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.:	MO0089273
Owner:	City of Essex
Owner's Address:	P.O. Box 357, Essex, MO 63846
Continuing Authority:	Same as above
Continuing Authority's Address:	Same as above
Facility Name:	Essex Wastewater Treatment Facility
Facility Address:	County Road 702, Essex, MO 63846
Legal Description:	NW ¼, NE ¼, Sec. 15, T25N, R11E, Stoddard County
UTM Coordinates:	X=781136, Y=4079140
Receiving Stream:	Ditch #6 (C)
First Classified Stream and ID:	Ditch #6 (C) 3097
USGS Basin & Sub-watershed No.:	(08020204-0302)

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 requires a Class C Level Certified Waste Operator**
Aerated Lagoon/Ammonia Reduction/UV Disinfection/sludge is retained in the lagoon.
Design population equivalent is 586.
Design flow is 65,000 gallons per day.
Actual flow is 51,500 gallons per day.
Design sludge production is 6.2 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 644.051.6 of the Law.

January 10, 2012 — Effective Date
April 10, 2013 — Revised Date

Sara Parker Pauley, Director, Department of Natural Resources

January 9, 2017 — Expiration Date

John Madras, Director, Water Protection Program

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until October 6, 2012. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/month	24 hr. estimate
Biochemical Oxygen Demand$_5$****	mg/L		65	45	once/month	Grab
Solids, Total Suspended****	mg/L		120	80	once/month	Grab
pH – Units	SU	***		***	once/month	Grab
Ammonia as N	mg/L	*		*	once/month	Grab
Temperature	°C	*		*	once/month	Grab
Oil & Grease	mg/L	15		10	once/month	Grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE February 28, 2012. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Whole Effluent Toxicity (WET) test	% Survival	See Special Condition #10	once/permit cycle	24 hr. composite**

MONITORING REPORTS SHALL BE SUBMITTED ONCE/PERMIT CYCLE; THE FIRST REPORT IS DUE January 28, 2016.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I, II, & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

C. INTERIM INFLUENT MONITORING REQUIREMENTS

The facility is required to meet a removal efficiency of 65% or more. The monitoring requirements shall become effective upon issuance and remain in effect until October 6, 2012. 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
Influent			
Biochemical Oxygen Demand$_5$****	mg/L	once/month	Grab
Total Suspended Solids****	mg/L	once/month	Grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE February 28, 2012.

A. INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

* Monitor and report.

** A composite sample made up from a minimum of four grab samples collected within a 24 hour period with a minimum of two hours between each grab sample or automatic composite sampler.

*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.

**** This facility is required to meet a removal efficiency of 65% or more. Influent and effluent samples used to determine percent removal shall be taken the same day.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective October 7, 2012 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand$_5$****	mg/L		45	30	once/month	24 hr composite**
Solids, Total Suspended****	mg/L		45	30	once/month	24 hr composite**
pH – Units	SU	***		***	once/month	Grab
Ammonia as N	mg/L				once/month	Grab
(Apr 1 – Sep 30)		3.7		1.4		
(Oct 1 – Mar 31)		7.5		2.9		
Temperature	°C	*		*	once/month	Grab
Oil & Grease	mg/L	15		10	once/month	Grab
E. Coli (Note 1)	#/100 ml		1030	206	once/month	Grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE November 28, 2012. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

Whole Effluent Toxicity (WET) test	% Survival	See Special Condition #10	once/permit cycle	24 hr. composite**

MONITORING REPORTS SHALL BE SUBMITTED ONCE/PERMIT CYCLE; THE FIRST REPORT IS DUE January 28, 2016.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I, II, & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

C. FINAL INFLUENT MONITORING REQUIREMENTS

The facility is required to meet a removal efficiency of 85% or more. The monitoring requirements shall become effective October 7, 2012 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
Influent			
Biochemical Oxygen Demand$_5$****	mg/L	once/month	24 hr composite**
Total Suspended Solids****	mg/L	once/month	24 hr composite**

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE November 28, 2012.

A. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

* Monitor and report.

** A composite sample made up from a minimum of four grab samples collected within a 24 hour period with a minimum of two hours between each grab sample or automatic composite sampler.

*** 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.

**** This facility is required to meet a removal efficiency of 85% or more. Influent and effluent samples used to determine percent removal shall be taken the same day.

Note 1 - Final limitations and monitoring requirements for *E. coli* are applicable only during the recreational season from April 1 through October 31. Monthly average final effluent limitations for the *Escherichia coliform (E. coli)* parameter shall be reported 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).

D. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

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

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

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

4. 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 in Part A of the permit by the Director.
   (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.

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

6. Water Quality Standards
   (a) 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)

7. The permittee shall comply with any applicable requirements listed in 10 CSR 20-9, unless the facility has received written notification that the Department has approved a modification to the requirements. The monitoring frequencies contained in this permit shall not be construed by the permittee as a modification of the monitoring frequencies listed in 10 CSR 20-9. 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.

8. The permittee shall develop and implement a program for maintenance and repair of the collection system. The permittee shall submit a report annually in November 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.

9. 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.

10. 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	100%	Once/Permit Cycle	24 hr. composite**	Any Month in 2015 (Report by January28, 2016)

** A composite sample made up from a minimum of four grab samples collected within a 24 hour period with a minimum of two hours between each grab sample or automatic composite sampler.

Dilution Series							
AEC%	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.

(a) 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.

(b) 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.

(c) 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 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 (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.

(4) If the effluent fails the test for BOTH test species, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and

D. SPECIAL CONDITIONS (continued)
10. WET Test (continued):

subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met: Note: Written request regarding single species multiple dilution accelerated testing will be address by THE WATER PROTECTION PROGRAM on a case by case basis.

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

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

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

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

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

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

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

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

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

(b) Test Conditions

(1) Test Type: Acute Static non-renewal

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

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

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

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

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

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

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

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

E. SCHEDULE OF COMPLIANCE

1. By October 7, 2012, the permittee shall submit a letter of authorization or statement of work complete authorized under construction permit number CP0001150 signed by the owner and a licensed professional engineer in the State of Missouri.

Missouri Department of Natural Resources
STATEMENT OF BASIS
FOR THE PURPOSE OF RENEWAL
OF
MO-0089273
ESSEX WASTEWATER TREATMENT FACILITY

This Statement of Basis (Statement) gives pertinent information regarding minor/simple modification(s) to the above listed operating permit without the need for a public comment process.

A Statement of Basis is not an enforceable part of a Missouri State Operating Permit.

Part I – Modification Rationale

This operating permit is hereby modified to reflect the correction of a typographical error. The final monthly effluent limitation for Ammonia as N in the winter season was originally written incorrectly as 1.9 mg/L. The permit has been revised to reflect the correct final monthly effluent limit of 2.9 mg/L. The final effluent limitations calculations and derivations can be found in the detailed fact sheet below, dated October 26, 2011.

No other changes were made at this time.

Part II – 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.

Date of Statement of Basis: April 1, 2013

Revised By:

LOGAN COLE
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION – DOMESTIC WASTEWATER UNIT
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Missouri Department of Natural Resources
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0089273
ESSEX WASTEWATER TREATMENT FACILITY

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 ☐, Minor ☒, Industrial Facility ☐; Variance ☐;
Master General Permit ☐; General Permit Covered Facility ☐; and/or permit with widespread public interest ☐.

Part I – Facility Information

Facility Type: POTW
Facility SIC Code(s): 4952

Facility Description:
Outfall #001 - POTW - SIC #4952 **The use or operation of this facility requires a Class C Level Certified Waste Operator**
Aerated Lagoon/Ammonia Reduction/UV Disinfection/sludge is retained in the lagoon.
Design population equivalent is 586.
Design flow is 65,000 gallons per day.
Actual flow is 51,500 gallons per day.
Design sludge production is 6.2 dry tons/year.

Application Date: 3/1/2011
Expiration Date: 8/31/2011
Last Inspection: 3/10/2011 In Compliance ☐; Non-Compliance ☒

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.1	Secondary	Domestic	0

Outfall #001
Legal Description: NW ¼, NE ¼, Sec. 15, T25N, R11E, Stoddard County
UTM Coordinates: X=781136, Y=4079140

Receiving Stream: Ditch #6 (C)
First Classified Stream and ID: Ditch #6 (C) 3097
USGS Basin & Sub-watershed No.: (08020204-0302)

Receiving Water Body's Water Quality & Facility Performance History:
Facility failed to meet Schedule of compliance for disinfection.

Comments:
The City has obtained a construction permit to upgrade for new disinfection and ammonia limits.

Part II – Operator Certification Requirements

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 20-9.010(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 a C Certification Level.

Part III – Receiving Stream Information

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)]: ☒

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:

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
Ditch #6	C	3097	AQL, LWW, WBC(B)***	08020204	MS Alluvial Basin/ St. Francis/ Little

* - 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).
** - Ecological Drainage Unit
*** - UAA conducted on 10/8/2008. The committee recommended removing WBC and add SCR. Details can be reviewed at http://www.dnr.mo.gov/env/wpp/wqstandards/uaa/uaa_stoddard.htm

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Ditch #6	0	0	.1

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

RECEIVING STREAM MONITORING REQUIREMENTS:

No receiving water monitoring requirements recommended at this time.

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

Finding of Affordability

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

☐ **Not Applicable**;
The Department is not required to determine findings of affordability because the facility is not a **combined or separate sanitary sewer system or a publicly-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 or a publicly-owned treatment works**.

☐ **Finding of affordability is based on best professional judgment without empirical data.** The department has made a reasonable search for empirical data indicating the permit is affordable. The search consisted of a review of department records that might contain economic data on the community, a review of information provided by the applicant as part of the application, and public comments received in response to public notices of this draft permit. No relevant local economic data is available.

Therefore, the department is hereby making a finding based on its best professional judgment. Best professional judgment was derived from the following facts:

1. The applicant states that the terms and conditions are affordable for the community,
2. (For renewals) this permit contains no new or expanded terms and conditions,
3. the department is not aware of any significant economic impacts this permit would cause on distressed populations,
4. no comments indicating such impact were received during the public comment period on the draft permit,
5. the department is not aware of any other more cost effective wastewater treatment options that would achieve the required effluent quality,

☒ **Finding of affordability is based on available empirical data.** The permit writer has considered cost data made available during the pre-public notice period or public comment period. This data may consist of median household income, any other ongoing projects that the Department has knowledge, and other demographic and financial information that the community provided.

1) The Facility Plan on the construction permit contained an affordability finding;
2) The applicant provided increased effluent discharge monitoring costs due to expanded monitoring frequency for certain permit parameters;
3) Others: Section 644.145 of HB 89 as signed by the Governor on July 11, 2011 requires the Department to make a finding of affordability, with respect to the community and its residents, in connection with the issuance of certain permits under the Missouri Clean Water Law. In the Essex facility plan submitted to the Department, the City of Essex conducted a financial analysis that addresses elements of Section 644.145 for the construction and operation of a new facility. As evidence of the City's ability to meet its financial obligation, the City submitted information pertaining to service rates to Rural Development as part of the grant/loan application for which the City is seeking a construction permit for the upgrade. The Department has reviewed this submittal and hereby finds that the installation of the proposed upgrade is an affordable option for the City of Essex and its community to meet the requirements established by the City's Missouri State Operating Permit.

Below is an estimation of cost to individual users of the system from the engineering report.

> The City should engage a project administrator to assist in the funding application and project administration. The project will be funded through all available funding sources. Possible funding sources include, but are not limited to, Community Development Block Grant (CDBG) and USDA-RD. It is recommended that all possible funding avenues be considered for the ultimate funding of this project to minimize the financial burden on the end users.

It has been assumed that best alternative for funding is a combination of a CDBG and USDA-RD financing. The analysis that was performed was based on obtaining a $500,000 block grant and the remaining portion funded by USDA-RD financing. In order to obtain the USDA-RD funding a bond issue will have to be voted on and approved by the residents. It is recommended that the bond be placed on the ballot for approximately 1.5 times the required amount. Based on the preliminary estimate for the recommended alternative, $1,178,900 will be required from the bond. This would make the recommended amount approximately $1,770,000. The reason we recommend seeking approximately 1.5 times the required amount is to help cover any unforeseen expenses in the recommended alternative. It is also recommended for the City of Essex to have the bond written to include water and wastewater. This is recommended in the event money is left over and the City would elect to use the remaining portion of the bond they will be able to perform upgrades to the public drinking water system without another bond election.

8.1 Proposed Wastewater Rates

Currently the City of Essex has no meters to accurately measure the amount of water used for each individual user. Since there is no way to measure the quantity of sewage used each customer will have to be charged a flat rate. Currently the City has approximately 250 users. Based on the information of a flat fee for all users the estimated rate will be approximately $38.82 per user. This amount is below the two percent Median Household Income, which was based off of the 2000 census. The two percent Median Household Income for Essex is $46.73.

In the event that the City can come up with a method to accurately determine the amount of usage a rate structure can be established. With a rate structure the base rate is required to cover the total debt service. The proposed debt service is approximately $67,500 per annum. In order to cover the debt service the base rate will need to be approximately $22.50. In order for the City to cover all operating costs a charge of $3.27 per 1,000 gallons should be added to the base rate. This number will be equivalent to the $38.82 as discussed above.

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 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.

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.

☒ - Sludge/biosolids are removed by contract hauler or are stored in the lagoon. Sludge management plan has been approved for closure of unused lagoon cells.

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

Applicable ☒;
The permittee/facility is currently under enforcement action due to failure to comply with previous schedule of compliance and upgrade facilities. The Department is negotiating an abatement order on consent to complete the upgrades authorized under construction permit number CP0001150 by October 6, 2012.

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

Not Applicable ☒;
The permittee, at this time, is not required to have a Pretreatment Program or does not have an approved pretreatment program.

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

In accordance with [40 CFR Part 122.44(d)(iii)] if the permit writer determines that any give 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.

Not Applicable ☒;

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 ☒;
Interim Limitations
Secondary Treatment is 65% removal [40 CFR Part 133.102(a)(3) & (b)(3)].

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

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

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

At this time, the Department recommends the US EPA's Guide for Evaluating Capacity, Management, Operation and Maintenance (CMOM) Programs At Sanitary Sewer Collection Systems (Document # EPA 305-B-05-002). The CMOM identifies some of the criteria used by the EPA to evaluate a collection system's management, operation, and maintenance and was intended for use by the EPA, state, regulated community, and/or third party entities. The CMOM is applicable to small, medium, and large systems; both public and privately owned; and both regional and satellite collection systems. The CMOM does not substitute for the Clean Water Act, the Missouri Clean Water Law, and both federal and state regulations, as it is not a regulation.

SCHEDULE OF COMPLIANCE (SOC):
A schedule of remedial measures included in a permit, including an enforceable sequence of interim requirements (actions, operations, or milestone events) leading to compliance with the Missouri Clean Water Law, its implementing regulations, and/or the terms and conditions of an operating permit.

Applicable ☒;
This permit contains a SOC. Timeframes for compliance were obtained from the Department's enforcement section.

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

In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in February 2009], BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure.

Additionally in accordance with the Storm Water Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of storm water discharges.

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:

$$C = \frac{(Cs \times Qs) + (Ce \times Qe)}{(Qe + Qs)}$$ (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 all 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, which includes blending, 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 bypass.

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

Not Applicable ☒;
This facility does not discharge to a 303(d) listed stream.

Part V – Effluent Limits Determination

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

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
Flow	MGD	1	*		*	NO	
Biochemical Oxygen Demand$_5$	mg/L	1/2		45	30	YES	65/45
Solids, Total Suspended	mg/L	1/2		45	30	YES	120/80
pH – Units	SU	2	**		**	YES	6.0-9.0
AMMONIA AS N (APRIL 1 – SEPT 30)	MG/L	3/5	3.7		1.4	YES	*
AMMONIA AS N (OCT 1 – MARCH 31)	MG/L	3/5	7.5		2.9	YES	*
Temperature	°C	9	*		*	NO	
E. Coli***	#/100 ml	2		1030	206	YES	FECAL
Oil & Grease	mg/L	1	15		10	NO	
WHOLE EFFLUENT TOXICITY (WET) TEST	% Survival	11	Please see WET Test in the Derivation and Discussion Section below.				
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only.
** - 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.
*** - # 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. Dissolved Oxygen Policy
7. Antidegradation Policy
8. Water Quality Model
9. Best Professional Judgment
10. TMDL or Permit in lieu of TMDL
11. WET Test Policy
12. Antidegradation Review

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).** 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average. Please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**

- **Total Suspended Solids (TSS).** 45 mg/L as a Weekly Average and 30 mg/L as a Monthly Average. Please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**

- **pH**. Effluent limitations have been revised in accordance with regulation [10 CSR 20-7.015(8)(A)2.], Water Quality, Effluent Regulations. Please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**

- **Temperature.** Monitoring requirement due to the toxicity of Ammonia varies by temperature.

- **Total Ammonia Nitrogen**
  Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.01 mg/L **.**

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, Winter: Oct 1 – March 31

Summer

C_e =(((Qe+Qs)*C) - (Qs*Cs))/Qe

Chronic WLA: C_e = 1.5 mg/L
Acute WLA: C_e = 12.1 mg/L

LTA_c = 1.5 mg/L (0.780) = **1.2 mg/L** [CV = 0.6, 99th Percentile, 30 day avg.]
LTA_a = 12.1 mg/L (0.321) = 3.88 mg/L [CV = 0.6, 99th Percentile]

MDL = 1.2 mg/L (3.11) = 3.7 mg/L [CV = 0.6, 99th Percentile]
AML = 1.2 mg/L (1.19) = 1.4 mg/L [CV = 0.6, 95th Percentile, n = 30]

Winter

Chronic WLA: C_e = 3.1 mg/L
Acute WLA: C_e = 12.1 mg/L

LTA_c = 3.1 mg/L (0.780) = **2.4 mg/L** [CV = 0.6, 99th Percentile, 30 day avg.]
LTA_a = 12.1 mg/L (0.321) = 3.9 mg/L [CV = 0.6, 99th Percentile]

MDL = 2.4 mg/L (3.11) = 7.5 mg/L [CV = 0.6, 99th Percentile]
AML = 2.4 mg/L (1.19) = 2.9 mg/L [CV = 0.6, 95th Percentile, n = 30]

Season	Maximum Daily Limit (mg/l)	Average Monthly Limit (mg/l)
Summer	3.7	1.4
Winter	7.5	2.9

- ***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). Weekly Average effluent variability will be evaluated in development of a future effluent limit. An effluent limit for both monthly average and weekly average is required by 40 CFR 122.45(d).

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

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

  ☒ No less than **ONCE/PERMIT CYCLE:**
  ☒ Municipality or domestic facility with a design flow ≥ 22,500 gpd, but less than 1.0 MGD.
  ☐ Other, please justify.

  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%.

- **Minimum Sampling and Reporting Frequency Requirements**. Sampling and reporting frequency requirements have been retained from previous state operating permit. Once per month is the sampling frequency requirement being placed in the permit per 10 CSR 20-7.015 (8) (C). On January 12, 2011, the Missouri Clean Water Commission directed Department staff to pursue regulation amendments that would reduce the frequency of weekly e-coli testing for small wastewater treatment facilities. The frequency chosen is similar to that required for other parameters in the permit for this interim permitting process. Please keep in mind that the Department may need to change the permit testing frequency for e-coli in the future to comply with final regulation requirements that must go through the rule making process. All sampling data taken must be submitted even if sampling occurs more frequently than specified. Samples may be collected on a more frequent basis and averaged to show compliance with the monthly or weekly averages listed in the permit.

Part VI – Administrative Requirements

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

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

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

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

DATE OF FACT SHEET: OCTOBER 26, 2011

COMPLETED BY:

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