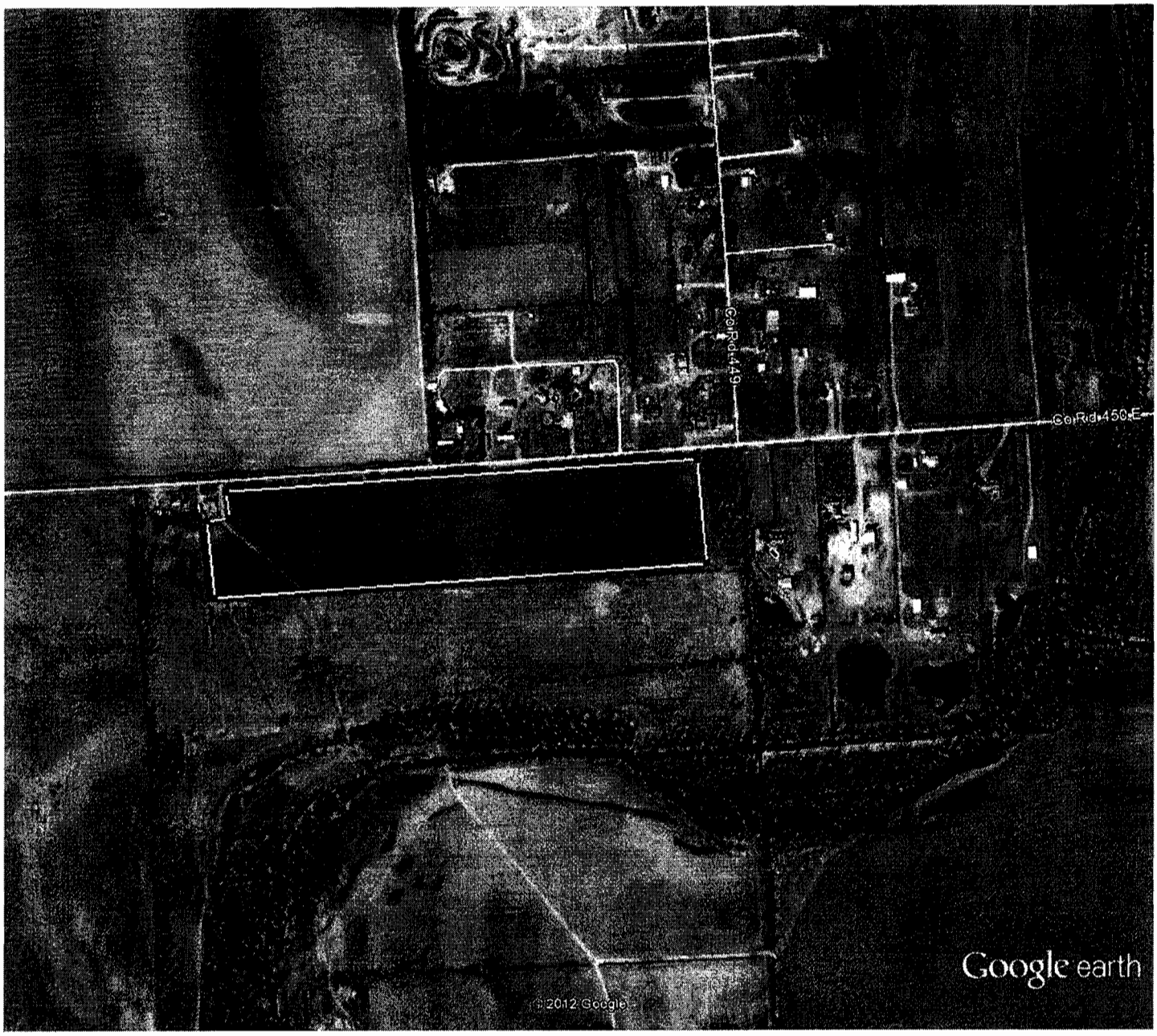
Google earth

feet 1000
meters 300

Google earth

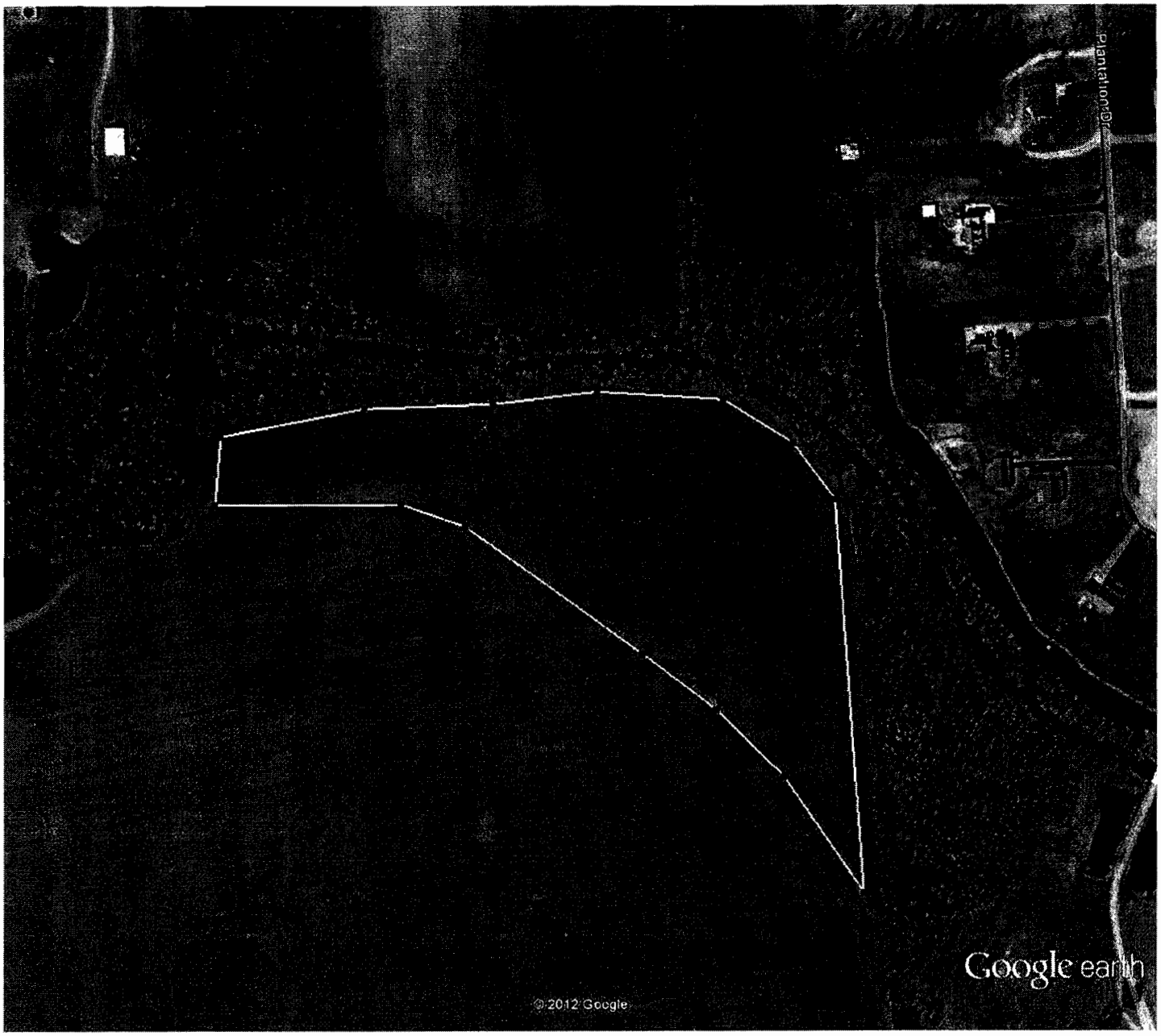
feet 2000

meters 700



Google earth

feet 2000
meters 700



Google earth

feet 1000
meters 300

Google earth

feet 1000

meters 500

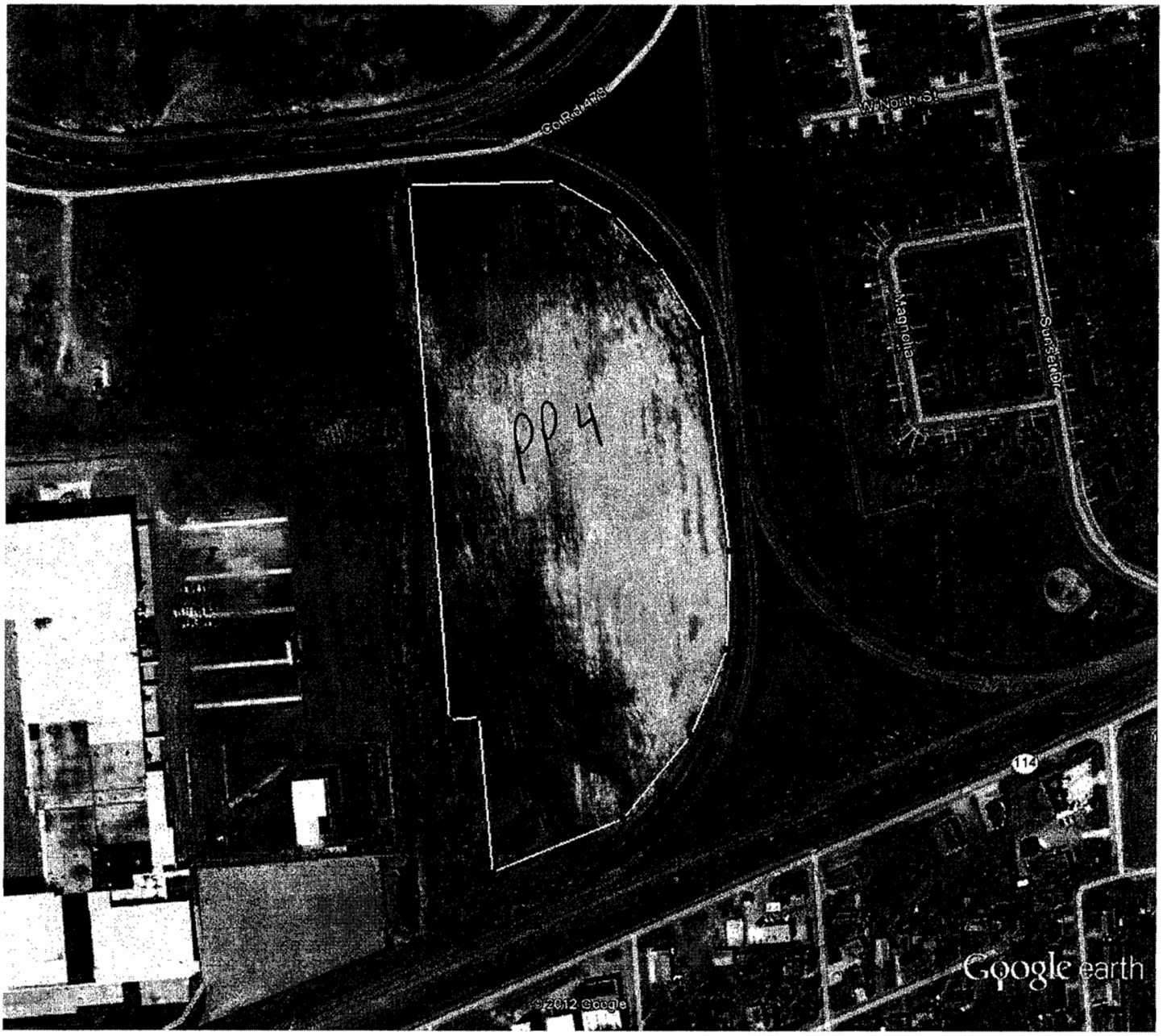
Google earth

feet 1000

meters 500

Google earth

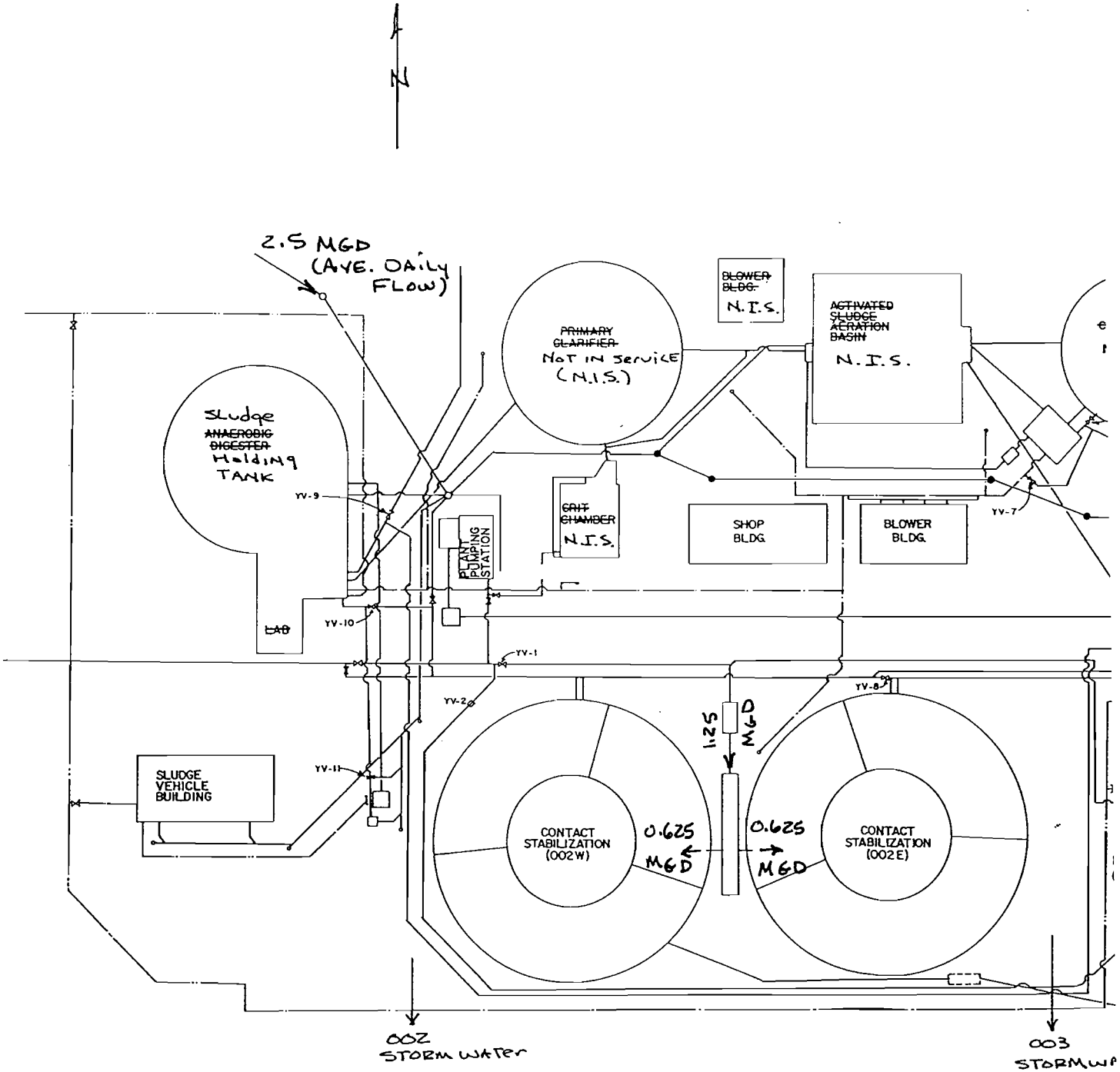
feet 2000
meters 600



Google earth

feet 1000

meters 400


N
2.5 MGD
(AVE. DAILY
FLOW)
~~PRIMARY~~
~~CLARIFIER~~
NOT IN SERVICE
(N.I.S.)
~~BLOWER~~
~~BLDG.~~
N.I.S.
~~ACTIVATED~~
~~SLUDGE~~
~~AERATION~~
~~BASIN~~
N.I.S.
SLUDGE
~~ANAEROBIC~~
~~DIGESTER~~
HOLDING
TANK
YV-9
~~GRIT~~
~~CHAMBER~~
N.I.S.
SHOP
BLDG.
BLOWER
BLDG.
YV-7
PLANT
PUMPING
STATION
~~LAB~~
YV-10
YV-1
YV-2
YV-8
1.25
MGD
YV-11
SLUDGE
VEHICLE
BUILDING
CONTACT
STABILIZATION
(002W)
0.625
MGD
0.625
MGD
CONTACT
STABILIZATION
(002E)
002
STORM WATER
003
STORMWA

As of: September 28, 2012

INDUSTRIAL DISCHARGERS - SIKESTON POTW							
No	Name/Classification	Address	Flow Non -Process	Flow Process	Industry Type SIC Code	Subject to Local Limits or Categorical Pretreatment Standards	Problems caused by discharge to plant
1	Alan Wire Co. CIU	PO Box 824 830 S. West St. Sikeston, MO 63801	Domestic 4,500 gpd Continuous	No Discharge Closed Loop	Copper Wire Forming & Coating 3357	Categorical	None
2	Alan Wire Co. CIU	PO Box 824 1500 W. Malone Ave. Sikeston, MO 63801	Domestic 1,500 gpd Continuous	No Discharge Closed Loop	Copper Wire Forming & Coating 3357	Categorical	None
3	Aramark Uniform Services SIU	PO Box 159 400 N. West St. Sikeston, MO 63801	Domestic 2,815 gpd Continuous	36,698 gpd Continuous	Industrial Laundry 7218-7219	Local Limits	None
4	Unilever Ice Cream SIU	1010 County Line Road Sikeston, MO 63801	13,830 gpd Continuous	289,710 gpd Continuous	Water Ice & Ice Cream Novelty Production 2024	Local Limits	None
5	Unilever Ice Cream SIU	2400 Rose Parkway Sikeston, MO 63801	7,830 gpd Continuous	96,686 gpd Continuous	Water Ice & Ice Cream Novelty Production 2024	Local Limits	None
6	Cott Beverages USA, Inc. (Choice Brands USA) SIU	301 Larcel Dr. Sikeston, MO 63801	2,640 gpd Continuous	130,277 gpd Continuous	Manufacturers of Bottled & Canned Soft Drinks and Carbonated Waters 2086	Local Limits	None

Part E

Attachment

Toxicity Testing Data

Environmental Analysis South, Inc.

4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 100%
MO-0035009
EAS LOG# 922519
July 25, 2007 through July 27, 2007

Tests performed by:

John P. Clippard / Chemical Analyst at Environmental Analysis South (EAS)
Kelly J. Ray / Biologist at Environmental Analysis South (EAS)
Sara C. Shields / Lab Supervisor - Chemist at Environmental Analysis South (EAS)
David F. Warren / Lab Director - Chemist at Environmental Analysis South (EAS)

1. **Report Summation**
   - 1.1. **Data Summation**
   - 1.2. **Conclusion**
2. **Method Summation**
   - 2.1. **Test Conditions and Methods**
   - 2.2. **Potassium chloride Reference Salt Test**
     - *2.2.1.* ***Pimephales promelas*** **data**
     - *2.2.2.* ***Ceriodaphnia dubia*** **data**
   - 2.3. **Literature Cited**
3. **Raw Data Bench Sheets**
   - 3.1. **Initial observations (page 1)**
   - 3.2. **Zero hour Observations (page 1)**
   - 3.3. **Twenty-four (24) hour Observations (page 1)**
   - 3.4. **Forty-eight (48) hour Observations (page 1)**
   - 3.5. **Survival Data Table (page 2)**
   - 3.6. **Test Comments (page 3)**
4. **Chain of Custody**
5. **MO DNR "Whole Effluent Toxicity (WET) Test Report (Form 780-1899)**

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

REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 100%
MO-0035009
EAS LOG# 922519
July 25, 2007 through July 27, 2007

1. REPORT SUMMATION:

1.1. Single Dilution Data Summation

	Pimephales promelas Acute Toxicity Test	*Ceriodaphnia dubia* Acute Toxicity Test
Survival in the Effluent at 48 Hours	100%	100%
Survival in the Reconstituted Control (RC) at 48 Hours	100%	100%
Survival in the Upstream Control (UC) at 48 Hours	100%	100%
Statistical Results Comparing the Survival Data of the Effluent with the Control (arc sine square root transformation)	No Significant Difference at alpha = 0.05 **PASS**	No Significant Difference at alpha = 0.05 **PASS**

* Indicates a significant difference at alpha = 0.5 between effluent and control survival data.

Conclusion: The mortality observed with both species was determined not to be significantly different than that observed in the control sample.
Based on these results the outfall passed the whole effluent toxicity test with both indicator species.

Approved by _____
Sara C. Shields, Chemist

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

REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 100%
MO-0035009
EAS LOG# 922519
July 25, 2007 through July 27, 2007

2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	Ceriodaphnia dubia:	*Pimephales promelas:*
Test duration:	48 hours	48 hours
Temperature:	24 - 26 degree Celsius	24 - 26 degree Celsius
Light quality:	Ambient laboratory illumination	Ambient laboratory illumination
Photoperiod:	16 hour light, 8 hours dark	16 hour light, 8 hours dark
Control Water:	Moderately Hard Reconstituted Water	Moderately Hard Reconstituted Water
Dilution Water:	Upstream Water - If unavailable or toxic, then control water will be used.	Upstream Water - If unavailable or toxic, then control water will be used.
Size of test vessel:	30 milliliters	250 milliliters
Volume of test solution:	15 milliliters	200 milliliters
Age of test organisms:	<24 hours	1 -14 days (all same age)
Number of organisms/test vessel:	5	10
Number of replicates/concentration:	4	2
Number of organisms/concentration:	20	40 for a single dilution test and 20 for a multiple dilution test
Feeding regime:	None (fed prior to test)	None (fed prior to test)
Aeration:	None	None
Test acceptability criterion:	90% or greater survival in controls	90% or greater survival in controls

The methodology used for the chemistry data was taken from the *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992). The exception was hardness, which was determined using a Hach EDTA titration test kit. The toxicity tests follow guidelines laid out in the permittee's NPDES permit and were conducted according to EPA approved methods (USEPA 2002).

All test organisms were cultured according to EPA approved methods (USEPA 2002). The *Ceriodaphnia dubia* and the *Pimephales promelas* were obtained from C-K Associates Inc. located in Baton Rouge, Louisiana and shipped overnight for use in the whole effluent toxicity test

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MO-0035009
EAS LOG# 922519
July 25, 2007 through July 27, 2007

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on June 20, 2007 using KCL Lot #41713. Following are the results:

2.2.1. ***P. promelas*** - 48 hr. Acute Test – LC_{50} = 0.917 g/l 95%CI (0.798 – 1.05 g/l)
EAS %CV = 14.2%
National Warning Limits (75th percentile) = 19%CV
National Control Limits (90th percentile) = 33%CV

2.2.2. ***C. dubia*** - 48 hr. Acute Test – LC_{50} = 0.466g/l 95%CI (0.417 – 0.529 g/l)
EAS %CV = 23.2%
National Warning Limits (75th percentile) = 29%CV
National Control Limits (90th percentile) = 34%CV

2.3. **LITERATURE CITED:**

1. APHA. 1992. *Standard methods for the examination of water and wastewater*, 18th Ed. American Public Health Association, Washington, D.C
2. USEPA. 2002. *Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms*, 5th Ed. EPA-821-R-02-012
3. USEPA 2000. *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2).* June 2000. EPA 833-R-00-003.

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

CLIENT NAME:	Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite
NPDES NUMBER:	MO-0035009
TYPE OF METHOD:	single dilution, 48 hr no-renewal WET, PP and CD species AEC=100%
DATE & TIME OF COLLECTION:	07/24/07 0730 hrs - 07/25/07 0800 hrs by Tommy Stanley
DATE & TIME OF SUBMISSION:	07/25/07 0920 hrs by Chuck Thompson

Upstream: St. John's Ditch
Collected: 07/25/07 0800 hrs by Tommy Stanley

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC
LOG NUMBER / ID NUMBER						922519	922519A	3012
pH - SU	07/25/07	0900 hrs	SCS	SB114 (8.8-9.2)	8.98	7.62	7.53	8.06
TEMPERATURE °C RECEIVED	07/25/07	0900 hrs	SCS	EAS 106		15	15	24
SPECIFIC CONDUCTANCE umhos	07/25/07	0900 hrs	SCS	PEI-106-109(335-416)	403	742	242	237
HARDNESS - ppm	07/25/07	0900 hrs	SCS	QCI-137-100(157-204)	200	220	120	80
CHLORINE - ppm	07/25/07	0900 hrs	SCS	tap water	+	<0.04	<0.04	<0.04
DISSOLVED OXYGEN - ppm	07/25/07	0900 hrs	SCS	cal@840		6.4	6.4	8.6
TOTAL ALKALINITY - ppm	07/25/07	1300 hrs	SCS	QCI-136-121(37.1-50.1)	46.5	171	96.9	55.9
INITIAL AMMONIA - ppm	07/01/07	1300 hrs	SCS	EAS #1981 (8-12)	10.5	0.445	0.085	<0.05
TOTAL DISSOLVED SOLIDS -ppm								

0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	07/25/07	1100 hrs	SCS	SB114 (8.8-9.2)	8.98	8.05	7.58	7.64					
TEMPERATURE °C	07/25/07	1100 hrs	SCS	EAS 106		24	24	24					
SPECIFIC CONDUCTANCE umhos	07/25/07	1100 hrs	SCS	PEI-106-109(335-416)	403	237	247	684					
DISSOLVED OXYGEN - ppm	07/25/07	1100 hrs	SCS			8.5	6.9	6.9					

24 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	07/26/07	1100 hrs	SCS	SB114 (8.8-9.2)	9.05	7.86	8.16	8.37					
TEMPERATURE °C	07/26/07	1100 hrs	SCS	EAS 106		24	24	24					
SPECIFIC CONDUCTANCE umhos	07/26/07	1100 hrs	SCS	PEI-106-109(335-416)	403	252	249	679					
DISSOLVED OXYGEN - ppm	07/26/07	1100 hrs	SCS	cal@840		8.2	7.9	7.9					
48 HOUR OBSERVATIONS - PP	**DATE**	**TIME**	**ANALYST**	**QC LOT**	**QC EXP VALUE**	**RC**	**UC**	**100%**	**50%**	**25%**	**12.50%**	**6.25%**	**X %AEC**
pH - SU	07/27/07	1100 hrs	KJR	SB114 (8.8-9.2)	9.03	8.15	8.23	8.52					
TEMPERATURE °C	07/27/07	1100 hrs	KJR	EAS 106		24	24	24					
SPECIFIC CONDUCTANCE umhos	07/27/07	1100 hrs	KJR	PEI-106-109(335-416)	400	251	253	685					
DISSOLVED OXYGEN - ppm	07/27/07	1100 hrs	KJR	cal@840		7.8	7.8	7.8					
FINAL AMMONIA - ppm													

24 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	07/26/07	1100 hrs	SCS	SB114 (8.8-9.2)	9.05	8.19	8.25	8.56					
TEMPERATURE °C	07/26/07	1100 hrs	SCS	EAS 106		24	24	24					
SPECIFIC CONDUCTANCE umhos	07/26/07	1100 hrs	SCS	PEI-106-109(335-416)	403	274	261	676					
DISSOLVED OXYGEN - ppm	07/26/07	1100 hrs	SCS	cal@840		8.1	8.1	8.1					
48 HOUR OBSERVATIONS - CD	**DATE**	**TIME**	**ANALYST**	**QC LOT**	**QC EXP VALUE**	**RC**	**UC**	**100%**	**50%**	**25%**	**12.50%**	**6.25%**	**X %AEC**
pH - SU	07/27/07	1100 hrs	KJR	SB114 (8.8-9.2)	9.03	8.20	8.35	8.57					
TEMPERATURE °C	07/27/07	1100 hrs	KJR	EAS 106		25	26	26					
SPECIFIC CONDUCTANCE umhos	07/27/07	1100 hrs	KJR	PEI-106-109(335-416)	400	277	266	616					
DISSOLVED OXYGEN - ppm	07/27/07	1100 hrs	KJR	cal@840		7.8	7.9	7.8					
FINAL AMMONIA - ppm													

Approved by: [signature] Date: 08/01/07

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

Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite **EAS LOG# 922519**

Date Test Began: July 25, 2007 **Time Test Began:** 1100 hrs **Analyst 1:** DFW
Analyst 2: KJR
Date Test Finished: July 27, 2007 **Time Test Finished:** 1100 hrs **Analyst 3:** SCS

P. promelas (PP) **AGE:** 7 **days** **HATCH NUMBER:** 6513 c-k

	RC	UC	100%	50%	25%	12.50%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-PP	10,10,10,10	10,10,10,10	10,10,10,10					
24 HR-PP	10,10,10,10	10,10,10,10	10,10,10,10					
48 HR-PP	10,10,10,10	10,10,10,10	10,10,10,10					

Ceriodaphnia dubia (CD) **AGE:** <24 **hours** **HATCH NUMBER:** 1787 c-k

	RC	UC	100%	50%	25%	12.50%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5					
24 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5					
48 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5					

Approved by: [signature] Date: 08/01/07

Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite EAS#: 922519

Notes & Comments

Prepared by: [illegible]

Date: 08/01/07

Ref # 32953

ENVIRONMENTAL ANALYSIS SOUTH, INC.
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WHOLE EFFLUENT TOXICITY TESTING
CHAIN OF CUSTODY

CLIENT: Board of Municipal Utilities

NPDES PERMIT NUMBER: MO-0035009

EFFLUENT NAME: 001 Outfall (LEGAL NAME) GRAB ☐ 24 HR COMPOSITE ☑

COLLECTION DATA: START DATE: 07-24-07 START TIME: 0730 HRS

FINISH DATE: 07-25-07 FINISH TIME: 0730 HRS

UPSTREAM NAME: ST Johns Ditch (LEGAL NAME) (GRAB SAMPLE)

COLLECTION DATA: DATE: 07-25-07 TIME: 0800 HRS

SAMPLER NAME: Tommy G Stanley (PRINT NAME) CARRIER: Chuck Thompson Hand carry

Disclaimer: Environmental Analysis South, Inc. shall not be held financially liable for invalid whole effluent toxicity test (WET) or shipping charges resulting from the following reasons:

- Sampling & holding time errors (Will results in a setup charge of $100 to the client)
- Commercial carrier delivery problems or errors (Will results in a setup charge of $100 to the client)
- Problems with health or delivery of test organisms by vendor (No setup charge to client)

SAMPLER CHECK LIST

NO HEADSPACE IN BOTTLES ☐
SHIP SAMPLES BY NEXT DAY CARRIER OR DELIVER TO LAB ON 7/25/07 ☐
SAMPLES TO BE HAND DELIVERED TO LABORATORY SAME DAY AS TEST SETUP ☐
SUFFICIENT ICE TO COOL SAMPLES TO A RANGE OF 0 - 6° C WHEN SHIPPING OVERNIGHT ☐

RELINQUISHED BY: [signature] DATE: 7-25-07 TIME: 0920

LABORATORY USE ONLY

EFFLUENT LOG NUMBER: 922519

RECEIVED TEMPERATURE: 15 °C THERMOMETER ASSIGNED NUMBER:

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

UPSTREAM LOG NUMBER: 922519-A

RECEIVED TEMPERATURE: 15 °C THERMOMETER ASSIGNED NUMBER:

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

RECEIVED BY: [signature] DATE: 7/25/07 TIME: 920

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM - P.O. BOX 176, JEFFERSON CITY MO, 65102

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME Sikeston Wastewater Treatment Facility	DATE & TIME COLLECTED EFFLUENT 07/24/07 0730-07/25/07 0800 UPSTREAM 07/25/07 0800 hrs
PERMIT NUMBER MO-0035009	PERMIT OUTFALL NUMBER Outfall #001
COLLECTOR'S NAME Chuck Thompson	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION St. John's Ditch	
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC) 100%	EFFLUENT SAMPLE TYPE (CHECK ONE) ☒ 24HR COMPOSITE ☐ GRAB ☐ OTHER _____
SAMPLE NUMBER EFFLUENT 922519 UPSTREAM 922519A	UPSTREAM SAMPLE TYPE (CHECK ONE) ☐ 24HR COMPOSITE ☒ GRAB ☐ OTHER _____
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR CHLORINE _____ mg/L	PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR AMMONIA _____ mg/L

PART B – TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY Environmental Analysis South, Inc.	TEST TYPE Acute Static Non renewal Test Single Dilution	
FINAL REPORT NUMBER 922519	TEST DURATION 48 hour	
DATE OF LAST REFERENCE TOXICANT TESTING June 20, 2007	TEST METHOD Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY 07/25/07 0920 hrs	TEST START DATE AND TIME 07/25/07 1100 hrs	TEST END DATE AND TIME 07/27/07 1100 hrs
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT _____ UPSTREAM _____	TEST ORGANISM #1 AND AGE Pimephales promelas 7 days	TEST ORGANISM #2 AND AGE Ceriodaphnia dubia < 24 hours
SAMPLE FILTERED[1] PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT _____ UPSTREAM _____	90% OR GREATER SURVIVAL IN SYNTHETIC CONTROL? ☒ YES ☐ NO	DILUTION WATER USED TO ACHIEVE AEC none
FILTER MESH SIEVE SIZE[2] None	EFFLUENT ORGANISM #1 % MORTALITY AT AEC 0 %	EFFLUENT ORGANISM #2 % MORTALITY AT AEC 0 %
SAMPLE AERATED DURING TESTING? ☐ YES ☒ NO	UPSTREAM ORGANISM #1 % MORTALITY 0 %	UPSTREAM ORGANISM #2 % MORTALITY 0 %
pH ADJUSTED? ☐ YES ☒ NO EFFLUENT _____ UPSTREAM _____	TEST RESULT AT AEC FOR ORGANISM #1 ☒ PASS ☐ FAIL	TEST RESULT AT AEC FOR ORGANISM #2 ☒ PASS ☐ FAIL

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% EFFLUENT SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	15	SM18 2550B stored at 4 degree C until test setup	07/25/07 0900 hrs
pH Standard Units	7.62	SM18 4500-H B	07/25/07 0900 hrs
Conductance µMohs	742	SM18 2510B	07/25/07 0900 hrs
Dissolved Oxygen mg/L	6.4	SM18 4500-O G	07/25/07 0900 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	07/25/07 0900 hrs
Unionized Ammonia mg/L	0.445x0.022<0.10	SM18 4500-NH3 F @ 25 degree C	07/31/07 1300 hrs
*Total Alkalinity mg/L	171	SM18 2320B	07/25/07 1300 hrs
*Total Hardness mg/L	220	SM18 2340 C	07/25/07 0900 hrs

*Recommended by USEPA guidance, not a required analysis.

[1] Samples shall only be filtered if indigenous organisms are present that may be confused with, or attack, the test organisms.
[2] Filters shall have a sieve size of 60 microns or greater.

CONTINUED ON PAGE 2

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% UPSTREAM SAMPLE[3]

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	15	SM18 2550B stored at 4 degree C until test setup	07/25/07 0900 hrs
pH Standard Units	7.53	SM18 4500-H B	07/25/07 0900 hrs
Conductance µMohs	242	SM18 2510B	07/25/07 0900 hrs
Dissolved Oxygen mg/L	6.4	SM18 4500-O G	07/25/07 0900 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	07/25/07 0900 hrs
Unionized Ammonia mg/L	0.085x0.018<0.10	SM18 4500-NH3 F @ 25 degree C	07/31/07 1300 hrs
*Total Alkalinity mg/L	96.9	SM18 2320B	07/25/07 1300 hrs
*Total Hardness mg/L	120	SM18 2340 C	07/25/07 0900 hrs

*Recommended by USEPA guidance, not a required analysis.

PRELIMINARY TEST ACCEPTABILITY MATRIX (FOR USE BY PERMITTEE IN DETERMINING TEST VALIDITY)

PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC): As indicated on permit. Test is invalid otherwise.

EFFLUENT SAMPLE TYPE: As indicated on permit. Test is invalid otherwise.

TEST TYPE: Acute Static Non-Renewal Test or other as indicated on permit. Test is invalid otherwise.

TEST DURATION: Forty-eight (48) hours or as indicated on permit. Test is invalid otherwise.

TEST ORGANISMS: As indicated on permit. Test is invalid otherwise.

DILUTION WATER USED TO ACHIEVE AEC: Upstream receiving water required if available.

TEST METHOD: The only acceptable method is the ***most current edition*** of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, or other as specifically assigned by EPA for determining NPDES compliance. Test is invalid otherwise.

TEST START DATE & TIME: Unless otherwise specified in writing by EPA, if >36 hours lapse between collection and initiation, test is invalid.

FILTER MESH SIEVE SIZE: Unless otherwise specified in writing by EPA, if sieve size is smaller than 60 microns, test is invalid.

90% OR GREATER SURVIVAL IN LABORATORY CONTROL(S) (Y/N): If NO, test is invalid.

PARAMETER	RESULT	NOTES	WHEN ANALYZED
Temperature °C	0 - 6	Unless received by the laboratory on the same day as collected, values outside this range invalidate the test.	Upon receipt

[3] Where no upstream control is available, enter results from laboratory or synthetic control.

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REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC =96%
MO-0035009
EAS LOG# 1011325
July 23, 2008 through July 25, 2008

Tests performed by:
John P. Clippard / Chemical Analyst at Environmental Analysis South (EAS)
Kelly J. Ray / Biologist at Environmental Analysis South (EAS)
Sara C. Shields / Lab Supervisor - Chemist at Environmental Analysis South (EAS)
David F. Warren / Lab Director - Chemist at Environmental Analysis South (EAS)

1. **Report Summation**
   1.1. **Data Summation**
   1.2. **Conclusion**
2. **Method Summation**
   2.1. **Test Conditions and Methods**
   2.2. **Potassium chloride Reference Salt Test**
      2.2.1. ***Pimephales promelas* data**
      2.2.2. ***Ceriodaphnia dubia* data**
   2.3. **Literature Cited**
3. **Raw Data Bench Sheets**
   3.1. **Initial observations (page 1)**
   3.2. **Zero hour Observations (page 1)**
   3.3. **Twenty-four (24) hour Observations (page 1)**
   3.4. **Forty-eight (48) hour Observations (page 1)**
   3.5. **Survival Data Table (page 2)**
   3.6. **Test Comments (page 3)**
4. **Chain of Custody**
5. **MO DNR "Whole Effluent Toxicity (WET) Test Report (Form 780-1899)**

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REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC =96%
MO-0035009
EAS LOG# 1011325
July 23, 2008 through July 25, 2008

1. REPORT SUMMATION:

1.1. Multiple Dilution Data Summation

Test Solution	*Pimephales promelas* Acute Toxicity Test 48 Hour Survival	*Ceriodaphnia dubia* Acute Toxicity Test 48 Hour Survival
Reconstituted Control (RC)	100%	100%
Upstream Control (UC)	100%	100%
6.25% Effluent	100%	95%
12.5% Effluent	100%	95%
25% Effluent	100%	100%
50% Effluent	100%	100%
100% Effluent	100%	100%
Estimated 48 Hour LC_{50} Value	>100% Effluent	>100% Effluent
To Pass: 1. Effluent - LC50 must be >AEC / 0.3 or 2. All concentrations = or < AEC must not have significant difference to control in survival.	1. Yes 2. Yes	1. Yes 2. Yes
Result of Toxicity Test	PASS	PASS

* Indicates a significant difference at alpha = 0.5 between effluent and control survival data.

Conclusion:

Pimephales promelas 48 hour WET results: LC 50 >100% by the Graphical Method
NOAEC = 100% by Steel's Many-One Rank Test

Ceriodaphnia dubia 48 hour WET results: LC 50 > 100% by Trimmed Spearman-Karber Method
NOAEC =100% by Steel's Many-One Rank Test

Based on these results the outfall passes the whole effluent toxicity test with both indicator species.

Approved by _____
Sara C. Shields, Chemist

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2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	Ceriodaphnia dubia:	***Pimephales promelas:***
Test duration:	48 hours	48 hours
Temperature:	24 – 26 degree Celsius	24 - 26 degree Celsius
Light quality:	Ambient laboratory illumination	Ambient laboratory illumination
Photoperiod:	16 hour light, 8 hours dark	16 hour light, 8 hours dark
Control Water:	Moderately Hard Reconstituted Water	Moderately Hard Reconstituted Water
Dilution Water:	Upstream Water - If unavailable or toxic, then control water will be used.	Upstream Water - If unavailable or toxic, then control water will be used.
Size of test vessel:	30 milliliters	250 milliliters
Volume of test solution:	15 milliliters	200 milliliters
Age of test organisms:	<24 hours	1 -14 days (all same age)
Number of organisms/test vessel:	5	10
Number of replicates/concentration:	4	2
Number of organisms/concentration:	20	40 for a single dilution test and 20 for a multiple dilution test
Feeding regime:	None (fed prior to test)	None (fed prior to test)
Aeration:	None	None
Test acceptability criterion:	90% or greater survival in controls	90% or greater survival in controls

The methodology used for the chemistry data was taken from the *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992). The exception was hardness, which was determined using a Hach EDTA titration test kit. The toxicity tests follow guidelines laid out in the permittee's NPDES permit and were conducted according to EPA approved methods (USEPA 2002).

All test organisms were cultured according to EPA approved methods (USEPA 2002). The *Ceriodaphnia dubia* and the *Pimephales promelas* were obtained from ARO (Aquatic Research Organisms) located in Hampton, New Hampshire and shipped overnight for use in the whole effluent toxicity test.

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MO-0035009
EAS LOG# 1011325
July 23, 2008 through July 25, 2008

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on July 9, 2008 using KCL Lot #41713. Following are the results:

2.2.1. ***P. promelas*** - 48 hr. Acute Test – LC_{50} = 0.911 g/l 95%CI (0.653 – 1.147g/l)
EAS %CV = 14.2%
National Warning Limits (75th percentile) = 19%CV
National Control Limits (90th percentile) = 33%CV

2.2.2. ***C. dubia*** - 48 hr. Acute Test – LC_{50} = 0.428g/l 95%CI (0.206 - 0.650 g/l)
EAS %CV = 26.0%
National Warning Limits (75th percentile) = 29%CV
National Control Limits (90th percentile) = 34%CV

2.3. LITERATURE CITED:

1. APHA. 1992. *Standard methods for the examination of water and wastewater*, 18th Ed. American Public Health Association, Washington, D.C
2. USEPA. 2002. *Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms*, 5th Ed. EPA-821-R-02-012
3. USEPA 2000. *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2).* June 2000. EPA 833-R-00-003.

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

CLIENT NAME: Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite
NPDES NUMBER: MO-0035009
TYPE OF METHOD: multiple dilution, 48 hrs, PP & CD, AEC=96%
DATE & TIME OF COLLECTION: 07/22/08 0800 hrs - 07/23/08 0830 hrs by Tommy Stanley
DATE & TIME OF SUBMISSION: 07/23/08 0955 hrs by Tommy Stanley

Upstream: St. Johns Ditch
Collected: 07/23/08 0830 hrs by Tommy Stanley

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC
LOG NUMBER / ID NUMBER						1011325	1011325A	3040
pH - SU	07/23/08	0955 hrs	SCS	SB114 (8.8-9.2)	9.06	7.72	7.58	8.12
TEMPERATURE °C RECEIVED	07/23/08	0955 hrs	SCS	EAS 106		18	17	24
SPECIFIC CONDUCTANCE umhos	07/23/08	0955 hrs	SCS	QCI-136-132(468-572)	520	663	261	235
HARDNESS - ppm	07/23/08	0955 hrs	SCS	QCI-137-100(157-204)	200	180	120	80
CHLORINE - ppm	07/23/08	0955 hrs	SCS	tap water	+	<0.04	<0.04	<0.04
DISSOLVED OXYGEN - ppm	07/23/08	0955 hrs	SCS	cal@840		6.9	5.7	8.1
TOTAL ALKALINITY - ppm	07/23/08	1300 hrs	SCS	QCI-136N0308(91.5-113)	102.0	159	102	61.1
INITIAL AMMONIA - ppm	07/25/08	1300 hrs	JPC	EAS #1981 (8-12)	10.8	0.205	0.136	<0.05
TOTAL DISSOLVED SOLIDS -ppm								

0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	07/23/08	1200 hrs	SCS	SB114 (8.8-9.2)	9.06	7.76	7.64	7.62	7.63	7.64	7.61	7.77	
TEMPERATURE °C	07/23/08	1200 hrs	SCS	EAS 106		24	24	24	24	24	24	24	
SPECIFIC CONDUCTANCE umhos	07/23/08	1200 hrs	SCS	QCI-136-132(468-572)	520	234	259	705	483	366	311	271	
DISSOLVED OXYGEN - ppm	07/23/08	1200 hrs	SCS			7.6	6.7	7.1	6.7	6.8	6.8	6.7	

24 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	07/24/08	1200 hrs	SCS	SB114 (8.8-9.2)	8.96	7.64	8.02	8.16	8.06	7.99	7.91	7.93	
TEMPERATURE °C	07/24/08	1200 hrs	SCS	EAS 106		24	24	24	24	24	24	24	
SPECIFIC CONDUCTANCE umhos	07/24/08	1200 hrs	SCS	QCI-136-132(468-572)	517	275	311	730	506	382	324	286	
DISSOLVED OXYGEN - ppm	07/24/08	1200 hrs	SCS	cal@840		7.2	6.7	6.7	6.9	6.8	6.9	6.8	
48 HOUR OBSERVATIONS - PP	**DATE**	**TIME**	**ANALYST**	**QC LOT**	**QC EXP VALUE**	**RC**	**UC**	**100%**	**50%**	**25%**	**12.50%**	**6.25%**	**X %AEC**
pH - SU	07/25/08	1200 hrs	SCS	SB114 (8.8-9.2)	8.99	7.73	8.38	8.14	8.47	8.45	8.37	8.33	
TEMPERATURE °C	07/25/08	1200 hrs	SCS	EAS 106		24	25	24	24	24	24	24	
SPECIFIC CONDUCTANCE umhos	07/25/08	1200 hrs	SCS	QCI-136-132(468-572)	516	321	304	813	570	402	330	294	
DISSOLVED OXYGEN - ppm	07/25/08	1200 hrs	SCS	cal@840		7.2	6.8	6.8	6.8	6.8	6.8	6.7	
FINAL AMMONIA - ppm													

24 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	07/24/08	1200 hrs	SCS	SB114 (8.8-9.2)	8.96	8.18	8.35	8.48	8.42	8.39	8.30	8.32	
TEMPERATURE °C	07/24/08	1200 hrs	SCS	EAS 106		24	24	24	24	24	24	24	
SPECIFIC CONDUCTANCE umhos	07/24/08	1200 hrs	SCS	QCI-136-132(468-572)	517	295	333	716	500	407	332	296	
DISSOLVED OXYGEN - ppm	07/24/08	1200 hrs	SCS	cal@840		7.5	7.3	7.5	7.5	7.5	7.5	7.3	
48 HOUR OBSERVATIONS - CD	**DATE**	**TIME**	**ANALYST**	**QC LOT**	**QC EXP VALUE**	**RC**	**UC**	**100%**	**50%**	**25%**	**12.50%**	**6.25%**	**X %AEC**
pH - SU	07/25/08	1200 hrs	SCS	SB114 (8.8-9.2)	8.99	8.28	8.51	8.75	8.70	8.71	8.64	8.57	
TEMPERATURE °C	07/25/08	1200 hrs	SCS	EAS 106		24	24	24	24	24	24	24	
SPECIFIC CONDUCTANCE umhos	07/25/08	1200 hrs	SCS	QCI-136-132(468-572)	516	294	308	741	505	427	348	308	
DISSOLVED OXYGEN - ppm	07/25/08	1200 hrs	SCS	cal@840		7.6	7.4	7.4	7.3	7.4	7.4	7.4	
FINAL AMMONIA - ppm													

Approved by: [illegible]

Date: 07/30/2008

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

Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite **EAS LOG# 1011325**

Date Test Began:	July 23, 2008	**Time Test Began:**	1200 hrs	**Analyst 1:**	DFW
				Analyst 2:	KJR
Date Test Finished:	July 25, 2008	**Time Test Finished:**	1200 hrs	**Analyst 3:**	SCS

P. promelas (PP) **AGE:** 13 **days** **HATCH NUMBER:** 070608fh aro

	RC	UC	100%	50%	25%	12.50%	6.25%	X% AEC
PERIOD	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**
0 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
24 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
48 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	

Ceriodaphnia dubia (CD) **AGE:** <24 **hours** **HATCH NUMBER:** 072208cd aro

	RC	UC	100%	50%	25%	12.50%	6.25%	X% AEC
PERIOD	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**
0 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
24 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
48 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	4,5,5,5	5,4,5,5	

Approved by: [signature] Date: 07/30/2008

Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite EAS#: 1011325

Notes & Comments

Prepared by: [illegible]

Date: 07/30/2008

PO# 35204
multiple

ENVIRONMENTAL ANALYSIS SOUTH, INC.
4000 East Jackson Blvd
Jackson, MO 63755
Phone: (573) 204-8817 Fax: (573) 204-8818

WHOLE EFFLUENT TOXICITY TESTING
CHAIN OF CUSTODY

CLIENT: Sikeston Board of Municipal Utilities

NPDES PERMIT NUMBER: MO-0035009

EFFLUENT NAME: 001 outfall (LEGAL NAME) GRAB ☐ 24 HR COMPOSITE ☑

COLLECTION DATA: START DATE: 07-22-08 START TIME: 0800 HRS

FINISH DATE: 07-23-08 FINISH TIME: 0800 HRS

UPSTREAM NAME: ST John's Ditch (LEGAL NAME) (GRAB SAMPLE)

COLLECTION DATA: DATE: 07-23-08 TIME: 0830 HRS

SAMPLER NAME: Tommy L Stanley (PRINT NAME) CARRIER: _____

Disclaimer: Environmental Analysis South, Inc. shall not be held financially liable for invalid whole effluent toxicity test (WET) or shipping charges resulting from the following reasons:

- Sampling & holding time errors (Will results in a setup charge of $100 to the client)
- Commercial carrier delivery problems or errors (Will results in a setup charge of $100 to the client)
- Problems with health or delivery of test organisms by vendor (No setup charge to client)

SAMPLER CHECK LIST

NO HEADSPACE IN BOTTLES ☐
SHIP SAMPLES BY NEXT DAY CARRIER OR DELIVER TO LAB ON 7-23-08 ☐
SAMPLES TO BE HAND DELIVERED TO LABORATORY SAME DAY AS TEST SETUP ☐
SUFFICIENT ICE TO COOL SAMPLES TO A RANGE OF 0 - 6°C WHEN SHIPPING OVERNIGHT ☐

RELINQUISHED BY: Tommy L Stanley DATE: 07-23-08 TIME: 8955

LABORATORY USE ONLY

EFFLUENT LOG NUMBER: 1011325

RECEIVED TEMPERATURE: 18 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

UPSTREAM LOG NUMBER: 1011325-A

RECEIVED TEMPERATURE: 17 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

RECEIVED BY: [illegible] DATE: 7/23/08 TIME: 955

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM - P.O. BOX 176, JEFFERSON CITY MO, 65102

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME Sikeston Wastewater Treatment Facility	DATE & TIME COLLECTED EFFLUENT 07/22/08 0800-07/23/08 0830 UPSTREAM 07/23/08 0830
PERMIT NUMBER MO-0035009	PERMIT OUTFALL NUMBER Outfall # 001
COLLECTOR'S NAME Tommy Stanley	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION St. John's Ditch	
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC) 96%	EFFLUENT SAMPLE TYPE (CHECK ONE) ☒ 24HR COMPOSITE ☐ GRAB ☐ OTHER _____
SAMPLE NUMBER EFFLUENT 1011325 UPSTREAM 1011325A	UPSTREAM SAMPLE TYPE (CHECK ONE) ☐ 24HR COMPOSITE ☒ GRAB ☐ OTHER _____
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR CHLORINE _____ mg/L	PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR AMMONIA _____ mg/L

PART B – TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY Environmental Analysis South, Inc.	TEST TYPE Acute Static Non renewal Test Multiple Dilution	
FINAL REPORT NUMBER MO_1011325	TEST DURATION 48 hour	
DATE OF LAST REFERENCE TOXICANT TESTING July 9, 2008	TEST METHOD Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY 07/23/08 0955 hrs by Tommy Stanley	TEST START DATE AND TIME 07/23/08 1200 hrs	TEST END DATE AND TIME 07/25/08 1200 hrs
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT _____ UPSTREAM _____	TEST ORGANISM #1 AND AGE Pimephales promelas 13 days	TEST ORGANISM #2 AND AGE Ceriodaphnia dubia < 24 hours
SAMPLE FILTERED[1] PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT _____ UPSTREAM _____	90% OR GREATER SURVIVAL IN SYNTHETIC CONTROL? ☒ YES ☐ NO	DILUTION WATER USED TO ACHIEVE AEC upstream 1011325A
FILTER MESH SIEVE SIZE[2] None	EFFLUENT ORGANISM #1 % MORTALITY AT AEC LC50>100% Effluent	EFFLUENT ORGANISM #2 % MORTALITY AT AEC LC50>100% Effluent
SAMPLE AERATED DURING TESTING? ☐ YES ☒ NO	UPSTREAM ORGANISM #1 % MORTALITY 0 %	UPSTREAM ORGANISM #2 % MORTALITY 0 %
pH ADJUSTED? ☐ YES ☒ NO EFFLUENT _____ UPSTREAM _____	TEST RESULT AT AEC FOR ORGANISM #1 ☒ PASS ☐ FAIL	TEST RESULT AT AEC FOR ORGANISM #2 ☒ PASS ☐ FAIL

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% EFFLUENT SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	18	SM18 2550B stored at 4 degree C until test setup	07/23/08 0955 hrs
pH Standard Units	7.72	SM18 4500-H B	07/23/08 0955 hrs
Conductance µMohs	663	SM18 2510B	07/23/08 0955 hrs
Dissolved Oxygen mg/L	6.9	SM18 4500-O G	07/23/08 0955 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	07/23/08 0955 hrs
Unionized Ammonia mg/L	0.20x0.028<0.010	SM18 4500-NH3 F @ 25 degree C	07/25/08 1300 hrs
*Total Alkalinity mg/L	159	SM18 2320B	07/23/08 1300 hrs
*Total Hardness mg/L	180	SM18 2340 C	07/23/08 0955 hrs

*Recommended by USEPA guidance, not a required analysis.

[1] Samples shall only be filtered if indigenous organisms are present that may be confused with, or attack, the test organisms.
[2] Filters shall have a sieve size of 60 microns or greater.

CONTINUED ON PAGE 2

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% UPSTREAM SAMPLE[3]

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	17	SM18 2550B stored at 4 degree C until test setup	07/23/08 0955 hrs
pH Standard Units	7.58	SM18 4500-H B	07/23/08 0955 hrs
Conductance µMohs	261	SM18 2510B	07/23/08 0955 hrs
Dissolved Oxygen mg/L	5.7	SM18 4500-O G	07/23/08 0955 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	07/23/08 0955 hrs
Unionized Ammonia mg/L	0.14x0.022<0.010	SM18 4500-NH3 F @ 25 degree C	07/25/08 1300 hrs
*Total Alkalinity mg/L	102	SM18 2320B	07/23/08 1300 hrs
*Total Hardness mg/L	120	SM18 2340 C	07/23/08 0955 hrs

*Recommended by USEPA guidance, not a required analysis.

PRELIMINARY TEST ACCEPTABILITY MATRIX (FOR USE BY PERMITTEE IN DETERMINING TEST VALIDITY)

PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC): As indicated on permit. Test is invalid otherwise.

EFFLUENT SAMPLE TYPE: As indicated on permit. Test is invalid otherwise.

TEST TYPE: Acute Static Non-Renewal Test or other as indicated on permit. Test is invalid otherwise.

TEST DURATION: Forty-eight (48) hours or as indicated on permit. Test is invalid otherwise.

TEST ORGANISMS: As indicated on permit. Test is invalid otherwise.

DILUTION WATER USED TO ACHIEVE AEC: Upstream receiving water required if available.

TEST METHOD: The only acceptable method is the ***most current edition*** of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, or other as specifically assigned by EPA for determining NPDES compliance. Test is invalid otherwise.

TEST START DATE & TIME: Unless otherwise specified in writing by EPA, if >36 hours lapse between collection and initiation, test is invalid.

FILTER MESH SIEVE SIZE: Unless otherwise specified in writing by EPA, if sieve size is smaller than 60 microns, test is invalid.

90% OR GREATER SURVIVAL IN LABORATORY CONTROL(S) (Y/N): If NO, test is invalid.

PARAMETER	RESULT	NOTES	WHEN ANALYZED
Temperature °C	0 - 6	Unless received by the laboratory on the same day as collected, values outside this range invalidate the test.	Upon receipt

[3] Where no upstream control is available, enter results from laboratory or synthetic control.

Environmental Analysis South, Inc.

4000 East Jackson Blvd. • Jackson, MO 63755 • 573-204-8817 • Fax 573-204-8818

Tommy Stanley
BOARD OF MUNICIPAL UTILITIES
P.O. Box 370
Sikeston, MO 63801

PAGE NO.: 1
REPORT NO.: 101640
DATE : 08/01/08
P.O. NO.: 35254

REPORT OF ANALYSIS

SUBJECT: Testing in accordance with "Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms (Fourth Edition), EPA/600/4-90-027, U.S. Environmental Protection Agency Monitoring & Support Laboratory.

LOG NUMBER	SAMPLE DESCRIPTION	RESULTS OF ANALYSIS	UNITS OF MEASURE	METHOD NUMBER	NOTE
1011325	Outfall #001 SAMPLE DATE: 07/23/08				
	48 Hour WET Test 5 dil/4 reps	1	test		

RESPECTFULLY SUBMITTED

D. F. WARREN

PO# 35254
multiple

ENVIRONMENTAL ANALYSIS SOUTH, INC.
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WHOLE EFFLUENT TOXICITY TESTING
CHAIN OF CUSTODY

CLIENT: Sikeston Board of Municipal Utilities

NPDES PERMIT NUMBER: MO-0035009

EFFLUENT NAME: 001 outfall (LEGAL NAME) GRAB ☐ 24 HR COMPOSITE ☑

COLLECTION DATA: START DATE: 07-22-08 START TIME: 0800 HRS

FINISH DATE: 07-23-08 FINISH TIME: 0800 HRS

UPSTREAM NAME: ST John's Ditch (LEGAL NAME) (GRAB SAMPLE)

COLLECTION DATA: DATE: 07-23-08 TIME: 0830 HRS

SAMPLER NAME: Tommy L Stanley (PRINT NAME) CARRIER:

Disclaimer: Environmental Analysis South, Inc. shall not be held financially liable for invalid whole effluent toxicity test (WET) or shipping charges resulting from the following reasons:

- Sampling & holding time errors (Will results in a setup charge of $100 to the client)
- Commercial carrier delivery problems or errors (Will results in a setup charge of $100 to the client)
- Problems with health or delivery of test organisms by vendor (No setup charge to client)

SAMPLER CHECK LIST

NO HEADSPACE IN BOTTLES ☐
SHIP SAMPLES BY NEXT DAY CARRIER OR DELIVER TO LAB ON 7/23/08 ☐
SAMPLES TO BE HAND DELIVERED TO LABORATORY SAME DAY AS TEST SETUP ☐
SUFFICIENT ICE TO COOL SAMPLES TO A RANGE OF 0 - 6° C WHEN SHIPPING OVERNIGHT ☐

RELINQUISHED BY: Tommy L Stanley DATE: 07-23-08 TIME: 8955

LABORATORY USE ONLY

EFFLUENT LOG NUMBER: 1011325

RECEIVED TEMPERATURE: 18 °C THERMOMETER ASSIGNED NUMBER:

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

UPSTREAM LOG NUMBER: 1011325-A

RECEIVED TEMPERATURE: 17 °C THERMOMETER ASSIGNED NUMBER:

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

RECEIVED BY: [illegible] DATE: 7/23/08 TIME: 955

Environmental Analysis South, Inc.
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REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 96%
MO-0035009
EAS LOG# 1102802
July 22, 2009 through July 24, 2009

Tests performed by:
John P. Clippard / Chemical Analyst at Environmental Analysis South (EAS)
Kelly J. Ray / Biologist at Environmental Analysis South (EAS)
Sara C. Shields / Lab Supervisor - Chemist at Environmental Analysis South (EAS)
David F. Warren / Lab Director - Chemist at Environmental Analysis South (EAS)

1. **Report Summation**
   1.1. **Data Summation**
   1.2. **Conclusion**
2. **Method Summation**
   2.1. **Test Conditions and Methods**
   2.2. **Potassium chloride Reference Salt Test**
      2.2.1. ***Pimephales promelas* data**
      2.2.2. ***Ceriodaphnia dubia* data**
   2.3. **Literature Cited**
3. **Raw Data Bench Sheets**
   3.1. **Initial observations (page 1)**
   3.2. **Zero hour Observations (page 1)**
   3.3. **Twenty-four (24) hour Observations (page 1)**
   3.4. **Forty-eight (48) hour Observations (page 1)**
   3.5. **Survival Data Table (page 2)**
   3.6. **Test Comments (page 3)**
4. **Chain of Custody**
5. **MO DNR "Whole Effluent Toxicity (WET) Test Report (Form 780-1899)**

WUTF

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REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 96%
MO-0035009
EAS LOG# 1102802
July 22, 2009 through July 24, 2009

1. REPORT SUMMATION:

1.1. Multiple Dilution Data Summation

Test Solution	*Pimephales promelas* Acute Toxicity Test 48 Hour Survival	*Ceriodaphnia dubia* Acute Toxicity Test 48 Hour Survival
Reconstituted Control (RC)	100%	100%
Upstream Control (UC)	100%	100%
6.25% Effluent	100%	100%
12.5% Effluent	100%	100%
25% Effluent	95%	100%
50% Effluent	100%	100%
100% Effluent	100%	95%
Estimated 48 Hour LC_{50} Value	>100% Effluent	>100% Effluent
To Pass: 1. Effluent - LC50 must be >100% and 2. All concentrations = or < AEC must not have significant difference to control in survival.	1. Yes 2. Yes	1. Yes 2. Yes
Result of Toxicity Test	PASS	PASS

* Indicates a significant difference at alpha = 0.5 between effluent and control survival data.

Conclusion:

Pimephales promelas 48 hour WET results: LC 50 >100% by Trimmed Spearman-Karber
NOAEC = 100% by Steel's Many One-Rank Test

Ceriodaphnia dubia 48 hour WET results: LC 50 >100% by Trimmed Spearman-Karber
NOAEC = 100% by Steel's Many One-Rank Test

Based on these results the outfall **passed** the whole effluent toxicity test with both indicator species.

Approved by _____
Sara C. Shields, Chemist

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REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 96%
MO-0035009
EAS LOG# 1102802
July 22, 2009 through July 24, 2009

2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	Ceriodaphnia dubia:	*Pimephales promelas:*
Test duration:	48 hours	48 hours
Temperature:	24 - 26 degree Celsius	24 - 26 degree Celsius
Light quality:	Ambient laboratory illumination	Ambient laboratory illumination
Photoperiod:	16 hour light, 8 hours dark	16 hour light, 8 hours dark
Control Water:	Moderately Hard Reconstituted Water	Moderately Hard Reconstituted Water
Dilution Water:	Upstream Water - If unavailable or toxic, then control water will be used.	Upstream Water - If unavailable or toxic, then control water will be used.
Size of test vessel:	30 milliliters	250 milliliters
Volume of test solution:	15 milliliters	200 milliliters
Age of test organisms:	<24 hours	1 -14 days (all same age)
Number of organisms/test vessel:	5	10
Number of replicates/concentration:	4	2
Number of organisms/concentration:	20	40 for a single dilution test and 20 for a multiple dilution test
Feeding regime:	None (fed prior to test)	None (fed prior to test)
Aeration:	None	None
Test acceptability criterion:	90% or greater survival in controls	90% or greater survival in controls

The methodology used for the chemistry data was taken from the *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992). The exception was hardness, which was determined using a Hach EDTA titration test kit. The toxicity tests follow guidelines laid out in the permittee's NPDES permit and were conducted according to EPA approved methods (USEPA 2002).

All test organisms were cultured according to EPA approved methods (USEPA 2002). The *Ceriodaphnia dubia* and the *Pimephales promelas* were obtained from ARO (Aquatic Research Organisms) located in Hampton, New Hampshire and shipped overnight for use in the whole effluent toxicity test

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REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 96%
MO-0035009
EAS LOG# 1102802
July 22, 2009 through July 24, 2009

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on July 8, 2009 using KCL Lot #41713. Following are the results:

2.2.1. ***P. promelas*** - 48 hr. Acute Test – LC_{50} = 0.989 g/l 95%CI (0.728 – 1.250g/l)
EAS %CV = 13.2%
National Warning Limits (75th percentile) = 19%CV
National Control Limits (90th percentile) = 33%CV

2.2.2. ***C. dubia*** - 48 hr. Acute Test – LC_{50} = 0.411g/l 95%CI (0.206 - 0.616 g/l)
EAS %CV = 25.0%
National Warning Limits (75th percentile) = 29%CV
National Control Limits (90th percentile) = 34%CV

2.3. **LITERATURE CITED:**

1. APHA. 1992. *Standard methods for the examination of water and wastewater*, 18th Ed. American Public Health Association, Washington, D.C
2. USEPA. 2002. *Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms*, 5th Ed. EPA-821-R-02-012
3. USEPA 2000. *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2)*. June 2000. EPA 833-R-00-003.

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

CLIENT NAME: Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite
NPDES NUMBER: MO-0035009
TYPE OF METHOD: multiple dilution, 48 hrs, PP & CD, AEC=96%
DATE & TIME OF COLLECTION: 07/21/09 0820 hrs - 07/22/09 0820 hrs by Tommy Stanley
DATE & TIME OF SUBMISSION: 07/22/09 1100 hrs by Ron Dailey

Upstream: St. Johns Ditch
Collected: 07/22/09 0820 hrs by Tommy Stanley

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC
LOG NUMBER / ID NUMBER						1102802	1102802A	3067
pH - SU	07/22/09	1105 hrs	SCS	SB114 (8.8-9.2)	8.97	7.06	7.25	7.88
TEMPERATURE °C RECEIVED	07/22/09	1105 hrs	SCS	EAS 106		14	14	25
SPECIFIC CONDUCTANCE umhos	07/22/09	1105 hrs	SCS	QCI-136N0308(421-516)	456	676	224	238
HARDNESS - ppm	07/22/09	1105 hrs	SCS	QCI-137-100(157-204)	200	180	120	80
CHLORINE - ppm	07/22/09	1105 hrs	SCS	tap water	+	0.08	<0.04	<0.04
DISSOLVED OXYGEN - ppm	07/22/09	1105 hrs	SCS	cal@840		8.4	8.2	9.3
TOTAL ALKALINITY - ppm	07/22/09	1300 hrs	SCS	QCI-136N1008(33.1-45.5)	43.3	144	97.3	61.2
INITIAL AMMONIA - ppm	07/23/09	1300 hrs	JPC	EAS #2281 (8-12)	10.1	0.307	0.074	<0.05
TOTAL DISSOLVED SOLIDS -ppm								

0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	07/22/09	1130 hrs	SCS	SB114 (8.8-9.2)	8.97	7.46	7.65	7.53	7.59	7.60	7.62	7.64	
TEMPERATURE °C	07/22/09	1130 hrs	SCS	EAS 106		25	25	25	25	25	25	25	
SPECIFIC CONDUCTANCE umhos	07/22/09	1130 hrs	SCS	QCI-136N0308(421-516)	456	244	227	714	468	344	280	249	
DISSOLVED OXYGEN - ppm	07/22/09	1130 hrs	SCS	cal@840		9.3	8.8	8.9	8.9	8.9	8.9	8.9	

24 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	07/23/09	1130 hrs	SCS	SB114 (8.8-9.2)	9.1	7.69	8.02	8.24	8.16	8.13	8.10	8.00	
TEMPERATURE °C	07/23/09	1130 hrs	SCS	EAS 106		25	25	25	25	25	25	25	
SPECIFIC CONDUCTANCE umhos	07/23/09	1130 hrs	SCS	QCI-136N0308(421-516)	461	260	240	741	486	352	291	265	
DISSOLVED OXYGEN - ppm	07/23/09	1130 hrs	SCS	cal@840		8	8.1	8.3	8.2	8.3	8.2	8	
48 HOUR OBSERVATIONS - PP	**DATE**	**TIME**	**ANALYST**	**QC LOT**	**QC EXP VALUE**	**RC**	**UC**	**100%**	**50%**	**25%**	**12.50%**	**6.25%**	**X %AEC**
pH - SU	07/24/09	1130 hrs	SCS	SB114 (8.8-9.2)	8.9	7.69	8.23	8.13	8.06	8.06	8.04	8.06	
TEMPERATURE °C	07/24/09	1130 hrs	SCS	EAS 106		25	25	25	25	25	25	25	
SPECIFIC CONDUCTANCE umhos	07/24/09	1130 hrs	SCS	QCI-136N0308(421-516)	453	260	249	756	493	356	290	268	
DISSOLVED OXYGEN - ppm	07/24/09	1130 hrs	SCS	cal@840		8	7.7	7.0	7.1	7.2	7.3	7.4	
FINAL AMMONIA - ppm													

24 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	07/23/09	1130 hrs	SCS	SB114 (8.8-9.2)	9.1	7.69	8.23	8.35	8.38	8.35	8.31	8.31	
TEMPERATURE °C	07/23/09	1130 hrs	SCS	EAS 106		25	25	25	25	25	25	25	
SPECIFIC CONDUCTANCE umhos	07/23/09	1130 hrs	SCS	QCI-136N0308(421-516)	461	260	233	777	466	355	297	285	
DISSOLVED OXYGEN - ppm	07/23/09	1130 hrs	SCS	cal@840		8.0	9.7	9.4	9.5	9.5	9.5	9.5	
48 HOUR OBSERVATIONS - CD	**DATE**	**TIME**	**ANALYST**	**QC LOT**	**QC EXP VALUE**	**RC**	**UC**	**100%**	**50%**	**25%**	**12.50%**	**6.25%**	**X %AEC**
pH - SU	07/24/09	1130 hrs	SCS	SB114 (8.8-9.2)	8.9	8.41	8.55	8.43	8.41	8.42	8.44	8.47	
TEMPERATURE °C	07/24/09	1130 hrs	SCS	EAS 106		25	25	25	25	25	25	25	
SPECIFIC CONDUCTANCE umhos	07/24/09	1130 hrs	SCS	QCI-136N0308(421-516)	453	284	254	714	468	356	300	295	
DISSOLVED OXYGEN - ppm	07/24/09	1130 hrs	SCS	cal@840		8.3	7.8	7.7	7.8	7.8	7.8	7.8	
FINAL AMMONIA - ppm													

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

Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite **EAS LOG# 1102802**

Date Test Began: July 22, 2009 **Time Test Began:** 1130 hrs **Analyst 1:** DFW
Analyst 2: KJR
Date Test Finished: July 24, 2009 **Time Test Finished:** 1130 hrs **Analyst 3:** SCS

P. promelas (PP) **AGE:** 13 **days** **HATCH NUMBER:** 070509fh aro

	RC	UC	100%	50%	25%	12.50%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
24 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
48 HR-PP	10,10	10,10	10,10	10,10	9,10	10,10	10,10	

Ceriodaphnia dubia (CD) **AGE:** <24 **hours** **HATCH NUMBER:** 072109cd aro

	RC	UC	100%	50%	25%	12.50%	6.25%	X% AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
24 HR-CD	5,5,5,5	5,5,5,5	5,4,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
48 HR-CD	5,5,5,5	5,5,5,5	5,4,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	

Approved by: Date: 07/30/2009

Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite EAS#: 1102802

Notes & Comments												

Prepared by: A Shields

Date: 07/30/2009

multiple 96%

ENVIRONMENTAL ANALYSIS SOUTH, INC.
4000 East Jackson Blvd
Jackson, MO 63755
Phone: (573) 204-8817 Fax: (573) 204-8818

eas

WHOLE EFFLUENT TOXICITY TESTING CHAIN OF CUSTODY

CLIENT: Sikeston WWTF

NPDES PERMIT NUMBER: MO-0035009

EFFLUENT NAME: 001 outfall (LEGAL NAME) GRAB ☐ 24 HR COMPOSITE ☒

COLLECTION DATA: START DATE: 07-21-09 START TIME: ~~0900 HRS~~ 0820 HRS RJS

FINISH DATE: 07-22-09 FINISH TIME: ~~0855 HRS~~ 0820 HRS RJS

UPSTREAM NAME: ST John's Ditch (LEGAL NAME) (GRAB SAMPLE)

COLLECTION DATA: DATE: 07-22-09 TIME: ~~0900 HRS~~ 0820 HRS RJS

SAMPLER NAME: Tommy G Stanley (PRINT NAME) CARRIER: Tommy Stanley

Disclaimer: Environmental Analysis South, Inc. shall not be held financially liable for invalid whole effluent toxicity test (WET) or shipping charges resulting from the following reasons:

- Sampling & holding time errors (Will results in a setup charge of $100 to the client)
- Commercial carrier delivery problems or errors (Will results in a setup charge of $100 to the client)
- Problems with health or delivery of test organisms by vendor (No setup charge to client)

SAMPLER CHECK LIST

NO HEADSPACE IN BOTTLES ☐
SHIP SAMPLES BY NEXT DAY CARRIER OR DELIVER TO LAB ON 7/~~23~~ 22/09 RJS ☐
SAMPLES TO BE HAND DELIVERED TO LABORATORY SAME DAY AS TEST SETUP ☐
SUFFICIENT ICE TO COOL SAMPLES TO A RANGE OF 0 - 6° C WHEN SHIPPING OVERNIGHT ☐

RELINQUISHED BY: Ron Stanley DATE: _____ TIME: _____

LABORATORY USE ONLY 1102802

EFFLUENT LOG NUMBER: _____

RECEIVED TEMPERATURE: 14 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

UPSTREAM LOG NUMBER: 1102802-A

RECEIVED TEMPERATURE: 14 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

RECEIVED BY: [signature] DATE: 7/22/09 TIME: 1100

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM - P.O. BOX 176, JEFFERSON CITY MO, 65102

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME Sikeston Wastewater Treatment Facility	DATE & TIME COLLECTED EFFLUENT 07/21/09 0820 - 07/22/09 0820 UPSTREAM 07/22/09 0820
PERMIT NUMBER MO-0035009	PERMIT OUTFALL NUMBER Outfall # 001
COLLECTOR'S NAME Tommy Stanley	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION St. Johns Ditch	
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC) 96%	EFFLUENT SAMPLE TYPE (CHECK ONE) ☒ 24HR COMPOSITE ☐ GRAB ☐ OTHER _____
SAMPLE NUMBER EFFLUENT 1102802 UPSTREAM 1102802A	UPSTREAM SAMPLE TYPE (CHECK ONE) ☐ 24HR COMPOSITE ☒ GRAB ☐ OTHER _____
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR CHLORINE _____ mg/L	PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR AMMONIA _____ mg/L

PART B – TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY Environmental Analysis South, Inc.	TEST TYPE Acute Static Non renewal Test Multiple Dilution	
FINAL REPORT NUMBER MO_1102802	TEST DURATION 48 hour	
DATE OF LAST REFERENCE TOXICANT TESTING July 8, 2009	TEST METHOD Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY 07/22/09 1100 hrs by Ron Dailey	TEST START DATE AND TIME 07/22/09 1130 hrs	TEST END DATE AND TIME 07/24/09 1130 hrs
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT _____ UPSTREAM _____	TEST ORGANISM #1 AND AGE Pimephales promelas 13 days	TEST ORGANISM #2 AND AGE Ceriodaphnia dubia < 24 hours
SAMPLE FILTERED[1] PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT _____ UPSTREAM _____	90% OR GREATER SURVIVAL IN SYNTHETIC CONTROL? ☒ YES ☐ NO	DILUTION WATER USED TO ACHIEVE AEC upstream 1102802A
FILTER MESH SIEVE SIZE[2] None	EFFLUENT ORGANISM #1 % MORTALITY AT AEC LC50>100% Effluent	EFFLUENT ORGANISM #2 % MORTALITY AT AEC LC50>100% Effluent
SAMPLE AERATED DURING TESTING? ☐ YES ☒ NO	UPSTREAM ORGANISM #1 % MORTALITY 0 %	UPSTREAM ORGANISM #2 % MORTALITY 0 %
pH ADJUSTED? ☐ YES ☒ NO EFFLUENT _____ UPSTREAM _____	TEST RESULT AT AEC FOR ORGANISM #1 ☒ PASS ☐ FAIL	TEST RESULT AT AEC FOR ORGANISM #2 ☒ PASS ☐ FAIL

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% EFFLUENT SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	14	SM18 2550B stored at 4 degree C until test setup	07/22/09 1105 hrs
pH Standard Units	7.06	SM18 4500-H B	07/22/09 1105 hrs
Conductance µMohs	676	SM18 2510B	07/22/09 1105 hrs
Dissolved Oxygen mg/L	8.4	SM18 4500-O G	07/22/09 1105 hrs
Total Residual Chlorine mg/L	0.08	SM18 4500-Cl G	07/22/09 1105 hrs
Unionized Ammonia mg/L	0.31x0.007<0.010	SM18 4500-NH3 F @ 25 degree C	07/23/09 1300 hrs
*Total Alkalinity mg/L	144	SM18 2320B	07/22/09 1300 hrs
*Total Hardness mg/L	180	SM18 2340 C	07/22/09 1105 hrs

*Recommended by USEPA guidance, not a required analysis.

[1] Samples shall only be filtered if indigenous organisms are present that may be confused with, or attack, the test organisms.
[2] Filters shall have a sieve size of 60 microns or greater.

CONTINUED ON PAGE 2

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% UPSTREAM SAMPLE[3]

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	14	SM18 2550B stored at 4 degree C until test setup	07/22/09 1105 hrs
pH Standard Units	7.25	SM18 4500-H B	07/22/09 1105 hrs
Conductance µMohs	225	SM18 2510B	07/22/09 1105 hrs
Dissolved Oxygen mg/L	8.2	SM18 4500-O G	07/22/09 1105 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	07/22/09 1105 hrs
Unionized Ammonia mg/L	0.07x0.009<0.010	SM18 4500-NH3 F @ 25 degree C	07/23/09 1300 hrs
*Total Alkalinity mg/L	97.3	SM18 2320B	07/22/09 1300 hrs
*Total Hardness mg/L	120	SM18 2340 C	07/22/09 1105 hrs

*Recommended by USEPA guidance, not a required analysis.

PRELIMINARY TEST ACCEPTABILITY MATRIX (FOR USE BY PERMITTEE IN DETERMINING TEST VALIDITY)

PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC): As indicated on permit. Test is invalid otherwise.

EFFLUENT SAMPLE TYPE: As indicated on permit. Test is invalid otherwise.

TEST TYPE: Acute Static Non-Renewal Test or other as indicated on permit. Test is invalid otherwise.

TEST DURATION: Forty-eight (48) hours or as indicated on permit. Test is invalid otherwise.

TEST ORGANISMS: As indicated on permit. Test is invalid otherwise.

DILUTION WATER USED TO ACHIEVE AEC: Upstream receiving water required if available.

TEST METHOD: The only acceptable method is the ***most current edition*** of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, or other as specifically assigned by EPA for determining NPDES compliance. Test is invalid otherwise.

TEST START DATE & TIME: Unless otherwise specified in writing by EPA, if >36 hours lapse between collection and initiation, test is invalid.

FILTER MESH SIEVE SIZE: Unless otherwise specified in writing by EPA, if sieve size is smaller than 60 microns, test is invalid.

90% OR GREATER SURVIVAL IN LABORATORY CONTROL(S) (Y/N): If NO, test is invalid.

PARAMETER	RESULT	NOTES	WHEN ANALYZED
Temperature °C	0 - 6	Unless received by the laboratory on the same day as collected, values outside this range invalidate the test.	Upon receipt

[3] Where no upstream control is available, enter results from laboratory or synthetic control.

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

REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 96%
MO-0035009
EAS LOG# 1208115
July 28, 2010 through July 30, 2010

Tests performed by:
John P. Clippard / Chemical Analyst at Environmental Analysis South (EAS)
Kelly J. Ray / Biologist at Environmental Analysis South (EAS)
Sara C. Shields / Lab Supervisor - Chemist at Environmental Analysis South (EAS)
David F. Warren / Lab Director - Chemist at Environmental Analysis South (EAS)

1. **Report Summation**
   1.1. **Data Summation**
   1.2. **Conclusion**
2. **Method Summation**
   2.1. **Test Conditions and Methods**
   2.2. **Potassium chloride Reference Salt Test**
      2.2.1. ***Pimephales promelas* data**
      2.2.2. ***Ceriodaphnia dubia* data**
   2.3. **Literature Cited**
3. **Raw Data Bench Sheets**
   3.1. **Initial observations (page 1)**
   3.2. **Zero hour Observations (page 1)**
   3.3. **Twenty-four (24) hour Observations (page 1)**
   3.4. **Forty-eight (48) hour Observations (page 1)**
   3.5. **Survival Data Table (page 2)**
   3.6. **Test Comments (page 3)**
4. **Chain of Custody**
5. **MO DNR "Whole Effluent Toxicity (WET) Test Report (Form 780-1899)**

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REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 96%
MO-0035009
EAS LOG# 1208115
July 28, 2010 through July 30, 2010

1. REPORT SUMMATION:

1.1. Multiple Dilution Data Summation

Test Solution	*Pimephales promelas* Acute Toxicity Test 48 Hour Survival	*Ceriodaphnia dubia* Acute Toxicity Test 48 Hour Survival
Reconstituted Control (RC)	100%	100%
Upstream Control (UC)	100%	100%
6.25% Effluent	100%	100%
12.5% Effluent	100%	100%
25% Effluent	100%	100%
50% Effluent	100%	100%
100% Effluent	100%	100%
Estimated 48 Hour LC_{50} Value	>100% Effluent	>100% Effluent
To Pass: 1. Effluent - LC50 must be >100% and 2. All concentrations = or < AEC must not have significant difference to control in survival.	1. Yes 2. Yes	1. Yes 2. Yes
Result of Toxicity Test	PASS	PASS

* Indicates a significant difference at alpha = 0.5 between effluent and control survival data.

Conclusion:

Pimephales promelas 48 hour WET results: LC 50 >100% by the Graphical Method
NOAEC = 100% by Steel's Many One-Rank Test

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

Based on these results the outfall **passed** the whole effluent toxicity test with both indicator species.

Approved by _____
Sara C. Shields, Chemist

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REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 96%
MO-0035009
EAS LOG# 1208115
July 28, 2010 through July 30, 2010

2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	Ceriodaphnia dubia:	*Pimephales promelas:*
Test duration:	48 hours	48 hours
Temperature:	24 - 26 degree Celsius	24 - 26 degree Celsius
Light quality:	Ambient laboratory illumination	Ambient laboratory illumination
Photoperiod:	16 hour light, 8 hours dark	16 hour light, 8 hours dark
Control Water:	Moderately Hard Reconstituted Water	Moderately Hard Reconstituted Water
Dilution Water:	Upstream Water - If unavailable or toxic, then control water will be used.	Upstream Water - If unavailable or toxic, then control water will be used.
Size of test vessel:	30 milliliters	250 milliliters
Volume of test solution:	15 milliliters	200 milliliters
Age of test organisms:	<24 hours	1 -14 days (all same age)
Number of organisms/test vessel:	5	10
Number of replicates/concentration:	4	2
Number of organisms/concentration:	20	40 for a single dilution test and 20 for a multiple dilution test
Feeding regime:	None (fed prior to test)	None (fed prior to test)
Aeration:	None	None
Test acceptability criterion:	90% or greater survival in controls	90% or greater survival in controls

The methodology used for the chemistry data was taken from the *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992). The exception was hardness, which was determined using a Hach EDTA titration test kit. The toxicity tests follow guidelines laid out in the permittee's NPDES permit and were conducted according to EPA approved methods (USEPA 2002).

All test organisms were cultured according to EPA approved methods (USEPA 2002). The *Ceriodaphnia dubia* and the *Pimephales promelas* were obtained from C-K Associates Inc. located in Baton Rouge, Louisiana and shipped overnight for use in the whole effluent toxicity test.

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REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 96%
MO-0035009
EAS LOG# 1208115
July 28, 2010 through July 30, 2010

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on July 7, 2010 using KCL Lot #41713. Following are the results:

2.2.1. ***P. promelas*** - 48 hr. Acute Test – LC_{50} = 1.122 g/l 95%CI (0.821-1.423 g/l)
EAS %CV = 13.4%
National Warning Limits (75th percentile) = 19%CV
National Control Limits (90th percentile) = 33%CV

2.2.2. ***C. dubia*** - 48 hr. Acute Test – LC_{50} = 0.467 g/l 95%CI (0.261-0.673g/l)
EAS %CV = 22.1%
National Warning Limits (75th percentile) = 29%CV
National Control Limits (90th percentile) = 34%CV

2.3. **LITERATURE CITED:**

1. APHA. 1992. *Standard methods for the examination of water and wastewater*, 18th Ed. American Public Health Association, Washington, D.C
2. USEPA. 2002. *Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms*, 5th Ed. EPA-821-R-02-012
3. USEPA 2000. *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2).* June 2000. EPA 833-R-00-003.

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

CLIENT NAME:	Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite
NPDES NUMBER:	MO-0035009
TYPE OF METHOD:	multiple dilution, 48 hrs, PP & CD, AEC=96%
DATE & TIME OF COLLECTION:	07/27/10 0820 hrs - 07/28/10 0820 hrs by Steven Baker
DATE & TIME OF SUBMISSION:	07/28/10 1100 hrs by Ron Dailey

Upstream: St. Johns Ditch
Collected: 07/28/10 0850 hrs by Steven Baker

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC
LOG NUMBER / ID NUMBER						1208115	1208115A	3094
pH - SU	07/28/10	1115 hrs	SCS	SB114 (8.8-9.2)	8.87	7.50	7.61	7.99
TEMPERATURE °C RECEIVED	07/28/10	1115 hrs	SCS	EAS 106		9	9	25
SPECIFIC CONDUCTANCE umhos	07/28/10	1115 hrs	SCS	ERA P176-506(514-570)	558	735	261	252
HARDNESS - ppm	07/28/10	1115 hrs	SCS	ERA P170-507(107-134)	120	200	160	80
CHLORINE - ppm	07/28/10	1115 hrs	SCS	tap water	+	<0.04	<0.04	<0.04
DISSOLVED OXYGEN - ppm	07/28/10	1115 hrs	SCS	cal@840		4.1	6.9	8.4
TOTAL ALKALINITY - ppm	07/28/10	1600 hrs	SCS	ERAP177-506(45.3-53.2)	49.1	144	99.9	57.5
INITIAL AMMONIA - ppm	08/03/10	0900 hrs	JPC	EAS #1981 (8-12)	10.6	0.081	<0.05	<0.05
TOTAL DISSOLVED SOLIDS -ppm								

0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X%AEC
pH - SU	07/28/10	1200 hrs	SCS	SB114 (8.8-9.2)	8.87	7.95	7.66	7.53	7.60	7.64	7.67	7.67	
TEMPERATURE °C	07/28/10	1200 hrs	SCS	EAS 106		25	25	25	25	25	25	25	
SPECIFIC CONDUCTANCE umhos	07/28/10	1200 hrs	SCS	ERA P176-506(514-570)	558	253	267	720	487	365	314	291	
DISSOLVED OXYGEN - ppm	07/28/10	1200 hrs	SCS	cal@840		8.6	7.2	5.1	6.7	7.6	7.7	7.6	

24 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X%AEC
pH - SU	07/29/10	1200 hrs	SCS	SB114 (8.8-9.2)	8.9	7.78	8.07	8.13	8.09	8.06	8.06	8.06	
TEMPERATURE °C	07/29/10	1200 hrs	SCS	EAS 106		25	25	25	25	25	25	25	
SPECIFIC CONDUCTANCE umhos	07/29/10	1200 hrs	SCS	ERA P176-506(514-570)	568	272	267	727	486	374	318	293	
DISSOLVED OXYGEN - ppm	07/29/10	1200 hrs	SCS	cal@840		7.1	6.7	6.5	6.7	6.6	6.7	6.7	
48 HOUR OBSERVATIONS - PP	**DATE**	**TIME**	**ANALYST**	**QC LOT**	**QC EXP VALUE**	**RC**	**UC**	**100%**	**50%**	**25%**	**12.50%**	**6.25%**	**X%AEC**
pH - SU	07/30/10	1200 hrs	SCS	SB114 (8.8-9.2)	8.8	7.41	8.01	8.06	7.95	7.91	7.89	7.90	
TEMPERATURE °C	07/30/10	1200 hrs	SCS	EAS 106		25	25	25	25	25	25	25	
SPECIFIC CONDUCTANCE umhos	07/30/10	1200 hrs	SCS	ERA P176-506(514-570)	567	291	276	736	490	375	319	295	
DISSOLVED OXYGEN - ppm	07/30/10	1200 hrs	SCS	cal@840		6.7	6.8	6.9	6.7	6.6	6.3	6.5	
FINAL AMMONIA - ppm				EAS #2375 (8-12)									

24 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X%AEC
pH - SU	07/29/10	1200 hrs	SCS	SB114 (8.8-9.2)	8.9	7.80	8.35	8.39	8.34	8.33	8.33	8.33	
TEMPERATURE °C	07/29/10	1200 hrs	SCS	EAS 106		25	25	25	25	25	25	25	
SPECIFIC CONDUCTANCE umhos	07/29/10	1200 hrs	SCS	ERA P176-506(514-570)	568	271	240	697	481	370	307	290	
DISSOLVED OXYGEN - ppm	07/29/10	1200 hrs	SCS	cal@840		7.3	7.0	7.0	7.0	7.1	7.0	7.1	
48 HOUR OBSERVATIONS - CD	**DATE**	**TIME**	**ANALYST**	**QC LOT**	**QC EXP VALUE**	**RC**	**UC**	**100%**	**50%**	**25%**	**12.50%**	**6.25%**	**X%AEC**
pH - SU	07/30/10	1200 hrs	SCS	SB114 (8.8-9.2)	8.8	7.71	8.34	8.43	8.38	8.34	8.27	7.96	
TEMPERATURE °C	07/30/10	1200 hrs	SCS	EAS 106		25	25	25	25	25	25	25	
SPECIFIC CONDUCTANCE umhos	07/30/10	1200 hrs	SCS	ERA P176-506(514-570)	567	270	276	728	493	380	302	275	
DISSOLVED OXYGEN - ppm	07/30/10	1200 hrs	SCS	cal@840		8.0	7.6	7.4	7.6	7.7	7.8	7.9	
FINAL AMMONIA - ppm				EAS #2375 (8-12)									

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

Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite **EAS LOG# 1208115**

Date Test Began: July 28, 2010 **Time Test Began:** 1200 hrs **Analyst 1:** DFW
Analyst 2: KJR
Date Test Finished: July 30, 2010 **Time Test Finished:** 1200 hrs **Analyst 3:** SCS

P. promelas (PP) **AGE:** 6 days **HATCH NUMBER:** 8345 c-k

	RC	UC	100%	50%	25%	12.50%	6.25%	X%AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
24 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
48 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	

Ceriodaphnia dubia (CD) **AGE:** <24 hours **HATCH NUMBER:** 2195 c-k

	RC	UC	100%	50%	25%	12.50%	6.25%	X%AEC
PERIOD	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE	ALIVE
0 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
24 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
48 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	

Approved by: [signature] Date: 08/05/2010

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

Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite EAS#: 1208115

Notes & Comments												

Prepared by: [illegible]

Date: 08/05/2010

PO# 39246

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ENVIRONMENTAL ANALYSIS SOUTH, INC.
4000 East Jackson Blvd
Jackson, MO 63755
Phone: (573) 204-8817 Fax: (573) 204-8818

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WHOLE EFFLUENT TOXICITY TESTING
CHAIN OF CUSTODY

CLIENT: Sikeston

NPDES PERMIT NUMBER: MO-0035009

EFFLUENT NAME: 001 outfall (LEGAL NAME) GRAB ☐ 24 HR COMPOSITE ☑

COLLECTION DATA: START DATE: 7-27-10 START TIME: 0820

FINISH DATE: 7-28-10 FINISH TIME: 0820

UPSTREAM NAME: St. John's Ditch (LEGAL NAME) (GRAB SAMPLE)

COLLECTION DATA: DATE: 7-28-10 TIME: 0850

SAMPLER NAME: Steven Baker (PRINT NAME) CARRIER: _____

Disclaimer: Environmental Analysis South, Inc. shall not be held financially liable for invalid whole effluent toxicity test (WET) or shipping charges resulting from the following reasons:

- **Sampling & holding time errors (Will results in a setup charge of $100 to the client)**
- **Commercial carrier delivery problems or errors (Will results in a setup charge of $100 to the client)**
- **Problems with health or delivery of test organisms by vendor (No setup charge to client)**

SAMPLER CHECK LIST

NO HEADSPACE IN BOTTLES ☐
SHIP SAMPLES BY NEXT DAY CARRIER OR DELIVER TO LAB ON 7-28-10 ☐
SAMPLES TO BE HAND DELIVERED TO LABORATORY SAME DAY AS TEST SETUP ☐
SUFFICIENT ICE TO COOL SAMPLES TO A RANGE OF 0-6°C WHEN SHIPPING OVERNIGHT ☑

RELINQUISHED BY: [signature] DATE: 7-28-10 TIME: 11:00

LABORATORY USE ONLY

EFFLUENT LOG NUMBER: 1208115

RECEIVED TEMPERATURE: 9 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

UPSTREAM LOG NUMBER: 1208115-A

RECEIVED TEMPERATURE: 9 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

RECEIVED BY: [signature] DATE: 7/28/10 TIME: 1100

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM - P.O. BOX 176, JEFFERSON CITY MO, 65102

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME Sikeston Wastewater Treatment Facility	DATE & TIME COLLECTED EFFLUENT 07/27/10 0820-07/28/10 0820 UPSTREAM 07/28/10 0850
PERMIT NUMBER MO-0035009	PERMIT OUTFALL NUMBER Outfall # 001
COLLECTOR'S NAME Steven Baker	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION St. Johns Ditch	
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC) 96%	EFFLUENT SAMPLE TYPE (CHECK ONE) ☒ 24HR COMPOSITE ☐ GRAB ☐ OTHER _____
SAMPLE NUMBER EFFLUENT 1208115 UPSTREAM 1208115A	UPSTREAM SAMPLE TYPE (CHECK ONE) ☐ 24HR COMPOSITE ☒ GRAB ☐ OTHER _____
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR CHLORINE _____ mg/L	PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR AMMONIA _____ mg/L

PART B – TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY Environmental Analysis South, Inc.	TEST TYPE Acute Static Non renewal Test Multiple Dilution	
FINAL REPORT NUMBER MO_1208115	TEST DURATION 48 hour	
DATE OF LAST REFERENCE TOXICANT TESTING July 7, 2010	TEST METHOD Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY 07/28/10 1100 hrs by Ron Dailey	TEST START DATE AND TIME 07/28/10 1200 hrs	TEST END DATE AND TIME 07/30/10 1200 hrs
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT _____ UPSTREAM _____	TEST ORGANISM #1 AND AGE Pimephales promelas 6 days	TEST ORGANISM #2 AND AGE Ceriodaphnia dubia < 24 hours
SAMPLE FILTERED[1] PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT _____ UPSTREAM _____	90% OR GREATER SURVIVAL IN SYNTHETIC CONTROL? ☒ YES ☐ NO	DILUTION WATER USED TO ACHIEVE AEC upstream 1208115A
FILTER MESH SIEVE SIZE[2] None	EFFLUENT ORGANISM #1 % MORTALITY AT AEC LC50>100% Effluent	EFFLUENT ORGANISM #2 % MORTALITY AT AEC LC50>100% Effluent
SAMPLE AERATED DURING TESTING? ☐ YES ☒ NO	UPSTREAM ORGANISM #1 % MORTALITY 0 %	UPSTREAM ORGANISM #2 % MORTALITY 0 %
pH ADJUSTED? ☐ YES ☒ NO EFFLUENT _____ UPSTREAM _____	TEST RESULT AT AEC FOR ORGANISM #1 ☒ PASS ☐ FAIL	TEST RESULT AT AEC FOR ORGANISM #2 ☒ PASS ☐ FAIL

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% EFFLUENT SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	9	SM18 2550B stored at 4 degree C until test setup	07/28/10 1115 hrs
pH Standard Units	7.50	SM18 4500-H B	07/28/10 1115 hrs
Conductance µMohs	735	SM18 2510B	07/28/10 1115 hrs
Dissolved Oxygen mg/L	4.1	SM18 4500-O G	07/28/10 1115 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	07/28/10 1115 hrs
Unionized Ammonia mg/L	0.081x0.02<0.010	SM18 4500-NH3 F @ 25 degree C	08/03/10 0900 hrs
*Total Alkalinity mg/L	144	SM18 2320B	07/28/10 1600 hrs
*Total Hardness mg/L	200	SM18 2340 C	07/28/10 1115 hrs

*Recommended by USEPA guidance, not a required analysis.

[1] Samples shall only be filtered if indigenous organisms are present that may be confused with, or attack, the test organisms.
[2] Filters shall have a sieve size of 60 microns or greater.

CONTINUED ON PAGE 2

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% UPSTREAM SAMPLE[3]

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	9	SM18 2550B stored at 4 degree C until test setup	07/28/10 1115 hrs
pH Standard Units	7.61	SM18 4500-H B	07/28/10 1115 hrs
Conductance µMohs	261	SM18 2510B	07/28/10 1115 hrs
Dissolved Oxygen mg/L	6.9	SM18 4500-O G	07/28/10 1115 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	07/28/10 1115 hrs
Unionized Ammonia mg/L	<0.05x0.02<0.010	SM18 4500-NH3 F @ 25 degree C	08/03/10 0900 hrs
*Total Alkalinity mg/L	99.9	SM18 2320B	07/28/10 1600 hrs
*Total Hardness mg/L	160	SM18 2340 C	07/28/10 1115 hrs

*Recommended by USEPA guidance, not a required analysis.

PRELIMINARY TEST ACCEPTABILITY MATRIX (FOR USE BY PERMITTEE IN DETERMINING TEST VALIDITY)

PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC): As indicated on permit. Test is invalid otherwise.

EFFLUENT SAMPLE TYPE: As indicated on permit. Test is invalid otherwise.

TEST TYPE: Acute Static Non-Renewal Test or other as indicated on permit. Test is invalid otherwise.

TEST DURATION: Forty-eight (48) hours or as indicated on permit. Test is invalid otherwise.

TEST ORGANISMS: As indicated on permit. Test is invalid otherwise.

DILUTION WATER USED TO ACHIEVE AEC: Upstream receiving water required if available.

TEST METHOD: The only acceptable method is the ***most current edition*** of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, or other as specifically assigned by EPA for determining NPDES compliance. Test is invalid otherwise.

TEST START DATE & TIME: Unless otherwise specified in writing by EPA, if >36 hours lapse between collection and initiation, test is invalid.

FILTER MESH SIEVE SIZE: Unless otherwise specified in writing by EPA, if sieve size is smaller than 60 microns, test is invalid.

90% OR GREATER SURVIVAL IN LABORATORY CONTROL(S) (Y/N): If NO, test is invalid.

PARAMETER	RESULT	NOTES	WHEN ANALYZED
Temperature °C	0 - 6	Unless received by the laboratory on the same day as collected, values outside this range invalidate the test.	Upon receipt

[3] Where no upstream control is available, enter results from laboratory or synthetic control.

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WHOLE EFFLUENT TOXICITY TESTING CHAIN OF CUSTODY

CLIENT: Sikeston

NPDES PERMIT NUMBER: MO-0035009

EFFLUENT NAME: 001 outfall (LEGAL NAME) GRAB ☐ 24 HR COMPOSITE ☑

COLLECTION DATA: START DATE: 7-27-10 START TIME: 0820

FINISH DATE: 7-28-10 FINISH TIME: 0820

UPSTREAM NAME: St. John's Ditch (LEGAL NAME) (GRAB SAMPLE)

COLLECTION DATA: DATE: 7-28-10 TIME: 0850

SAMPLER NAME: Steven Baker (PRINT NAME) CARRIER: _____

Disclaimer: Environmental Analysis South, Inc. shall not be held financially liable for invalid whole effluent toxicity test (WET) or shipping charges resulting from the following reasons:

- Sampling & holding time errors (Will results in a setup charge of $100 to the client)
- Commercial carrier delivery problems or errors (Will results in a setup charge of $100 to the client)
- Problems with health or delivery of test organisms by vendor (No setup charge to client)

SAMPLER CHECK LIST

NO HEADSPACE IN BOTTLES ☐
SHIP SAMPLES BY NEXT DAY CARRIER OR DELIVER TO LAB ON 7/28/10 ☐
SAMPLES TO BE HAND DELIVERED TO LABORATORY SAME DAY AS TEST SETUP ☐
SUFFICIENT ICE TO COOL SAMPLES TO A RANGE OF 0 - 6° C WHEN SHIPPING OVERNIGHT ☑

RELINQUISHED BY: [signature] DATE: 7-28-10 TIME: 11:00

LABORATORY USE ONLY

EFFLUENT LOG NUMBER: 1208115

RECEIVED TEMPERATURE: 9 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

UPSTREAM LOG NUMBER: 1208115-A

RECEIVED TEMPERATURE: 9 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

RECEIVED BY: [signature] DATE: 7/28/10 TIME: 1100

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REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 96%
MO-0035009
EAS LOG# 1312822
July 6, 2011 through July 8, 2011

Tests performed by:
John P. Clippard / Chemical Analyst at Environmental Analysis South (EAS)
Kelly J. Ray / Biologist at Environmental Analysis South (EAS)
Sara C. Shields / Lab Supervisor - Chemist at Environmental Analysis South (EAS)
David F. Warren / Lab Director - Chemist at Environmental Analysis South (EAS)

1. **Report Summation**
   1.1. **Data Summation**
   1.2. **Conclusion**
2. **Method Summation**
   2.1. **Test Conditions and Methods**
   2.2. **Potassium chloride Reference Salt Test**
      2.2.1. ***Pimephales promelas* data**
      2.2.2. ***Ceriodaphnia dubia* data**
   2.3. **Literature Cited**
3. **Raw Data Bench Sheets**
   3.1. **Initial observations (page 1)**
   3.2. **Zero hour Observations (page 1)**
   3.3. **Twenty-four (24) hour Observations (page 1)**
   3.4. **Forty-eight (48) hour Observations (page 1)**
   3.5. **Survival Data Table (page 2)**
   3.6. **Test Comments (page 3)**
4. **Chain of Custody**
5. **MO DNR "Whole Effluent Toxicity (WET) Test Report (Form 780-1899)**

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REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 96%
MO-0035009
EAS LOG# 1312822
July 6, 2011 through July 8, 2011

1. REPORT SUMMATION:

1.1. Multiple Dilution Data Summation

Test Solution	*Pimephales promelas* Acute Toxicity Test 48 Hour Survival	*Ceriodaphnia dubia* Acute Toxicity Test 48 Hour Survival
Reconstituted Control (RC)	100%	100%
Upstream Control (UC)	100%	90%
6.25% Effluent	100%	90%
12.5% Effluent	100%	100%
25% Effluent	100%	100%
50% Effluent	95%	100%
100% Effluent	100%	100%
Estimated 48 Hour LC_{50} Value	>100% Effluent	>100% Effluent
To Pass: **1. Effluent - LC50 must be >100% and** **2. All concentrations = or < AEC must not have significant difference to control in survival.**	1. Yes 2. Yes	1. Yes 2. Yes
Result of Toxicity Test	PASS	PASS

* Indicates a significant difference at alpha = 0.5 between effluent and control survival data.

Conclusion:

Pimephales promelas 48 hour WET results: LC 50 >100% using Trimmed Spearman-Karber
NOAEC = 100% by Steel's Many One-Rank Test

Ceriodaphnia dubia 48 hour WET results: LC 50 >100% using Trimmed Spearman-Karber
NOAEC = 100% by Steel's Many One-Rank Test

Based on these results the outfall **passed** the whole effluent toxicity test with both indicator species.

Approved by _____
Sara C. Shields, Chemist

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REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 96%
MO-0035009
EAS LOG# 1312822
July 6, 2011 through July 8, 2011

2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	Ceriodaphnia dubia:	*Pimephales promelas:*
Test duration:	48 hours	48 hours
Temperature:	24 - 26 degree Celsius	24 - 26 degree Celsius
Light quality:	Ambient laboratory illumination	Ambient laboratory illumination
Photoperiod:	16 hour light, 8 hours dark	16 hour light, 8 hours dark
Control Water:	Moderately Hard Reconstituted Water	Moderately Hard Reconstituted Water
Dilution Water:	Upstream Water - If unavailable or toxic, then control water will be used.	Upstream Water - If unavailable or toxic, then control water will be used.
Size of test vessel:	30 milliliters	250 milliliters
Volume of test solution:	15 milliliters	200 milliliters
Age of test organisms:	<24 hours	1 -14 days (all same age)
Number of organisms/test vessel:	5	10
Number of replicates/concentration:	4	2
Number of organisms/concentration:	20	40 for a single dilution test and 20 for a multiple dilution test
Feeding regime:	None (fed prior to test)	None (fed prior to test)
Aeration:	None	None
Test acceptability criterion:	90% or greater survival in controls	90% or greater survival in controls

The methodology used for the chemistry data was taken from the *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992). The exception was hardness, which was determined using a Hach EDTA titration test kit. The toxicity tests follow guidelines laid out in the permittee's NPDES permit and were conducted according to EPA approved methods (USEPA 2002).

All test organisms were cultured according to EPA approved methods (USEPA 2002). The *Ceriodaphnia dubia* and the *Pimephales promelas* were obtained from C-K Associates Inc. located in Baton Rouge, Louisiana and shipped overnight for use in the whole effluent toxicity test.

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REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 96%
MO-0035009
EAS LOG# 1312822
July 6, 2011 through July 8, 2011

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on July 6, 2011 using KCL Lot #41713. Following are the results:

2.2.1. ***P. promelas*** - 48 hr. Acute Test – LC_{50} = 1.068 g/l 95%CI (0.7311-1.405 g/l)
EAS %CV = 15.8%
National Warning Limits (75th percentile) = 19%CV
National Control Limits (90th percentile) = 33%CV

2.2.2. ***C. dubia*** - 48 hr. Acute Test – LC_{50} = 0.463 g/l 95%CI (0.294-0.632g/l)
EAS %CV = 18.3%
National Warning Limits (75th percentile) = 29%CV
National Control Limits (90th percentile) = 34%CV

2.3. **LITERATURE CITED:**

1. APHA. 1992. *Standard methods for the examination of water and wastewater*, 18th Ed. American Public Health Association, Washington, D.C
2. USEPA. 2002. *Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms*, 5th Ed. EPA-821-R-02-012
3. USEPA 2000. *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2).* June 2000. EPA 833-R-00-003.

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

CLIENT NAME:	Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite
NPDES NUMBER:	MO-0035009
TYPE OF METHOD:	multiple dilution, 48 hrs, PP & CD, AEC=96%
DATE & TIME OF COLLECTION:	07/05/11 0800 hrs - 07/06/11 0800 hrs by Steven Baker
DATE & TIME OF SUBMISSION:	07/06/11 1030 hrs by C.T.

Upstream: St. Johns Ditch
Collected: 07/06/11 0800 hrs by Steven Baker

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC
LOG NUMBER / ID NUMBER						1312822	1312822A	4015
pH - SU	07/06/11	1035 hrs	JPC	SB114 (8.8-9.2)	9.1	7.82	7.86	8.01
TEMPERATURE °C RECEIVED	07/06/11	1035 hrs	JPC	EAS 106		11	10	24
SPECIFIC CONDUCTANCE umhos	07/06/11	1035 hrs	JPC	ERA P185-506(359-407)	399	674	260	259
HARDNESS - ppm	07/06/11	1035 hrs	JPC	ERA P170-507(107-134)	120	180	160	80
CHLORINE - ppm	07/06/11	1035 hrs	JPC	tap water	+	<0.04	<0.04	<0.04
DISSOLVED OXYGEN - ppm	07/06/11	1035 hrs	JPC	cal@840		3.9	3.1	6.9
TOTAL ALKALINITY - ppm	07/06/11	1530 hrs	SCS	Q029-506 (35.4-48.1)	45.5	175	127	67.9
INITIAL AMMONIA - ppm	07/13/11	1202 hrs	JPC	EAS #1981 (8-12)	10	<0.05	<0.05	<0.05
TOTAL DISSOLVED SOLIDS -ppm								

0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	07/06/11	1100 hrs	SCS	SB114 (8.8-9.2)	9.1	8.09	7.94	8.11	8.06	8.04	8.02	8.00	
TEMPERATURE °C	07/06/11	1100 hrs	SCS	EAS 106		23.6	24.5	24.3	24.1	24.7	24.5	24.5	
SPECIFIC CONDUCTANCE umhos	07/06/11	1100 hrs	SCS	ERA P185-506(359-407)	399	258	270	676	474	368	314	283	
DISSOLVED OXYGEN - ppm	07/06/11	1100 hrs	SCS	cal@840		6.4	7.4	7.7	7.6	7.6	7.7	7.5	

24 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	07/07/11	1100 hrs	SCS	SB114 (8.8-9.2)	8.98	7.61	7.76	8.05	7.87	7.74	7.77	7.72	
TEMPERATURE °C	07/07/11	1100 hrs	SCS	EAS 106		24.1	24.1	24.1	24.1	24.1	24.1	24.1	
SPECIFIC CONDUCTANCE umhos	07/07/11	1100 hrs	SCS	ERA P185-506(359-407)	392	259	282	695	478	370	318	292	
DISSOLVED OXYGEN - ppm	07/07/11	1100 hrs	SCS	cal@840		6.4	5.3	5.7	5.7	6	5.9	5.7	
48 HOUR OBSERVATIONS - PP	**DATE**	**TIME**	**ANALYST**	**QC LOT**	**QC EXP VALUE**	**RC**	**UC**	**100%**	**50%**	**25%**	**12.5%**	**6.25%**	**X %AEC**
pH - SU	07/08/11	1100 hrs	SCS	SB114 (8.8-9.2)	8.89	8.25	8.14	8.08	8.03	8.01	8.03	8.06	
TEMPERATURE °C	07/08/11	1100 hrs	SCS	EAS 106		24.1	24.1	24.1	24.1	24.1	24.1	24.1	
SPECIFIC CONDUCTANCE umhos	07/08/11	1100 hrs	SCS	ERA P185-506(359-407)	401	259	309	706	494	376	323	299	
DISSOLVED OXYGEN - ppm	07/08/11	1100 hrs	SCS	cal@840		6.8	6.5	6.6	6.5	6.6	6.5	6.6	
FINAL AMMONIA - ppm				EAS #2375 (8-12)									

24 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.5%	6.25%	X %AEC
pH - SU	07/07/11	1100 hrs	SCS	SB114 (8.8-9.2)	8.98	8.25	8.24	8.28	8.21	8.13	8.15	8.18	
TEMPERATURE °C	07/07/11	1100 hrs	SCS	EAS 106		24.1	24.1	24.1	24.1	24.1	24.1	24.1	
SPECIFIC CONDUCTANCE umhos	07/07/11	1100 hrs	SCS	ERA P185-506(359-407)	392	259	259	658	460	365	316	289	
DISSOLVED OXYGEN - ppm	07/07/11	1100 hrs	SCS	cal@840		6.8	6.6	6.4	6.4	6.5	6.5	6.5	
48 HOUR OBSERVATIONS - CD	**DATE**	**TIME**	**ANALYST**	**QC LOT**	**QC EXP VALUE**	**RC**	**UC**	**100%**	**50%**	**25%**	**12.5%**	**6.25%**	**X %AEC**
pH - SU	07/08/11	1100 hrs	SCS	SB114 (8.8-9.2)	8.89	8.36	8.16	8.18	8.14	8.14	8.13	8.15	
TEMPERATURE °C	07/08/11	1100 hrs	SCS	EAS 106		24.1	24.1	24.1	24.1	24.1	24.1	24.1	
SPECIFIC CONDUCTANCE umhos	07/08/11	1100 hrs	SCS	ERA P185-506(359-407)	401	265	325	664	461	362	318	292	
DISSOLVED OXYGEN - ppm	07/08/11	1100 hrs	SCS	cal@840		6.5	6.5	6.6	6.5	6.4	6.5	6.6	
FINAL AMMONIA - ppm				EAS #2375 (8-12)									

Approved by: [signature]

Date: 07/24/2011

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

Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite **EAS LOG# 1312822**

Date Test Began: July 6, 2011 **Time Test Began:** 1100 hrs

Date Test Finished: July 8, 2011 **Time Test Finished:** 1100 hrs

Analyst 1: DFW
Analyst 2: KJR
Analyst 3: SCS

P. promelas (PP) **AGE:** 6 **days** **HATCH NUMBER:** 8655 c-k

	RC	UC	100%	50%	25%	12.5%	6.25%	X% AEC
PERIOD	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**
0 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
24 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
48 HR-PP	10,10	10,10	10,10	9,10	10,10	10,10	10,10	

Ceriodaphnia dubia (CD) **AGE:** <24 **hours** **HATCH NUMBER:** 2344 c-k

	RC	UC	100%	50%	25%	12.5%	6.25%	X% AEC
PERIOD	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**
0 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
24 HR-CD	5,5,5,5	5,5,5,3	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,4	
48 HR-CD	5,5,5,5	5,5,5,3	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,4,4	

Approved by: [signature] Date: 07/24/2011

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

Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite EAS#: 1312822

Notes & Comments

Samples aerated prior to test initiation due to low initial DO upon arrival

Prepared by: [illegible]

Date: 07/24/2014

PO# 41116

113877

ENVIRONMENTAL ANALYSIS SOUTH, INC.
4000 East Jackson Blvd
Jackson, MO 63755
Phone: (573) 204-8817 Fax: (573) 204-8818

WHOLE EFFLUENT TOXICITY TESTING
CHAIN OF CUSTODY

CLIENT: Sikeston

NPDES PERMIT NUMBER: MO-0035009

EFFLUENT NAME: 001 outfall (LEGAL NAME) GRAB ☐ 24 HR COMPOSITE ☑

COLLECTION DATA: START DATE: 07-05-2011 START TIME: 0800 HRS

FINISH DATE: 07-06-2011 FINISH TIME: 0800

UPSTREAM NAME: St. Johns Ditch (LEGAL NAME) (GRAB SAMPLE)

COLLECTION DATA: DATE: 07-06-2011 TIME: 0815 HRS

SAMPLER NAME: Steven Baker (PRINT NAME) CARRIER: _____

Disclaimer: Environmental Analysis South, Inc. shall not be held financially liable for invalid whole effluent toxicity test (WET) or shipping charges resulting from the following reasons:

- Sampling & holding time errors (Will results in a setup charge of $100 to the client)
- Commercial carrier delivery problems or errors (Will results in a setup charge of $100 to the client)
- Problems with health or delivery of test organisms by vendor (No setup charge to client)

SAMPLER CHECK LIST

NO HEADSPACE IN BOTTLES ☐
SHIP SAMPLES BY NEXT DAY CARRIER OR DELIVER TO LAB ON 7-6-11 ☐
SAMPLES TO BE HAND DELIVERED TO LABORATORY SAME DAY AS TEST SETUP ☐
SUFFICIENT ICE TO COOL SAMPLES TO A RANGE OF 0 - 6° C WHEN SHIPPING OVERNIGHT ☑

RELINQUISHED BY: [signature] DATE: 7-6-11 TIME: 10:40

LABORATORY USE ONLY

EFFLUENT LOG NUMBER: 1312822

RECEIVED TEMPERATURE: 11 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

UPSTREAM LOG NUMBER: 1312822-A

RECEIVED TEMPERATURE: 10 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

RECEIVED BY: [signature] DATE: 7/6/11 TIME: 1030

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM - P.O. BOX 176, JEFFERSON CITY MO, 65102

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME Sikeston Wastewater Treatment Facility	DATE & TIME COLLECTED EFFLUENT 07/05/11 0800-07/06/11 0800 UPSTREAM 07/06/11 0800
PERMIT NUMBER MO_0035009	PERMIT OUTFALL NUMBER Outfall # 001
COLLECTOR'S NAME Steven Baker	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION St. John's Ditch	
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC) 96%	EFFLUENT SAMPLE TYPE (CHECK ONE) ☒ 24HR COMPOSITE ☐ GRAB ☐ OTHER _____
SAMPLE NUMBER EFFLUENT 1312822 UPSTREAM 1312822A	UPSTREAM SAMPLE TYPE (CHECK ONE) ☐ 24HR COMPOSITE ☒ GRAB ☐ OTHER _____
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR CHLORINE _____ mg/L	PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR AMMONIA _____ mg/L

PART B – TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY Environmental Analysis South, Inc.	TEST TYPE Acute Static Non renewal Test Multiple Dilution	
FINAL REPORT NUMBER MO_1312822	TEST DURATION 48 hour	
DATE OF LAST REFERENCE TOXICANT TESTING July 6, 2011	TEST METHOD Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY 07/06/11 1030 hrs by C.T.	TEST START DATE AND TIME 07/06/11 1100 hrs	TEST END DATE AND TIME 07/08/11 1100 hrs
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT _____ UPSTREAM _____	TEST ORGANISM #1 AND AGE Pimephales promelas 6 days	TEST ORGANISM #2 AND AGE Ceriodaphnia dubia < 24 hours
SAMPLE FILTERED[1] PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT _____ UPSTREAM _____	90% OR GREATER SURVIVAL IN SYNTHETIC CONTROL? ☒ YES ☐ NO	DILUTION WATER USED TO ACHIEVE AEC upstream 1312822A
FILTER MESH SIEVE SIZE[2] None	EFFLUENT ORGANISM #1 % MORTALITY AT AEC LC50>100% Effluent	EFFLUENT ORGANISM #2 % MORTALITY AT AEC LC50>100% Effluent
SAMPLE AERATED DURING TESTING? ☐ YES ☒ NO	UPSTREAM ORGANISM #1 % MORTALITY 0%	UPSTREAM ORGANISM #2 % MORTALITY 10%
pH ADJUSTED? ☐ YES ☒ NO EFFLUENT _____ UPSTREAM _____	TEST RESULT AT AEC FOR ORGANISM #1 ☒ PASS ☐ FAIL	TEST RESULT AT AEC FOR ORGANISM #2 ☒ PASS ☐ FAIL

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% EFFLUENT SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	11	SM18 2550B stored at 4 degree C until test setup	07/06/11 1030 hrs
pH Standard Units	7.82	SM18 4500-H B	07/06/11 1030 hrs
Conductance µMohs	674	SM18 2510B	07/06/11 1030 hrs
Dissolved Oxygen mg/L	3.9	SM18 4500-O G	07/06/11 1030 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	07/06/11 1030 hrs
Unionized Ammonia mg/L	<0.05x0.03<0.010	SM18 4500-NH3 F @ 25 degree C	07/13/11 1202 hrs
*Total Alkalinity mg/L	175	SM18 2320B	07/06/11 1350 hrs
*Total Hardness mg/L	180	SM18 2340 C	07/06/11 1030 hrs

*Recommended by USEPA guidance, not a required analysis.

[1] Samples shall only be filtered if indigenous organisms are present that may be confused with, or attack, the test organisms.
[2] Filters shall have a sieve size of 60 microns or greater.

CONTINUED ON PAGE 2

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% UPSTREAM SAMPLE[3]

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	10	SM18 2550B stored at 4 degree C until test setup	07/06/11 1030 hrs
pH Standard Units	7.86	SM18 4500-H B	07/06/11 1030 hrs
Conductance µMohs	260	SM18 2510B	07/06/11 1030 hrs
Dissolved Oxygen mg/L	3.1	SM18 4500-O G	07/06/11 1030 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	07/06/11 1030 hrs
Unionized Ammonia mg/L	<0.05x0.04<0.010	SM18 4500-NH3 F @ 25 degree C	07/13/11 1202 hrs
*Total Alkalinity mg/L	127	SM18 2320B	07/06/11 1530 hrs
*Total Hardness mg/L	160	SM18 2340 C	07/06/11 1030 hrs

*Recommended by USEPA guidance, not a required analysis.

PRELIMINARY TEST ACCEPTABILITY MATRIX (FOR USE BY PERMITTEE IN DETERMINING TEST VALIDITY)

PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC): As indicated on permit. Test is invalid otherwise.

EFFLUENT SAMPLE TYPE: As indicated on permit. Test is invalid otherwise.

TEST TYPE: Acute Static Non-Renewal Test or other as indicated on permit. Test is invalid otherwise.

TEST DURATION: Forty-eight (48) hours or as indicated on permit. Test is invalid otherwise.

TEST ORGANISMS: As indicated on permit. Test is invalid otherwise.

DILUTION WATER USED TO ACHIEVE AEC: Upstream receiving water required if available.

TEST METHOD: The only acceptable method is the ***most current edition*** of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, or other as specifically assigned by EPA for determining NPDES compliance. Test is invalid otherwise.

TEST START DATE & TIME: Unless otherwise specified in writing by EPA, if >36 hours lapse between collection and initiation, test is invalid.

FILTER MESH SIEVE SIZE: Unless otherwise specified in writing by EPA, if sieve size is smaller than 60 microns, test is invalid.

90% OR GREATER SURVIVAL IN LABORATORY CONTROL(S) (Y/N): If NO, test is invalid.

PARAMETER	RESULT	NOTES	WHEN ANALYZED
Temperature °C	0 - 6	Unless received by the laboratory on the same day as collected, values outside this range invalidate the test.	Upon receipt

[3] Where no upstream control is available, enter results from laboratory or synthetic control.

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

REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 96%
MO-0035009
EAS LOG# 1501323
July 18, 2012 through July 20, 2012

Tests performed by:
John P. Clippard / Chemical Analyst at Environmental Analysis South (EAS)
Kelly J. Ray / Biologist at Environmental Analysis South (EAS)
Sara C. Shields / Lab Supervisor - Chemist at Environmental Analysis South (EAS)
David F. Warren / Lab Director - Chemist at Environmental Analysis South (EAS)

1. **Report Summation**
   - 1.1. **Data Summation**
   - 1.2. **Conclusion**
2. **Method Summation**
   - 2.1. **Test Conditions and Methods**
   - 2.2. **Potassium chloride Reference Salt Test**
     - *2.2.1.* ***Pimephales promelas*** **data**
     - *2.2.2.* ***Ceriodaphnia dubia*** **data**
   - 2.3. **Literature Cited**
3. **Raw Data Bench Sheets**
   - 3.1. **Initial observations (page 1)**
   - 3.2. **Zero hour Observations (page 1)**
   - 3.3. **Twenty-four (24) hour Observations (page 1)**
   - 3.4. **Forty-eight (48) hour Observations (page 1)**
   - 3.5. **Survival Data Table (page 2)**
   - 3.6. **Test Comments (page 3)**
4. **Chain of Custody**
5. **MO DNR "Whole Effluent Toxicity (WET) Test Report (Form 780-1899)**

Environmental Analysis South, Inc.
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REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 96%
MO-0035009
EAS LOG# 1501323
July 18, 2012 through July 20, 2012

1. REPORT SUMMATION:

1.1. Multiple Dilution Data Summation

Test Solution	*Pimephales promelas* Acute Toxicity Test 48 Hour Survival	*Ceriodaphnia dubia* Acute Toxicity Test 48 Hour Survival
Reconstituted Control (RC)	100%	100%
Upstream Control (UC)	100%	100%
6.25% Effluent	100%	100%
12.5% Effluent	100%	95%
25% Effluent	100%	100%
50% Effluent	100%	100%
100% Effluent	100%	100%
Estimated 48 Hour LC_{50} Value	>100% Effluent	>100% Effluent
To Pass: **1. Effluent - LC50 must be >100% and** **2. All concentrations = or < AEC must not have significant difference to control in survival.**	1. Yes 2. Yes	1. Yes 2. Yes
Result of Toxicity Test	PASS	PASS

* Indicates a significant difference at alpha = 0.5 between effluent and control survival data.

Conclusion:

Pimephales promelas 48 hour WET results: LC 50 >100% using the Graphical Method
NOAEC = 100% by Steel's Many One-Rank Test

Ceriodaphnia dubia 48 hour WET results: LC 50 >100% using Trimmed Spearman-Karber
NOAEC = 100% by Steel's Many One-Rank Test

Based on these results the outfall **passed** the whole effluent toxicity test with both indicator species.

Approved by _____
Sara C. Shields, Chemist

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REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 96%
MO-0035009
EAS LOG# 1501323
July 18, 2012 through July 20, 2012

2. TEST METHOD SUMMARY

2.1. TEST CONDITIONS AND METHODS:

	Ceriodaphnia dubia:	*Pimephales promelas:*
Test duration:	48 hours	48 hours
Temperature:	24 - 26 degree Celsius	24 - 26 degree Celsius
Light quality:	Ambient laboratory illumination	Ambient laboratory illumination
Photoperiod:	16 hour light, 8 hours dark	16 hour light, 8 hours dark
Control Water:	Moderately Hard Reconstituted Water	Moderately Hard Reconstituted Water
Dilution Water:	Upstream Water - If unavailable or toxic, then control water will be used.	Upstream Water - If unavailable or toxic, then control water will be used.
Size of test vessel:	30 milliliters	250 milliliters
Volume of test solution:	15 milliliters	200 milliliters
Age of test organisms:	<24 hours	1 -14 days (all same age)
Number of organisms/test vessel:	5	10
Number of replicates/concentration:	4	2
Number of organisms/concentration:	20	40 for a single dilution test and 20 for a multiple dilution test
Feeding regime:	None (fed prior to test)	None (fed prior to test)
Aeration:	None	None
Test acceptability criterion:	90% or greater survival in controls	90% or greater survival in controls

The methodology used for the chemistry data was taken from the *Standard Methods for the Examination of Water and Wastewater*, 18th edition (1992). The exception was hardness, which was determined using a Hach EDTA titration test kit. The toxicity tests follow guidelines laid out in the permittee's NPDES permit and were conducted according to EPA approved methods (USEPA 2002).

All test organisms were cultured according to EPA approved methods (USEPA 2002). The *Ceriodaphnia dubia* and the *Pimephales promelas* were obtained from C-K Associates Inc. located in Baton Rouge, Louisiana and shipped overnight for use in the whole effluent toxicity test.

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REPORT OF ACUTE TOXICITY TESTING
Sikeston Wastewater Treatment Facility
OUTFALL 001 (24 hour composite) AEC = 96%
MO-0035009
EAS LOG# 1501323
July 18, 2012 through July 20, 2012

2.2. REFERENCE TOXICITY TEST:

Environmental Analysis South performs monthly reference toxicity tests. The most recent reference test was initiated on July 11, 2012 using KCL Lot #41713. Following are the results:

2.2.1. ***P. promelas*** - 48 hr. Acute Test – LC_{50} = 0.900 g/l 95%CI (0.710 g/l -1.089 g/l)
EAS %CV = 10.5%
National Warning Limits (75th percentile) = 19%CV
National Control Limits (90th percentile) = 33%CV

2.2.2. ***C. dubia*** - 48 hr. Acute Test – LC_{50} = 0.490 g/l 95%CI (0.343 g/l - 0.636g/l)
EAS %CV = 14.9%
National Warning Limits (75th percentile) = 29%CV
National Control Limits (90th percentile) = 34%CV

2.3. **LITERATURE CITED:**

1. APHA. 1992. *Standard methods for the examination of water and wastewater*, 18th Ed. American Public Health Association, Washington, D.C
2. USEPA. 2002. *Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms*, 5th Ed. EPA-821-R-02-012
3. USEPA 2000. *Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications under the National Pollutant Discharge Elimination System, (Table B-2).* June 2000. EPA 833-R-00-003.

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

CLIENT NAME:	Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite
NPDES NUMBER:	MO-0035009
TYPE OF METHOD:	multiple dilution, 48 hrs, PP & CD, AEC=96%
DATE & TIME OF COLLECTION:	07/17/12 0805 hrs - 07/18/12 0805 hrs by Steven Baker
DATE & TIME OF SUBMISSION:	07/18/12 1150 hrs by Steven Baker

Upstream: St. Johns Ditch
Collected: 07/18/12 0830 hrs by Steven Baker

INITIAL OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	INT EFFL	INT UC	INT RC
LOG NUMBER / ID NUMBER						1501323	1501323A	RC4043
pH - SU	07/18/12	1200 hrs	SCS	SB114 (8.8-9.2)	8.94	7.68	7.57	8.09
TEMPERATURE °C RECEIVED	07/18/12	1200 hrs	SCS	EAS 106		6	7	24
SPECIFIC CONDUCTANCE umhos	07/18/12	1200 hrs	SCS	ERA203-506 (458-522)	504	749	262	255
HARDNESS - ppm	07/18/12	1200 hrs	SCS	ERA P170-507(107-134)	120	280	180	80
CHLORINE - ppm	07/18/12	1200 hrs	SCS	tap water	+	<0.04	<0.04	<0.04
DISSOLVED OXYGEN - ppm	07/18/12	1200 hrs	SCS	cal@840		7.24	6.52	7.76
TOTAL ALKALINITY - ppm	07/18/12	1630 hrs	SCS	ERA P203-506(105-124)	120.0	204	129	70.6
INITIAL AMMONIA - ppm	07/23/12	1527 hrs	JPC	EAS #2446 (8-12)	10.2	0.223	0.112	<0.05
TOTAL DISSOLVED SOLIDS -ppm								

0 HOUR OBSERVATIONS	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	07/18/12	1300 hrs	SCS	SB114 (8.8-9.2)	8.94	7.31	7.96	7.54	7.60	7.65	7.79	7.83	
TEMPERATURE °C	07/18/12	1300 hrs	SCS	EAS 106		24.4	24.6	24.1	24.2	24.2	24.7	24.5	
SPECIFIC CONDUCTANCE umhos	07/18/12	1300 hrs	SCS	ERA203-506 (458-522)	504	249	264	768	519	389	324	288	
DISSOLVED OXYGEN - ppm	07/18/12	1300 hrs	SCS	cal@840		8.5	9.3	8.5	8.8	9.2	9.2	9.2	

24 HOUR OBSERVATIONS - PP	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	07/19/12	1300 hrs	SCS	SB114 (8.8-9.2)	8.87	7.50	7.95	7.82	7.78	7.81	7.82	7.86	
TEMPERATURE °C	07/19/12	1300 hrs	SCS	EAS 106		25.3	25.3	25.3	25.3	25.3	25.3	25.3	
SPECIFIC CONDUCTANCE umhos	07/19/12	1300 hrs	SCS	ERA203-506 (458-522)	496	263	276	780	518	388	323	291	
DISSOLVED OXYGEN - ppm	07/19/12	1300 hrs	SCS	cal@840		7.2	7	6.5	6.8	7.1	7.3	7.3	
48 HOUR OBSERVATIONS - PP	**DATE**	**TIME**	**ANALYST**	**QC LOT**	**QC EXP VALUE**	**RC**	**UC**	**100%**	**50%**	**25%**	**12.50%**	**6.25%**	**X %AEC**
pH - SU	07/20/12	1300 hrs	SCS	SB114 (8.8-9.2)	8.97	7.99	8.03	7.07	7.91	8.00	7.92	7.96	
TEMPERATURE °C	07/20/12	1300 hrs	SCS	EAS 106		25.1	25.1	25.1	25.1	25.1	25.1	25.1	
SPECIFIC CONDUCTANCE umhos	07/20/12	1300 hrs	SCS	ERA203-506 (458-522)	491	276	298	831	557	409	329	295	
DISSOLVED OXYGEN - ppm	07/20/12	1300 hrs	SCS	cal@840		7.9	7.7	7.7	7.6	7.7	7.8	7.7	
FINAL AMMONIA - ppm				EAS #2375 (8-12)									

24 HOUR OBSERVATIONS - CD	DATE	TIME	ANALYST	QC LOT	QC EXP VALUE	RC	UC	100%	50%	25%	12.50%	6.25%	X %AEC
pH - SU	07/19/12	1300 hrs	SCS	SB114 (8.8-9.2)	8.87	8.11	8.33	8.07	8.06	8.13	8.17	8.24	
TEMPERATURE °C	07/19/12	1300 hrs	SCS	EAS 106		25.3	25.3	25.3	25.3	25.3	25.3	25.3	
SPECIFIC CONDUCTANCE umhos	07/19/12	1300 hrs	SCS	ERA203-506 (458-522)	496	262	259	749	492	384	325	293	
DISSOLVED OXYGEN - ppm	07/19/12	1300 hrs	SCS	cal@840		8.1	8.4	8.2	8.3	8.3	8.3	8.4	
48 HOUR OBSERVATIONS - CD	**DATE**	**TIME**	**ANALYST**	**QC LOT**	**QC EXP VALUE**	**RC**	**UC**	**100%**	**50%**	**25%**	**12.50%**	**6.25%**	**X %AEC**
pH - SU	07/20/12	1300 hrs	SCS	SB114 (8.8-9.2)	8.97	8.38	8.04	8.03	8.01	8.03	8.03	8.04	
TEMPERATURE °C	07/20/12	1300 hrs	SCS	EAS 106		25.3	25.3	25.3	25.3	25.3	25.3	25.3	
SPECIFIC CONDUCTANCE umhos	07/20/12	1300 hrs	SCS	ERA203-506 (458-522)	491	308	269	737	502	380	317	289	
DISSOLVED OXYGEN - ppm	07/20/12	1300 hrs	SCS	cal@840		8.5	8.2	8.0	8.1	8.2	8.2	8.3	
FINAL AMMONIA - ppm				EAS #2375 (8-12)									

Approved by: [signature] 07/20/2012

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

Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite **EAS LOG# 1501323**

Date Test Began:	July 18, 2012	**Time Test Began:**	1300 hrs	**Analyst 1:**	DFW
				Analyst 2:	KJR
Date Test Finished:	July 20, 2012	**Time Test Finished:**	1300 hrs	**Analyst 3:**	SCS

P. promelas (PP) **AGE:** 7 **days** **HATCH NUMBER:** 8427 c-k

	RC	UC	100%	50%	25%	12.50%	6.25%	X% AEC
PERIOD	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**
0 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
24 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	
48 HR-PP	10,10	10,10	10,10	10,10	10,10	10,10	10,10	

Ceriodaphnia dubia (CD) **AGE:** <24 **hours** **HATCH NUMBER:** 2531 c-k

	RC	UC	100%	50%	25%	12.50%	6.25%	X% AEC
PERIOD	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**	**ALIVE**
0 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
24 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	
48 HR-CD	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,5	5,5,5,4	5,5,5,5	

Approved by: Date: 07/25/2012

Sikeston Wastewater Treatment Facility, Outfall 001, 24 hr composite EAS#: 1501323

Notes & Comments

Prepared by: [illegible]

Date: 07/25/2012

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ENVIRONMENTAL ANALYSIS SOUTH, INC.
4000 East Jackson Blvd
Jackson, MO 63755
Phone: (573) 204-8817 Fax: (573) 204-8818

eas

WHOLE EFFLUENT TOXICITY TESTING
CHAIN OF CUSTODY

CLIENT: Sikeston

NPDES PERMIT NUMBER: MO - 0035009

EFFLUENT NAME: 001 Outfall (LEGAL NAME) GRAB ☐ 24 HR COMPOSITE ☑

COLLECTION DATA: START DATE: 7-17-12 START TIME: 0805 HRS

FINISH DATE: 7-18-12 FINISH TIME: 0805 HRS

UPSTREAM NAME: St. Johns Ditch (LEGAL NAME) (GRAB SAMPLE)

COLLECTION DATA: DATE: 7-18-12 TIME: 0830 HRS

SAMPLER NAME: Steven Baker (PRINT NAME) CARRIER: _____

Disclaimer: Environmental Analysis South, Inc. shall not be held financially liable for invalid whole effluent toxicity test (WET) or shipping charges resulting from the following reasons:

- Sampling & holding time errors (Will results in a setup charge of $100 to the client)
- Commercial carrier delivery problems or errors (Will results in a setup charge of $100 to the client)
- Problems with health or delivery of test organisms by vendor (No setup charge to client)

SAMPLER CHECK LIST

NO HEADSPACE IN BOTTLES ☐
SHIP SAMPLES BY NEXT DAY CARRIER OR DELIVER TO LAB ON 7-18-12 ☐
SAMPLES TO BE HAND DELIVERED TO LABORATORY SAME DAY AS TEST SETUP ☐
SUFFICIENT ICE TO COOL SAMPLES TO A RANGE OF 0 - 6°C WHEN SHIPPING OVERNIGHT ☐

RELINQUISHED BY: [signature] DATE: 7-18-12 TIME: 11:50

LABORATORY USE ONLY

EFFLUENT LOG NUMBER: 1501323

RECEIVED TEMPERATURE: 6 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

UPSTREAM LOG NUMBER: 1501323-A

RECEIVED TEMPERATURE: 6 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

RECEIVED BY: [signature] DATE: 7/18/12 TIME: 1950

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM - P.O. BOX 176, JEFFERSON CITY MO, 65102

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

PART A – TO BE COMPLETED IN FULL BY PERMITTEE

FACILITY NAME Sikeston Wastewater Treatment Facility	DATE & TIME COLLECTED EFFLUENT 07/17/12 0805-07/18/12 0805 UPSTREAM 07/18/12 0830
PERMIT NUMBER MO-0035009	PERMIT OUTFALL NUMBER Outfall # 001
COLLECTOR'S NAME Steven Baker	
RECEIVING STREAM COLLECTION SITE AND DESCRIPTION St. Johns Ditch	
PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC) 96%	EFFLUENT SAMPLE TYPE (CHECK ONE) ☒ 24HR COMPOSITE ☐ GRAB ☐ OTHER
SAMPLE NUMBER EFFLUENT 1501323 UPSTREAM 1501323A	UPSTREAM SAMPLE TYPE (CHECK ONE) ☐ 24HR COMPOSITE ☒ GRAB ☐ OTHER
PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR CHLORINE ____ mg/L	PERMITTED EFFLUENT DAILY MAXIMUM LIMITATION FOR AMMONIA ____ mg/L

PART B – TO BE COMPLETED IN FULL BY PERFORMING LABORATORY

PERFORMING LABORATORY Environmental Analysis South, Inc.	TEST TYPE Acute Static Non renewal Test Multiple Dilution	
FINAL REPORT NUMBER MO_1501323	TEST DURATION 48 hour	
DATE OF LAST REFERENCE TOXICANT TESTING July 11, 2012	TEST METHOD Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms	
DATE AND TIME SAMPLES RECEIVED AT LABORATORY 07/18/12 1150 hrs by Steven Baker	TEST START DATE AND TIME 07/18/12 1300 hrs	TEST END DATE AND TIME 07/20/12 1300 hrs
SAMPLE DECHLORINATED PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	TEST ORGANISM #1 AND AGE Pimephales promelas 7 days	TEST ORGANISM #2 AND AGE Ceriodaphnia dubia < 24 hours
SAMPLE FILTERED[1] PRIOR TO ANALYSIS? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	90% OR GREATER SURVIVAL IN SYNTHETIC CONTROL? ☒ YES ☐ NO	DILUTION WATER USED TO ACHIEVE AEC upstream 1501323A
FILTER MESH SIEVE SIZE[2] None	EFFLUENT ORGANISM #1 % MORTALITY AT AEC LC50>100% Effluent	EFFLUENT ORGANISM #2 % MORTALITY AT AEC LC50>100% Effluent
SAMPLE AERATED DURING TESTING? ☐ YES ☒ NO	UPSTREAM ORGANISM #1 % MORTALITY 0%	UPSTREAM ORGANISM #2 % MORTALITY 0%
pH ADJUSTED? ☐ YES ☒ NO EFFLUENT ____ UPSTREAM ____	TEST RESULT AT AEC FOR ORGANISM #1 ☒ PASS ☐ FAIL	TEST RESULT AT AEC FOR ORGANISM #2 ☒ PASS ☐ FAIL

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% EFFLUENT SAMPLE

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	6	SM18 2550B stored at 4 degree C until test setup	07/18/12 1200 hrs
pH Standard Units	7.68	SM18 4500-H B	07/18/12 1200 hrs
Conductance µMohs	749	SM18 2510B	07/18/12 1200 hrs
Dissolved Oxygen mg/L	7.24	SM18 4500-O G	07/18/12 1200 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	07/18/12 1200 hrs
Unionized Ammonia mg/L	0.223x0.03<0.010	SM18 4500-NH3 F @ 25 degree C	07/23/12 1527 hrs
*Total Alkalinity mg/L	204	SM18 2320B	07/18/12 1630 hrs
*Total Hardness mg/L	280	SM18 2340 C	07/18/12 1200 hrs

*Recommended by USEPA guidance, not a required analysis.

[1] Samples shall only be filtered if indigenous organisms are present that may be confused with, or attack, the test organisms.
[2] Filters shall have a sieve size of 60 microns or greater.

CONTINUED ON PAGE 2

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT

(TO BE ATTACHED TO WET TESTS FOR SUBMISSION TO THE REGULATORY AUTHORITY)

MINIMUM REQUIRED ANALYTICAL RESULTS FOR THE 100% UPSTREAM SAMPLE[3]

PARAMETER	RESULT	METHOD	WHEN ANALYZED
Temperature °C	7	SM18 2550B stored at 4 degree C until test setup	07/18/12 1200 hrs
pH Standard Units	7.57	SM18 4500-H B	07/18/12 1200 hrs
Conductance µMohs	262	SM18 2510B	07/18/12 1200 hrs
Dissolved Oxygen mg/L	6.52	SM18 4500-O G	07/18/12 1200 hrs
Total Residual Chlorine mg/L	<0.04	SM18 4500-Cl G	07/18/12 1200 hrs
Unionized Ammonia mg/L	0.112x0.02<0.010	SM18 4500-NH3 F @ 25 degree C	07/23/12 1527 hrs
*Total Alkalinity mg/L	129	SM18 2320B	07/18/12 1630 hrs
*Total Hardness mg/L	180	SM18 2340 C	07/18/12 1200 hrs

*Recommended by USEPA guidance, not a required analysis.

PRELIMINARY TEST ACCEPTABILITY MATRIX (FOR USE BY PERMITTEE IN DETERMINING TEST VALIDITY)

PERMIT ALLOWABLE EFFLUENT CONCENTRATION (AEC): As indicated on permit. Test is invalid otherwise.

EFFLUENT SAMPLE TYPE: As indicated on permit. Test is invalid otherwise.

TEST TYPE: Acute Static Non-Renewal Test or other as indicated on permit. Test is invalid otherwise.

TEST DURATION: Forty-eight (48) hours or as indicated on permit. Test is invalid otherwise.

TEST ORGANISMS: As indicated on permit. Test is invalid otherwise.

DILUTION WATER USED TO ACHIEVE AEC: Upstream receiving water required if available.

TEST METHOD: The only acceptable method is the ***most current edition*** of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, or other as specifically assigned by EPA for determining NPDES compliance. Test is invalid otherwise.

TEST START DATE & TIME: Unless otherwise specified in writing by EPA, if >36 hours lapse between collection and initiation, test is invalid.

FILTER MESH SIEVE SIZE: Unless otherwise specified in writing by EPA, if sieve size is smaller than 60 microns, test is invalid.

90% OR GREATER SURVIVAL IN LABORATORY CONTROL(S) (Y/N): If NO, test is invalid.

PARAMETER	RESULT	NOTES	WHEN ANALYZED
Temperature °C	0 - 6	Unless received by the laboratory on the same day as collected, values outside this range invalidate the test.	Upon receipt

[3] Where no upstream control is available, enter results from laboratory or synthetic control.

Environmental Analysis South, Inc

4000 East Jackson Blvd. - Jackson MO 63755 - 573-204-8817 - Fax 573-204-8818

Steve Baker
BOARD OF MUNICIPAL UTILITIES
P.O. Box 370
Sikeston, MO 63801

Report Number: 118150

Report of Analysis

Reference: The evaluation of wastewater by acute whole effluent toxicity testing is conducted in accordance with Methods for Measuring the Acute toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms. Fifth edition. USEPA, Office of Water, Washington D.C., EPA 821-R-02-012

Log Number:	Sample Description:	Sample Date:	Sample Received Date:
1501323	001 Outfall	7/18/2012	7/18/2012

Whole Effluent Toxicity

Test Description	Result	Units	Method	Comment Code	Analysis Date	Analyst
48 Hour WET Test 5 dil/4 reps	1	test	EPA-2000/2002		07/18/12	133

Respectfully submitted,

David F. Warren

multiple 967

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ENVIRONMENTAL ANALYSIS SOUTH, INC.
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WHOLE EFFLUENT TOXICITY TESTING
CHAIN OF CUSTODY

CLIENT: Sikeston

NPDES PERMIT NUMBER: MO - 0035009

EFFLUENT NAME: 001 Outfall (LEGAL NAME) GRAB ☐ 24 HR COMPOSITE ☑

COLLECTION DATA: START DATE: 7-17-12 START TIME: 0805 HRS

FINISH DATE: 7-18-12 FINISH TIME: 0805 HRS

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COLLECTION DATA: DATE: 7-18-12 TIME: 0830 HRS

SAMPLER NAME: Steven Baker (PRINT NAME) CARRIER: _____

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SUFFICIENT ICE TO COOL SAMPLES TO A RANGE OF 0 - 6° C WHEN SHIPPING OVERNIGHT ☐

RELINQUISHED BY: [signature] DATE: 7-18-12 TIME: 11:50

LABORATORY USE ONLY

EFFLUENT LOG NUMBER: 1501323

RECEIVED TEMPERATURE: 6 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

UPSTREAM LOG NUMBER: 1501323-A

RECEIVED TEMPERATURE: 6 °C THERMOMETER ASSIGNED NUMBER: _____

HEADSPACE: YES or NO SAMPLES ICED or DELIVERED SAME DAY AS TEST

RECEIVED BY: [signature] DATE: 7/18/12 TIME: 1150