

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-0136255

Owner: Kansas City Power & Light/Empire District Electric Co./KCP&L Greater Missouri Operation Co.
Address: P.O. Box 418679, Kansas City, MO 64141

Continuing Authority: Kansas City Power & Light
Address: P.O. Box 418679, Kansas City, MO 64141

Facility Name: KCPL – Iatan Generating Station WWTF
Facility Address: 20250 Highway 45 North, Weston, MO 64098

Legal Description: NE ¼, NW ¼, Sec. 17, T7S, R22E, Platte County
UTM (X/Y): 329590/4368548

Receiving Stream: Missouri River (P)
First Classified Stream and ID: Missouri River (P) (00226)
USGS Basin & Sub-watershed No.: (10240011-0304)

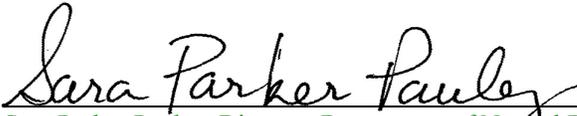
is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #002B – Industrial – Coal Fired Steam Electric Generating Plant - #4911 **A Certified Operator is not required.**
Extended Aeration/Flow Equalization/Clarification/chlorination/dechlorination/Sludge Holding/Sludge is disposed of by contract hauler. Outfall #002B discharges into the Outfall #003 (MO-0082996) Settling Basin prior to discharge to the Missouri River.
Design population equivalent is 265
Design flow is 12,000 gallons per day
Design sludge production is 2.3 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.

September 7, 2012
Effective Date


Sara Parker Pauley, Director, Department of Natural Resources

September 6, 2017
Expiration Date


Andrea D. Collier, P.E., Environmental Manager, Kansas City Regional Office

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS				PAGE NUMBER 2 of 6		
				PERMIT NUMBER MO-0136255		
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #002B						
Flow	MGD	*		*	once/quarter****	24 hr estimate
Biochemical Oxygen Demand ₅	mg/L		45	30	once/quarter****	24 hr. modified composite***
Total Suspended Solids	mg/L		45	30	once/quarter****	24 hr. modified composite***
pH – Units	SU	**		**	once/quarter****	grab
Ammonia as N (May 1 – Oct 31) (Nov 1 – April 30)	mg/L	124 117		47 45	once/quarter****	grab
Temperature	°C	*		*	once/quarter****	grab
Oil & Grease	mg/L	15		10	once/quarter****	grab
E. Coli (Note 1)	#/100 ml	1030		206	once/quarter****	grab
Total Residual Chlorine (Note 2)	mg/L	0.21		0.104	once/quarter****	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>October 28, 2012</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Whole Effluent Toxicity (WET) test applies to Outfall #002B	% Survival		See Special Condition #11		See Special Condition #11	
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>January 28, 2013</u> .						
B. STANDARD CONDITIONS						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I & III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

MO 780-0010 (8/91)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- * 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.
- *** A modified composite sample is made up from a minimum of four (4) grab samples collected within a 24 hour period with a minimum of two (2) hours between each grab sample.
- **** See table below for quarterly sampling.

Sample discharge at least once for the months of:	Report is due:
January, February, March (1st Quarter)	April 28
April, May, June (2nd Quarter)	July 28
July, August, September (3rd Quarter)	October 28
October, November, December (4th Quarter)	January 28

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Note 1 - Final 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 are expressed as a geometric mean.

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

- (a) Disinfection is required year-round unless the permit specifically states that "Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31." If your permit does not require disinfection during the non-recreational months, do not chlorinate in those months.
- (b) Do not chemically dechlorinate **if it is not needed to meet the limits in your permit**.
- (c) If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as "0 mg/L" TRC.

C. 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. There shall be no discharge of polychlorinated biphenyl compounds.
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. Report as no-discharge when a discharge does not occur during the report period.
 6. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
 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.

C. SPECIAL CONDITIONS (continued)

8. At least one sign shall appear on the fence on each side of each facility. Minimum wording shall be “SEWAGE TREATMENT FACILITY – KEEP OUT”, in letters at least 2 inches high.
9. 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.
10. 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.

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

SUMMARY OF ACUTE WET TESTING FOR THIS PERMIT					
OUTFALL	AEC	LC50%*	FREQUENCY	SAMPLE TYPE	MONTH
002	9.1%	30.3%	Annual	24 hr modified composite	Any

* LC50 = AEC / 0.3.

Dilution Series						
100%	50%	25%	12.5%	6.25%	(Control) 100% upstream, if available	(Control) 100% Lab Water, also called synthetic water

$$AEC \% = \frac{Outfall\ Design\ Flow(cfs)}{(Zone\ of\ Initial\ Dilution[cfs] + Outfall\ Design\ Flow[cfs])} \times 100$$

$$AEC \% = \frac{1.01(cfs)}{(10.1[cfs] + 1.01[cfs])} \times 100 = 9.1\%$$

$$LC50 = \frac{AEC\%}{0.3} = \frac{9.1\%}{0.3} = 30.3\%$$

- (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.

C. SPECIAL CONDITIONS (continued)

- (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 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 (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.
 - (4) If the effluent fails the test for BOTH test species, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met: Note: Written request regarding single species multiple dilution accelerated testing will be address by THE WATER PROTECTION PROGRAM on a case by case basis.
 - (i) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
 - (ii) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
 - (5) Follow-up tests do not negate an initial failed test.
 - (6) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
 - (7) Additionally, the following shall apply upon failure of the third follow up MULTIPLE DILUTION test The permittee should contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. If the permittee does not contact THE WATER PROTECTION PROGRAM upon the third follow up test failure, a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of the automatic trigger or DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
 - (9) 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.
 - (10) 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.
 - (11) 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.
 - (12) 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.

C. SPECIAL CONDITIONS (continued)

- (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.

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

Missouri Department of Natural Resources
FACT SHEET
FOR THE PURPOSE OF UPGRADE/EXPANSION
OF
MO-0136255
KANSAS CITY POWER & LIGHT – IATAN GENERATING STATION WWTF

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

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

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

This Factsheet is for:

- 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: Industrial – Coal Fired Steam Electric Generating Plant
Facility SIC Code(s): 4911

Facility Description:

The facility is an 820 Megawatt electrical generating station and is permitted for five outfalls under MO-0082996. The outfalls include discharges for non-contact cooling water, the facility's domestic wastewater treatment system, a holding basin for the facility's plant wash down/pretreatment blow-down/lip seal overflow/neutralization basin/steam blow-down/filter backwash, and coal pile and storm water runoff. Also, two outfalls for storm water runoff. Outfall 002, sanitary wastewater treatment, discharges to the holding basin that discharges through outfall 003. Outfall 003 is valve controlled and did not have any discharges between 1993 and May 2008. The holding pond is designed to recirculate water back into plant operations and is not expected to discharge except in emergencies. Outfall 003 discharged 4,235,000 gallons per day in June 2008 to prevent flooding of the facility. There is no discharge of waters from this system.

Have any changes occurred at this facility or in the receiving water body that effects effluent limit derivation?

Yes

Replace existing 6,000 gallon per day package wastewater treatment plant with a 12,000 gallon per day extended aeration package wastewater treatment plant with flow equalization, aeration, clarification, and sludge holding tank. It will also include chlorination and dechlorination.

Last Inspection: 06/10/03 In Compliance Non Compliance

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
002B	0.02	Secondary	Domestic	0.8

Outfall #002B

Legal Description: NE ¼, NW ¼, Sec. 17, T7S, R22E Platte County

UTM (X/Y): 329590/4368548

Receiving Stream: Missouri River (P)

First Classified Stream and ID: Missouri River (P) (00226)

USGS Basin & Sub-watershed No.: (10240011-0304)

Receiving Water Body's Water Quality & Facility Performance History:

This facility is not under any enforcement action. Discharge Monitoring Reports for the last 5 years for Outfall #002 show compliance.

Comments:

KCP&L has completed construction of the new unit (Unit 2) to the Iatan Generating Station. The existing Sewage Treatment Plant is a DARAC unit sized to process 6,000 gallons per day (gpd) flow. This system is not adequate to handle the anticipated 12,000 gpd once Iatan Unit 2 is placed in service.

On January 28, 2010 KCPL requested that a separate operating permit (MO-0136255) be issued for the new domestic wastewater treatment facility at the Iatan Generating Station; therefore, Outfall #002 will be renamed to Outfall #002A in MO-0082996 or completely removed from MO-0082996 depending on whether or not KCP&L decides to operate both wastewater treatment facilities for a period of time. The renewal of MO-0082996 is on hold until the Department can address EPA's thermal issues [CWA 316(a)] associated with power plant discharges.

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 is not required to have a certified operator.

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**
Missouri River	P	0226	IRR, LWW, AQL, WBC(B), SCR, DWS, IND, General Criteria	10240011	Central Plains /Nishnabotna/Platte

* - 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 has not been conducted.

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Missouri River (P)	8,970	11,209	15,243

Low-Flow Values based off USGS website, site number 06818000.

MIXING CONSIDERATIONS TABLE:

MIXING ZONE (CFS) [10 CSR 20-7.031(4)(A)...]		ZONE OF INITIAL DILUTION (CFS) [10 CSR 20-7.031(4)(A)...]	
7Q10	30Q10	1Q10	7Q10
2,802	3,811	10.1 (Note 1)	10.1 (Note 1)

Mixing Zone (MZ): One-quarter (1/4) of the stream volume of flow; length one-quarter (1/4) mile. [10 CSR 20-7.031(4)(A)4.B.(III)(a)].

Zone of Initial Dilution (ZID): One-tenth (0.1) of the mixing zone volume of flow, not to exceed 10 times the effluent design flow. [10 CSR 20-7.031(4)(A)4.B.(III)(b)]. Note 1 – ZID is based on 10X outfall 003 (1.01 cfs). Outfall 002, domestic wastewater treatment, discharges to the holding basin that discharges through outfall 003.

RECEIVING STREAM MONITORING REQUIREMENTS:

No receiving water monitoring requirements recommended at this time.

Part IV – 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.

- New facility, 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.

- As per [10 CSR 20-7.031(2)(D)], the three (3) levels of protection provided by the antidegradation policy in subsections (A), (B), and (C) of this section shall be implemented according to procedures developed by the department. On April 20, 2007, the Missouri Clean Water Commission approved *Missouri Antidegradation Rule and Implementation Procedure* (Antidegradation Rule), which is applicable to new or upgraded/expanded facilities. The implementation of the Antidegradation Rule occurred on August 31, 2008. Any construction permit application or other applicable permit applications submitted prior to August 31, 2008, will not be required to have an Antidegradation Review. No Anti-Degradation Review is required due to the request being submitted on August 4, 2008 which is prior to the August 31, 2008 deadline.

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.

BIO-SOLIDS, SLUDGE, & SEWAGE SLUDGE:

Bio-solids are solid materials resulting from wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sludge is any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect. 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.

Not Applicable

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

COMPLIANCE AND ENFORCEMENT:

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

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

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

A RPA was not conducted for this facility.

REMOVAL EFFICIENCY:

Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. Please see the United States Environmental Protection Agency's (EPA) website for interpretation of percent removal requirements for National Pollutant Discharge Elimination System Permit Application Requirements for Publicly Owned Treatment Works and Other Treatment Works Treating Domestic Sewage @ www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm.

Not Applicable

Influent monitoring is not being required to determine percent removal.

SANITARY SEWER OVERFLOWS (SSOs), BYPASSES, INFLOW & INFILTRATION (I&I) – PREVENTION/REDUCTION:

Sanitary Sewer Systems (SSSs) are municipal wastewater collection system that convey domestic, commercial, and industrial wastewater, and limited amounts of infiltrated groundwater and storm water (i.e. I&I), to a POTW. SSSs are not designed to collect large amounts of storm water runoff from precipitation events.

Untreated or partially treated discharges from SSSs are commonly referred to as SSOs. SSOs have a variety of causes including blockages, line breaks, sewer defects that allow excess storm water and ground water to overload the system, lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. A SSOs is defined as an untreated or partially treated sewage release from a SSS. SSOs can occur at any point in an SSS, during dry weather or wet weather. SSOs include overflows that reach waters of the state. SSOs also include overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations. SSSs can back up into buildings, including private residences. When sewage backups are caused by problems in the publicly-owned portion of an SSS, they are considered SSOs.

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

SCHEDULE OF COMPLIANCE (SOC):

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

Not Applicable
This permit does not contain a SOC.

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:

$$C = \frac{(C_s \times Q_s) + (C_e \times Q_e)}{(Q_e + Q_s)} \quad (\text{EPA/505/2-90-001, Section 4.5.5})$$

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).

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

In accordance with the 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. Furthermore, WET testing is a means by which the department determines that [10 CSR 20-7.031(3)(D, F, & G)] are being met by the permitted facility. In addition to justification for the WET testing, WET tests are required under [10 CSR 20-6.010(8)(A)4] to be performed by specialists who are properly trained in conducting the test according to the methods prescribed by the Federal Government as referenced in [40 CFR Part 136]. 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 NH3)
- Facility is a municipality or domestic discharger with a Design Flow > 22,500 gpd.
- Other - Please justify
Wet test was required by the Water Quality Review Sheet dated March 6, 2009.

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

Missouri River is listed on the 2002 Missouri 303(d) List for chlordane and polychlorinated biphenyls.

This facility is not considered to be a source of the above listed pollutant(s) or considered to contribute to the impairment of the reference waterbody.

Total Maximum Daily Loads (TMDLs) for Chlordane and Polychlorinated Biphenyls was approved on November 3, 2006 by EPA.

Part V – Effluent Limits Determination

Outfall #002B – Domestic; Effluent to Holding Basin

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	MGD	1	*		*	N	
BOD ₅	MG/L	1		45	30	N	
TSS	MG/L	1		45	30	N	
pH	SU	1/2	6.5-9.0		6.5-9.0	YES	6.0-9.0
TEMPERATURE	°C	5	*		*	Y	***
AMMONIA AS N (MAY 1 – OCT 31)	MG/L	3/5	124		47	Y	***
AMMONIA AS N (NOV 1 – APR 30)	MG/L	3/5	117		45	Y	***
ESCHERICHIA COLI	**	2	1030		206	Y	Fecal Coliform 1000/400
CHLORINE, TOTAL RESIDUAL	MG/L	2/3	0.21		0.104	Y	***
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.

** - # 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 | 7. Antidegradation Policy |
| 2. Water Quality Standard (includes RPA) | 8. Water Quality Model |
| 3. Water Quality Based Effluent Limits | 9. Best Professional Judgment |
| 4. Lagoon Policy | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy | 11. WET Test Policy |
| 6. Dissolved Oxygen Policy | 12. Antidegradation Review |

OUTFALL #002B – 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 (BOD₅).** Effluent limitations from the previous state operating permit have been reassessed and verified that they are still protective of the receiving stream’s Water Quality. Therefore, 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 from the previous state operating permit have been reassessed and verified that they are still protective of the receiving stream’s Water Quality. Therefore, 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 from 6.5 to 9.0 Standard pH units (SU) as per the applicable section of 10 CSR 20-7.015. pH is not to be averaged. Since the original drafting of this permit on February 8, 2010 the Effluent Regulations [10 CSR 20-7.015] have been updated to reconcile differences between the effluent regulations and Water Quality Standards for pH.
- **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] default pH 7.8 SU Background total ammonia nitrogen = 0.01 mg/L (Default).

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	22.8	3-8.7	1.6	11.3
Winter	7.7	2.9-8.8	2.4	10.7

Data based on site specific information from U.S.G.S. website

Summer: May 1 – October 31

Chronic WLA: $C_e = ((1.01 + 3,811)1.6 - (3,811 * 0.01))/1.01$
 $C_e = 6,001 \text{ mg/L}$

Acute WLA: $C_e = ((1.01 + 10.1)11.3 - (10.1 * 0.01))/1.01$
 $C_e = 124 \text{ mg/L}$

$LTA_c = 6,001 \text{ mg/L (0.780)} = 3,162 \text{ mg/L}$
 $LTA_a = 124 \text{ mg/L (0.321)} = \mathbf{39 \text{ mg/L}}$

[CV = 0.6, 99th Percentile, 30 day avg.]
 [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

MDL = 39 mg/L (3.11) = 124 mg/L
 AML = 39 mg/L (1.19) = 47 mg/L

[CV = 0.6, 99th Percentile]
 [CV = 0.6, 95th Percentile, n=30]

Winter: November 1 – April 30

Chronic WLA: $C_e = ((1.01 + 3,811)2.4 - (3,811 * 0.01))/1.01$
 $C_e = 9,020 \text{ mg/L}$

Acute WLA: $C_e = ((1.01 + 10.1)10.7 - (10.1 * 0.01))/1.01$
 $C_e = 117 \text{ mg/L}$

$LTA_c = 9,020 \text{ mg/L (0.780)} = 4,753 \text{ mg/L}$
 $LTA_a = 117 \text{ mg/L (0.321)} = \mathbf{37 \text{ mg/L}}$

[CV = 0.6, 99th Percentile, 30 day avg.]
 [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

MDL = 37 mg/L (3.11) = 117 mg/L
 AML = 37 mg/L (1.19) = 45 mg/L

[CV = 0.6, 99th Percentile]
 [CV = 0.6, 95th Percentile, n=30]

- ***Escherichia coli (E. coli)*.** Monthly average of 206 per 100 ml as a geometric mean and Daily Maximum 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). Daily Maximum effluent variability will be evaluated in development of a future effluent limit. An effluent limit for both monthly average and daily maximum is required by 40 CFR 122.45(d).

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

Chronic WLA: $C_e = ((1.01 + 2,802)10 - (2,802 * 0.0))/1.01$
 $C_e = 27,752 \text{ µg/L}$

Acute WLA: $C_e = ((1.01 + 10.1)19 - (10.1 * 0.0))/1.01$
 $C_e = 209 \text{ µg/L}$

$LTA_c = 27,752 \text{ µg/L (0.527)} = 14,652 \text{ µg/L}$
 $LTA_a = 209 \text{ µg/L (0.321)} = 67 \text{ µg/L}$

[CV = 0.6, 99th Percentile]
 [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

MDL = 67 µg/L (3.11) = 208 µg/L (0.21 mg/L)
 AML = 67 µg/L (1.55) = 103.85 µg/L (0.104 mg/L)

[CV = 0.6, 99th Percentile]
 [CV = 0.6, 95th Percentile, n = 4]

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

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

Acute

No less than ONCE/YEAR

- Facility is designated as a Major facility or has a design flow > 1.0 MGD.
- Facility continuously or routinely exceeds their design flow.
- Facility exceeds its design population equivalent (PE) for BOD5 whether or not its design flow is being exceeded.
- Facility has Water Quality-based effluent limitations for toxic substances (other than NH3).

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%.

$$AEC \% = \frac{\text{Outfall Design Flow}(cfs)}{(\text{Zone of Initial Dilution}[cfs] + \text{Outfall Design Flow}[cfs])} \times 100$$

$$AEC \% = \frac{1.01(cfs)}{(10.1[cfs] + 1.01[cfs])} \times 100 = 9.1\%$$

- **Minimum Sampling and Reporting Frequency Requirements.**

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
FLOW	ONCE/QUARTER	QUARTERLY
BOD ₅	ONCE/QUARTER	QUARTERLY
TSS	ONCE/QUARTER	QUARTERLY
PH	ONCE/QUARTER	QUARTERLY
TEMPERATURE	ONCE/QUARTER	QUARTERLY
AMMONIA AS N (MAY 1 – OCT 31)	ONCE/QUARTER	QUARTERLY
AMMONIA AS N (NOV 1 – APR 30)	ONCE/QUARTER	QUARTERLY
CHLORINE, TOTAL RESIDUAL	ONCE/QUARTER	QUARTERLY
OIL & GREASE	ONCE/QUARTER	QUARTERLY
E. COLI	ONCE/QUARTER	QUARTERLY

Monitoring requirements for E. coli are applicable only during the recreational season from April 1, through October 31. Please note that the Missouri Clean Water Commission directed the Department during its January 12, 2011, meeting to proceed with amending 10 CSR 20-7.015 to reduce the sampling frequency require for E. coli to a lesser frequency, still protective of water quality standards, for smaller facilities, including those with discharges of 100,000 gallons per day or less. The commission further directed that those permits pending involving facilities with discharges of 100,000 gallons per day or less be issued with their current sampling frequencies until 10 CSR 20-7.015 can be amended.

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.

The Public Notice period for this operating permit was from March 26, 2010 to April 26, 2010. No responses received or responses to the Public Notice of this operating permit do not warrant the modification of effluent limits and/or the terms and conditions of this permit.

DATE OF FACT SHEET: FEBRUARY 8, 2010
DATE OF FACT SHEET REVISED: JULY 19, 2012

COMPLETED BY:

SCOTT F. HONIG, P.E., ENGINEERING UNIT CHIEF
KANSAS CITY REGIONAL OFFICE
(816) 251-0711
SCOTT.HONIG@DNR.MO.GOV

Part VII – Appendices

APPENDIX A – OUTFALL MAP



APPENDIX B – WATER QUALITY REVIEW SHEET

STATE OF MISSOURI Jeremiah W. (Jay) Nixon, Governor • Joseph P. Bindbeutel, Acting Director
DEPARTMENT OF NATURAL RESOURCES

www.dnr.mo.gov

MAR - 6 2009

Mr. Michael Katzman
Kansas City Power & Light
P.O. Box 418679
Kansas City, MO 64141-9679

RE: Water Quality Review Sheet for Kansas City Power & Lighting Iatan Generating Station WWTFs

Dear Mr. Katzman:

Enclosed please find the finalized water quality review sheet (WQRS) for the Kansas City Power & Lighting Iatan Generating Station wastewater treatment facility. No Anti-Degradation Review was required due to the request being submitted before the August 30, 2008 deadline. The WQRS contains effluent limitations and monitoring requirements for the facility discharge. It was developed in accordance with U.S. EPA guidance and the State of Missouri's effluent regulations (10 CSR 20-7.015) and water quality standards (10 CSR 20-7.031). Please refer to the *General Assumptions of the Water Quality Review Sheet* section of the attached WQRS. The WQRS is preliminary and subject to change as new information becomes available during future permit application processing.

If you should have questions regarding the enclosed WQRS, please feel free to contact me by telephone at (573) 751-2908, by e-mail at Greg.Brossier@dnr.mo.gov, or by mail at P.O. Box 176, Jefferson City, Missouri 65102-0176.

Sincerely,

WATER PROTECTION PROGRAM



Greg Brossier
Environmental Engineer

GB:ns

Enclosures

c: Andrea Collier, Unit Chief, Kansas City Regional Office





**Missouri Department of Natural Resources
 Water Protection Program
 NPDES Permits and Engineering Section**

Water Quality Review Sheet

Determination of Effluent Limits and Monitoring Requirements

FACILITY INFORMATION

FACILITY NAME: Kansas City Power and Light (KCP&L) Iatan Generating Station NPDES #: MO-0082996

FACILITY TYPE/DESCRIPTION: Expand/Replace existing 6,000gpd package waste water treatment plant with 12,000gpd package waste water treatment plant. Provides aeration, clarification, chlorination, dechlorination, sludge holding, and flow equalization.

EDU*: Central Plains/Nishnabotna/Platte 8-DIGIT HUC: 10240011 COUNTY: Platte
 * - Ecological Drainage Unit

LEGAL DESCRIPTION: SE1/4, NW1/4, NE1/4, Sec 31, T54N, R36W LATITUDE/LONGITUDE: +39°26'45" / -94°58'53"

WATER QUALITY HISTORY: This facility is not under any enforcement action. DMR's for the last 5 years for Outfall #002 showed compliance. For Outfall #003 there was one exceedance on 06/30/2008 for Total Suspended Solids and Settleable Solids. The facility was found to be in compliance with conditions of its State Operating Permit.

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	RECEIVING WATERBODY	DISTANCE TO CLASSIFIED SEGMENT (MI)
*001	730	None	Missouri River	-
002	0.0186	Secondary	Holding Basin to Missouri River	0.0
003	1.01	Secondary	Missouri River	0.0
*007	0.007	None	Mission Creek to Missouri River	-
*009	0.007	None	Mission Creek to Missouri River	-

*NO CHANGES ARE BEING MADE TO THE OUTFALL

RECEIVING WATERBODY INFORMATION

WATERBODY NAME	CLASS	WBID	LOW-FLOW VALUES (CFS)			DESIGNATED USES**
			1Q10	7Q10	30Q10	
Missouri River	P	1604	8970	11209	15243	IRR, LWW, AQL, WBC(B), SCR, DWS, IND, General Criteria

** Irrigation (IRR), Livestock & Wildlife Warring (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)

Kansas City Power & Light Iatan Generating Station
02/27/2009
Page 2

COMMENTS: No antidegradation review is required for this facility because requester submitted a complete construction permit application prior to August 30, 2008. The Geological Survey Program, Division of Geology and Land Survey, has concluded that the report submitted by the KCP&L was adequate (Appendix C). The focus of this review is the expansion of Outfall #002 and ultimately Outfall #003. Outfall #002 is being expanded from 0.006MGD to 0.012MGD. During the previous permit cycle Ammonia concentration was not on the list of POC's to be considered. Limits for Ammonia concentration will be considered for this permit cycle. Heritage report provided by MDC should be taken into consideration by the permit writer. D.O. modeling indicates that the D.O sag will occur 65 to 77 miles downstream (Appendix E). Low flows were based upon survey data from the USGS over the past 21 years (Appendix D) for this review. Flow data for the full year was considered, not just navigation season. The fact that the Outfall #001 is approximately 1000ft (See Appendix A) downstream from Outfall #003 and during summer months a discharge temperature of up to 100°F. Outfall #001 is a confounding variable and must be considered when modeling D.O. (Appendix E). Considering both D.O. models (26°C, 37.7°C upstream temperature) it is the opinion of the staff that the D.O level will remain within the allowable levels.

ANTIDEGRADATION POLICY

In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(2)] and federal antidegradation policy at Title 40 Code of Federal Regulation (CFR) Section 131.12 (a), the department is to develop a statewide antidegradation policy and corresponding procedures to implement the policy. A proposed discharge to a water body will be required to undergo a level of Antidegradation Review which documents that the use of a water body's available assimilative capacity is justified. Effective August 30, 2008, a facility is required to use *Missouri's Antidegradation Rule and Implementation Procedure*. This procedure will be applicable to new and expanded wastewater facilities. If the facility submits a complete construction permit application prior to August 30, 2008, no antidegradation review is required.

GENERAL ASSUMPTIONS OF THE WATER QUALITY REVIEW SHEET

1. A Water Quality Review Sheet (WQRS) assumes that [10 CSR 20-6.010(3) Continuing Authorities] has been or will be addressed in a Missouri State Operating Permit or Construction Permit Application.
2. A WQRS does not indicate approval or disapproval of alternative analysis as per [10 CSR 20-7.015(4) Losing Streams], and/or any section of the effluent regulations.
3. Changes to Federal and State Regulations made after the drafting of this WQRS may alter Water Quality Based Effluent Limits (WQBEL).
4. Effluent limitations derived from Federal or Missouri State Regulations (FSR) may be WQBEL or Effluent Limit Guidelines (ELG).
5. WQBEL supersede ELG only when they are more stringent. Mass limits derived from technology based limits are still appropriate.
6. A WQRS does not allow discharges to waters of the state, and shall not be construed as a National Pollution Discharge Elimination System or Missouri State Operating Permit to discharge or a permit to construct, modify, or upgrade.
7. Limitations and other requirements in a WQRS may change as Water Quality Standards, Methodology, and Implementation procedures change.
8. Nothing in this WQRS removes any obligations to comply with county or other local ordinances or restrictions.

Kansas City Power & Light Iatan Generating Station
 02/27/2009
 Page 3

MIXING CONSIDERATIONS

Mixing Zone (MZ): One-quarter (1/4) of the stream volume of flow; length one-quarter (1/4) mile. [10 CSR 20-7.031(4)(A)4.B.(III)(a)].

Zone of Initial Dilution (ZID): One-tenth (0.1) of the mixing zone volume of flow, not to exceed 10 times the effluent design flow. [10 CSR 20-7.031(4)(A)4.B.(III)(b)].

* Low flows conditions, MZ, and ZID are based upon information found in Appendix D. Information is based off USGS website, site number 06818000.

	Flow (cfs)	MZ (cfs)	ZID (cfs)
7Q10	11209	2802	*10.1
1Q10	8970	2243	*10.1
30Q10	15243	3811	*10.1

*ZID is based on 10X outfall 003

PERMIT LIMITS AND INFORMATION

WASTELOAD ALLOCATION STUDY CONDUCTED (Y OR N): N USE ATTAINABILITY ANALYSIS CONDUCTED (Y OR N): N WHOLE BODY CONTACT USE RETAINED (Y OR N): Y

OUTFALL #002

WET TEST (Y OR N): Y FREQUENCY: ONCE/YEAR AEC: 9.1% METHOD: MULTIPLE

PARAMETER	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	WQBEL (NOTE 2)	MONITORING FREQUENCY
FLOW	*		*	FSR	ONCE/QUARTER
BOD ₅ (MG/L)		45	30	FSR	ONCE/QUARTER
TSS (MG/L)		45	30	FSR	ONCE/QUARTER
E. COLI	PLEASE SEE DERIVATION AND DISCUSSION OF LIMITS BELOW				
FECAL COLIFORM	1000		400	FSR	ONCE/QUARTER
PH (S.U.)	6.5 – 9.0		6.5 – 9.0	FSR	ONCE/QUARTER
AMMONIA AS N (MG/L) (MAY 1 – OCT 31)	*		*	Y	ONCE/QUARTER
AMMONIA AS N (MG/L) (NOV 1 – APRIL 30)	*		*	Y	ONCE/QUARTER
OIL & GREASE(MG/L)	15		10	FSR	ONCE/QUARTER
TOTAL RESIDUAL CHLORINE (µG/L)	208		103.85	Y	ONCE/QUARTER

* - Monitoring requirements only.

** - The Monthly Average for Fecal Coliform shall be reported as a Geometric Mean.

NOTE 1 – COLONIES/100 mL

NOTE 2 – THIS FIELD INFORMS THE APPLICANT IF THE PARAMETER’S EFFLUENT LIMITATION IS A WATER QUALITY BASED EFFLUENT LIMITATION (WQBEL): Y – YES; FSR – FEDERAL/STATE REGULATION; AND N/A – NOT APPLICABLE. ALSO, PLEASE SEE THE GENERAL ASSUMPTIONS OF THE WQRS #4 & #5.

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DERIVATION AND DISCUSSION OF LIMITS

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

$$C = \frac{(C_s \times Q_s) + (C_e \times Q_e)}{(Q_e + Q_s)} \quad (\text{EPA/505/2-90-001, Section 4.5.5})$$

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).

Outfall #002 – Effluent to Holding Basin – values were determined based off the design flow from outfall 003.

- **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 (BOD₅).** 30 mg/L monthly average, 45 mg/L weekly average [10 CSR 20-7.015(2)(B)1]. Influent monitoring may be required for this facility in its Missouri State Operating Permit. Based on Streeter Phelps modeling presented in Appendix E, MDNR staff have determined that the above BOD₅ limitations will be protective of water quality standards for dissolved oxygen in the Missouri River.
- **Total Suspended Solids (TSS).** 30 mg/L monthly average, 45 mg/L weekly average [10 CSR 20-7.015(2)(B)1]. Influent monitoring may be required for this facility in its Missouri State Operating Permit.
- **E. coli.** This facility will be required to have E. coli effluent limitations when Missouri adopts the implementation of the E. coli effluent regulations. Also, please see **GENERAL ASSUMPTIONS OF THE WQRS #7.**
- **Fecal Coliform.** Discharge shall not contain more than a monthly geometric mean of 400 colonies/

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100 mL and a daily maximum of 1000 colonies/100 mL during the recreational season (April 1 – October 31) [10 CSR 20-7.015(2)(B)4.]. Future renewals of the facility operating permit will contain effluent limitations for E. coli that will replace fecal Coliform as the applicable bacteria criteria in Missouri’s water quality standards when Missouri adopts the implementation of the E. coli standards. Also, please see **GENERAL ASSUMPTIONS OF THE WQRS #7.**

- **pH.** pH shall be maintained in the range from six and one half to nine (6 ½ – 9) standard units [10 CSR 20-7.031 4(E)].
- **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. Due to no reasonable potential monitoring only will be applied for Total Ammonia Nitrogen.

Season	Temp (C°)	pH (SU)	Total Ammonia Nitrogen CCC (mg N/L)	Total Ammonia Nitrogen CMC (mg N/L)
Summer	22.8	3 – 8.7	1.6	11.3
Winter	7.7	2.9 – 8.8	2.4	10.7

Summer: May 1 – October 31, Winter: November 1 – April 30.
 Data based on site specific information from U.S.G.S. website.
 Ammonia Concentrations are based on a range of pH data found on the U.S.G.S. website
 See Appendix F. Ammonia Criteria was determined for each individual sample, then averaged.

Summer

$$C_e = (((Q_e + Q_s) * C) - (Q_s * C_s)) / Q_e$$

Chronic WLA: $C_e = ((1.01 + 3811)1.6 - (3811 * 0.01)) / 1.01$
 $C_e = 6001 \text{ mg/L}$

Acute WLA: $C_e = ((1.01 + 10.1)11.3 - (10.1 * 0.01)) / 1.01$
 $C_e = 124 \text{ mg/L}$

$LTA_c = 6001 \text{ mg/L} (0.780) = 3162 \text{ mg/L}$ [CV = 0.6, 99th Percentile, 30 day avg.]
 $LTA_a = 124 \text{ mg/L} (0.321) = 39 \text{ mg/L}$ [CV = 0.6, 99th Percentile]

$MDL = 39 \text{ mg/L} (3.11) = 124 \text{ mg/L}$ [CV = 0.6, 99th Percentile]
 $AML = 39 \text{ mg/L} (1.19) = 47 \text{ mg/L}$ [CV = 0.6, 95th Percentile, n = 30]

Winter

Chronic WLA: $C_e = ((1.01 + 3,811)2.4 - (3,811 * 0.01)) / 1.01$
 $C_e = 9020 \text{ mg/L}$

Acute WLA: $C_e = ((1.01 + 10.1)10.7 - (10.1 * 0.01)) / 1.01$
 $C_e = 117 \text{ mg/L}$

$LTA_c = 9020 \text{ mg/L} (0.780) = 4753 \text{ mg/L}$ [CV = 0.6, 99th Percentile, 30 day avg.]
 $LTA_a = 117 \text{ mg/L} (0.321) = 37 \text{ mg/L}$ [CV = 0.6, 99th Percentile]

$MDL = 37 \text{ mg/L} (3.11) = 117 \text{ mg/L}$ [CV = 0.6, 99th Percentile]
 $AML = 37 \text{ mg/L} (1.19) = 45 \text{ mg/L}$ [CV = 0.6, 95th Percentile, n = 30]

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Season	Maximum Daily Limit (mg/l)	Average Monthly Limit (mg/l)
Summer	124	47
Winter	117	45

- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Total Residual Chlorine (TRC).** Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. No background data was available so the default TRC = 0.0 µg/L was used.

$$C_c = (((Q_e + Q_s) * C) - (Q_s * C_s)) / Q_e$$

Chronic WLA: $C_c = ((1.01 + 2802)10 - (2802 * 0.0)) / 1.01$
 $C_c = 27,752 \mu\text{g/L}$

Acute WLA: $C_c = ((1.01 + 10.1)19 - (10.1 * 0.0)) / 1.01$
 $C_c = 209 \mu\text{g/L}$

$LTA_c = 27,752 \mu\text{g/L} (0.527) = 14,625 \mu\text{g/L}$ [CV = 0.6, 99th Percentile]

$LTA_a = 209 \mu\text{g/L} (0.321) = 67 \mu\text{g/L}$ [CV = 0.6, 99th Percentile]

MDL = 67 µg/L (3.11) = 208 µg/L [CV = 0.6, 99th Percentile]

AML = 67 µg/L (1.55) = 103.85 µg/L [CV = 0.6, 95th Percentile, n = 4]

Total Residual Chlorine effluent limits of 0.017 mg/L daily maximum, 0.008 mg/L monthly average are recommended if chlorine is used as a disinfectant. Standard compliance language for TRC, including the minimum level (ML), should be included in the permit.

OUTFALL #003

WET TEST (Y OR N): Y FREQUENCY: TWICE/CYCLE AEC: 9.1% METHOD: MULTIPLE

PARAMETER	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	WQBEL (NOTE 2)	MONITORING FREQUENCY***
FLOW	*		*	FSR	ONCE/WEEK
BOD ₅ (MG/L)		45	30	FSR	ONCE/WEEK
TSS (MG/L)	100		30	FSR	ONCE/WEEK
E. COLI	PLEASE SEE DERIVATION AND DISCUSSION OF LIMITS ABOVE				
FECAL COLIFORM	1000		400	FSR	ONCE/WEEK
pH (S.U.)	6.5-9.0		6.5-9.0	FSR	ONCE/WEEK
AMMONIA AS N (MG/L) (MAY 1 – OCT 31)	*		*	Y	ONCE/WEEK
AMMONIA AS N (MG/L) (NOV 1 – APRIL 30)	*		*	Y	ONCE/WEEK
SETTLABLE SOLIDS	1.5		1.0	FSR	ONCE/WEEK
OIL & GREASE(MG/L)	20		15	FSR	ONCE/WEEK
TOTAL RESIDUAL CHLORINE (MG/L)	208		103.85	Y	ONCE/WEEK

* - Monitoring requirements only.

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** - The Monthly Average for Fecal Coliform shall be reported as a Geometric Mean.

*** - Staff acknowledges infrequent discharging. Due to this fact, monitoring should take place at every discharge occurrence with at least 2 samples taken per discharge occurrence. Monitoring frequencies developed from the requirement within effluent regulations.

NOTE 1 – COLONIES/100 mL

NOTE 2 – THIS FIELD INFORMS THE APPLICANT IF THE PARAMETER'S EFFLUENT LIMITATION IS A WATER QUALITY BASED EFFLUENT LIMITATION (WQBEL): Y – YES; FSR – FEDERAL/STATE REGULATION; AND N/A – NOT APPLICABLE. ALSO, PLEASE SEE THE **GENERAL ASSUMPTIONS OF THE WQRS #4 & #5.**

Outfall #003 – Discharge from Holding Basin

- **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 (BOD₅).** 30 mg/L monthly average, 45 mg/L weekly average [10 CSR 20-7.015(2)(B)1]. Influent monitoring may be required for this facility in its Missouri State Operating Permit. It is the determination of the staff that the previous BOD₅ within the current permit should be modified to reflect the same secondary treatment effluent regulations as assigned to Outfall #002. In the event of the discharge from the Outfall, based on Streeter Phelps modeling presented in Appendix E, MDNR staff has determined that the above BOD₅ limitations will be protective of water quality standards for dissolved oxygen in the Missouri River.
- **Total Suspended Solids (TSS).** 30 mg/L monthly average, 100 mg/L maximum daily limit [40 CFR 423.12(b)3]. Influent monitoring may be required for this facility in its Missouri State Operating Permit.
- **E. coli.** This facility will be required to have E. coli effluent limitations when Missouri adopts the implementation of the E. coli effluent regulations. Also, please see **GENERAL ASSUMPTIONS OF THE WQRS #7.**
- **Fecal Coliform.** Discharge shall not contain more than a monthly geometric mean of 400 colonies/100 mL and a daily maximum of 1000 colonies/100 mL during the recreational season (April 1 – October 31) [10 CSR 20-7.015(2)(B)4.]. Future renewals of the facility operating permit will contain effluent limitations for E. coli that will replace fecal Coliform as the applicable bacteria criteria in Missouri's water quality standards when Missouri adopts the implementation of the E. coli standards. Also, please see **GENERAL ASSUMPTIONS OF THE WQRS #7.**
- **pH.** pH shall be maintained in the range from six and one half to nine (6 ½ – 9) standard units [10 CSR 20-7.031(E).].
- **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. Due to no reasonable potential monitoring only will be applied for Total Ammonia Nitrogen.

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Season	Temp (C°)	pH (SU)	Total Ammonia Nitrogen CCC (mg N/L)	Total Ammonia Nitrogen CMC (mg N/L)
Summer	22.8	3 – 8.7	1.6	11.3
Winter	7.7	2.9 – 8.8	2.4	10.7

Summer: May 1 – October 31, Winter: November 1 – April 30.
 Data based off site specific information from U.S.G.S. website.
 Ammonia Concentrations are based off a range of pH data found on the U.S.G.S. website
 See Appendix F. Ammonia Criteria was determined for each individual sample, then averaged.

Summer

$$C_e = (((Q_e + Q_s) * C) - (Q_s * C_s)) / Q_c$$

Chronic WLA: $C_e = ((1.01 + 3811)1.6 - (3811 * 0.01)) / 1.01$
 $C_e = 6001 \text{ mg/L}$

Acute WLA: $C_e = ((1.01 + 10.1)11.3 - (10.1 * 0.01)) / 1.01$
 $C_e = 124 \text{ mg/L}$

$LTA_c = 6001 \text{ mg/L} (0.780) = 3162 \text{ mg/L}$ [CV = 0.6, 99th Percentile, 30 day avg.]
 $LTA_a = 124 \text{ mg/L} (0.321) = 39 \text{ mg/L}$ [CV = 0.6, 99th Percentile]

MDL = 39 mg/L (3.11) = 124 mg/L [CV = 0.6, 99th Percentile]
 AML = 39 mg/L (1.19) = 47 mg/L [CV = 0.6, 95th Percentile, n = 30]

Winter

Chronic WLA: $C_e = ((1.01 + 3,811)2.4 - (3,811 * 0.01)) / 1.01$
 $C_e = 9020 \text{ mg/L}$

Acute WLA: $C_e = ((1.01 + 10.1)10.7 - (10.1 * 0.01)) / 1.01$
 $C_e = 117 \text{ mg/L}$

$LTA_c = 9020 \text{ mg/L} (0.780) = 4753 \text{ mg/L}$ [CV = 0.6, 99th Percentile, 30 day avg.]
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MDL = 37 mg/L (3.11) = 117 mg/L [CV = 0.6, 99th Percentile]
 AML = 37 mg/L (1.19) = 45 mg/L [CV = 0.6, 95th Percentile, n = 30]

Season	Maximum Daily Limit (mg/l)	Average Monthly Limit (mg/l)
Summer	124	47
Winter	117	45

- **Settleable Solids** – Due to storm water runoff a maximum daily limit of 1.5 mL/L/hr and an average monthly limit of 1.0 mL/L/hr will be required.

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- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 15mg/L monthly average, 20 mg/L daily maximum. Limitation based on [40 CFR 423.12(b)3].
- **Total Residual Chlorine (TRC).** Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. No background data was available so the default TRC = 0.0 µg/L was used.

$$C_e = (((Q_e + Q_s) * C) - (Q_s * C_s)) / Q_e$$

Chronic WLA: $C_e = ((1.01 + 2802)10 - (2802 * 0.0)) / 1.01$
 $C_e = 27,752 \mu\text{g/L}$

Acute WLA: $C_e = ((1.01 + 10.1)19 - (10.1 * 0.0)) / 1.01$
 $C_e = 209 \mu\text{g/L}$

$LTA_c = 27,752 \mu\text{g/L} (0.527) = 14,625 \mu\text{g/L}$ [CV = 0.6, 99th Percentile]

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MDL = 67 µg/L (3.11) = 208 µg/L [CV = 0.6, 99th Percentile]

AML = 67 µg/L (1.55) = 103.85 µg/L [CV = 0.6, 95th Percentile, n = 4]

Standard compliance language for TRC, including the minimum level (ML), should be included in the permit

Outfall #001*

Outfall #007*

Outfall #009*

* No changes were requested for the Outfalls above and were not considered in the review.

Reviewer: Greg Brossier



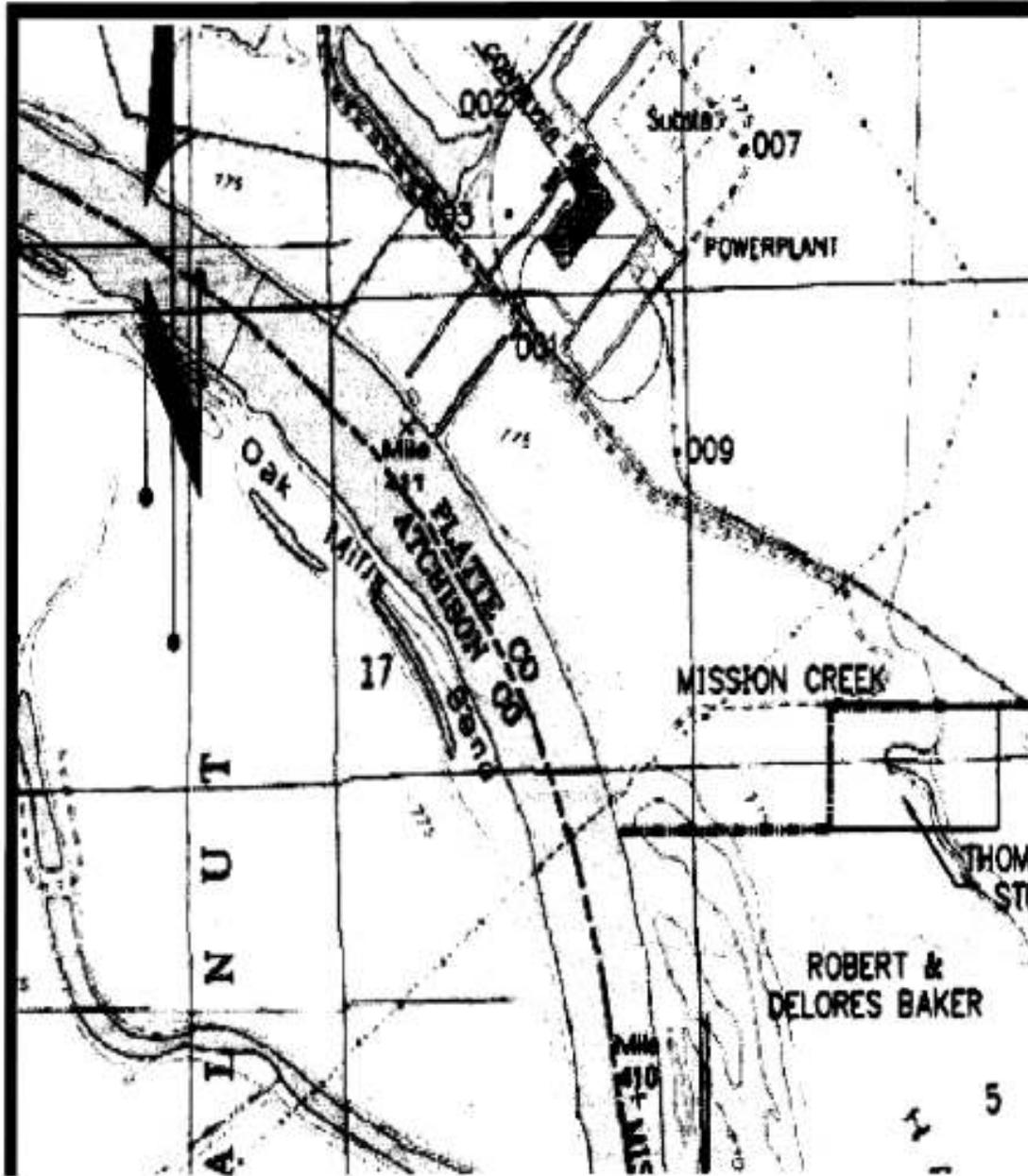
Date: 2/27/2009

Unit Chief: John Rustige 

Monitoring and effluent limits contained within this document have been developed in accordance with EPA guidelines using the best available data and are believed to be consistent with Missouri's Water Quality Standards and Effluent Regulations. If additional water quality data or anecdotal information are available that may affect the recommended monitoring and effluent limits, please forward these data and information to the author.

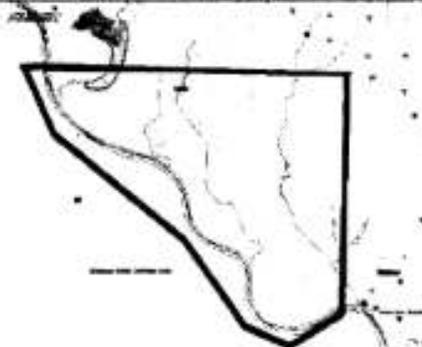
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Appendix A



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Appendix B

	Missouri Department of Conservation Heritage Review Report January 14, 2009 page 1 of 2		Policy Coordination Unit P. O. Box 180 Jefferson City, MO 65102 Prepared by: Shannon Cave shannon.cave@mdc.mo.gov 573-522-4115x3250
	Joe Werner or Michael Katzman Kansas City Power & Light Email to Michael.Katzman@kcpl.com	Project type: Power plant & support utilities Location/Scope: All land to the Missouri River south and west of northeast corner of Section 23 of T54N R36W County: Platte Query reference: Phone call Query received: January 14, 2009	
<small>Authenticity may be confirmed by Policy Coordination Unit, Missouri Department of Conservation, 573-522-4115.</small>			
<p>This NATURAL HERITAGE REVIEW is not a site clearance letter. Rather, it indicates whether or not public lands and sensitive resources are known to be located close to and potentially affected by the proposed project.</p> <p><small>FEDERAL LIST species/habitats are protected under the Federal Endangered Species Act. Consult with the U.S. Fish and Wildlife Service (101 Park Drive, Suite A, Columbia, Missouri 65203-0007, 573-234-2132). STATE ENDANGERED species are listed in and protected under the Wildlife Code of Missouri (20CSR10-4.11).</small></p>			
<p>Records of federal-listed or state-listed (endangered) species or critical habitats near the project site:</p> <p>The Missouri River is home to a number of species of state and federal concern, including pallid sturgeon (<i>Scaphirhynchus albus</i>, federal/state endangered-list), lake sturgeon (<i>Acipenser fulvescens</i>, state endangered-list), and flathead chub (<i>Platygobio gracilis</i>, state endangered-list) in the reach between Kansas City and St. Joseph. The river's banks and floodplain are places one might encounter gray bats (<i>Myotis grisescens</i>, federal & state endangered), Indiana bats (<i>Myotis sodalis</i>, federal & state endangered), bald eagles (<i>Haliaeetus leucocephalus</i>, federally protected) and others, although there are no specific records within a mile of any of the proposed activities. Terrestrial projects that manage construction and include operation plans to avoid runoff of sediment or pollutants are unlikely to affect the aquatic species. Projects that place fill in or discharge water to the river are subject to federal permits, and strict observance of conditions required in those permits is important to minimize risk of damage to endangered species.</p> <p><small>Heritage records were identified at some date and at a more or less precise location. This report includes information about records near but not necessarily on the project site. Animals move and, over time, so do plant communities. To say "there is a record" does not mean the species/habitat is still there. To say that "there is no record" does not mean the project will not encounter something not recorded. On-site verification is the responsibility of the project. Incorporating information from Heritage records into plans can help reduce adverse impacts to sensitive natural resources. However, these records only provide one reference and other information (e.g. wetland or soils maps, on-site inspections or surveys) should be considered. Compare biological and habitat needs of records listed to planned project activities to avoid or minimize impacts. More information: www.mdc.mo.gov/nhis/endangered/ and mdc.mdc.mo.gov/applications/nhis/nhis/mofacts_search1.aspx. Find contact information on the department's nearest Natural History Biologist at http://www.mdc.mo.gov/nhis/contacts/.</small></p>			
		<p>Records of unlisted species/habitats of conservation concern near the site:</p> <p>There is one record of a Yellow-headed Blackbird (<i>Xanthocephalus xanthocephalus</i>) in Section 30 of T54N R36W. There are several species of concern at Little Bean Marsh Conservation Area, just outside the zone reviewed.</p>	

Prepared by Shannon Cave, January 14, 2009; Werner, Platte, KCPL Iatan expansion.doc Page 1 of 2

Appendix B

Recommendations related to this project or site (not to specific heritage records):

- Bald eagles (*Haliaeetus leucocephalus*) may overwinter or nest in the project area. Eagles are common winter residents in big river habitats and major lakes where they feed on fish. The U. S. Fish and Wildlife Service has removed the bald eagle from the "threatened" species list, as has the State of Missouri from its list of endangered species. Eagles continue to be protected by the federal government under the Bald and Golden Eagle Protection. See best management recommendations and federal guidelines at <http://mdc4.mdc.mo.gov/applications/MDCLibrary/Library.aspx?ArtID=87> and <http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf>.
- Some raptors, including bald eagles, are prone to electrocution because of their size, behavior, and perching habits, especially on power poles. By increasing the gap between ground wires and energized conductors to 4 feet, the risk of electrocution can be reduced. Wires and other metal equipment can also be insulated. Locating wooden perches well above energized wires, and installing guards for perches in dangerous areas, may also help avoid problems.
- The project is within the Missouri River Corridor Conservation Opportunity Area, one of 35 in the state. COAs have been identified based on the diversity and rarity of species and habitats present, and the comparative likelihood/importance of projects to maintain them in the area over time. COAs have no regulatory role, but do reflect interest from multiple government agencies and citizen groups to work for conservation in the area. There may be ways your project or agency can contribute to or benefit from this COA. More information about it is available on line at <http://www.mdc.mo.gov/nathis/cwa/coa/>.
- Construction should be managed to minimize erosion and sedimentation/runoff to nearby streams and lakes, including adherence to any "Clean Water Permit" conditions. Project design should include stormwater management elements that assure storm discharge rates to streams for heavy rain events will not increase from present levels. Revegetate disturbed areas to minimize erosion using native plant species compatible with the local landscape and wildlife needs. Annual ryegrass may be combined with native perennials for quicker green-up. Avoid aggressive exotic perennials such as crownvetch and sericea lespedeza.
- Streams in the area should be protected from soil erosion, water pollution and in-stream activities that modify or diminish aquatic habitats. Best management recommendations relating to streams and rivers may be found at <http://mdc.mo.gov/8452>.
- Invasive exotic species are a significant issue for fish, wildlife and agriculture in Missouri. Seeds, eggs, and larvae may be moved to new sites on boats or construction equipment, so inspect and clean equipment thoroughly before moving between project sites. Especially important at this time is the zebra mussel, known in the Missouri and Mississippi Rivers and Lake of the Ozarks, but missing from many inland streams and most lakes.
 - Remove any mud, soil, trash, plants or animals before leaving any water body or work area.
 - Before leaving a project site, drain water from boats and machinery (that has operated in the water), checking motor cavities, live-well, bilge and transom wells, tracks, buckets, and any other water reservoirs.
 - When possible, wash and rinse equipment thoroughly with hard spray or HOT (104° F or more) water, like that found at a do-it-yourself carwash and dry in the hot sun before using again. Please help prevent the spread of invasive species by inspecting and cleaning equipment thoroughly before moving between project sites.

These recommendations are ones project managers might prudently consider based on a general understanding of species needs and landscape conditions. Heritage records largely reflect only sites visited by specialists in the last 20 years. This means that many privately owned tracts could host remnants of species once but no longer common.

Project managers can pre-screen heritage review requests at bnyurl.com/heritagereview. A "Level 1 response" will result in a printable document that will make further submission to MDC or USFWS unnecessary.

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Appendix C



Marv Barr, Governor • Doyle Childers, Director

DEPARTMENT OF NATURAL RESOURCES

www.dnr.mo.gov

August 4, 2006

P.O. Box 250
Jefferson, MO 65462

Mr. Paul M. Ling
Kansas City Power and Light
P.O. Box 418679
Kansas City, MO 64141-9679

**RE: Detailed Site Investigation for the Proposed Kansas City Power and Light Company
Iatan Generation Station Utility Waste Landfill, Platte County**

Dear Mr. Ling:

The Geological Survey Program (GSP), Division of Geology and Land Survey, has received your response to comments resulting from review of the above referenced detailed site investigation (DSI). These responses adequately address the condition set forth in the previous approval letter (ID# F00107).

The GSP concludes that the report adequately characterizes the geology and hydrology at the proposed site. The geologic and hydrologic data presented in the report indicates that the groundwater is monitorable at this site. The DSI for this site, including inserts from your recent response to review comments is hereby approved. At this time the site may advance to the permitting stage. Please contact the Solid Waste Management Program of the Missouri Department of Natural Resources (573-751-5401) for assistance with the construction permit application process.

Sincerely,

Division of Geology and Land Survey

Handwritten signature of Joe Gillman in black ink.

Joe Gillman, Director
Geological Survey Program



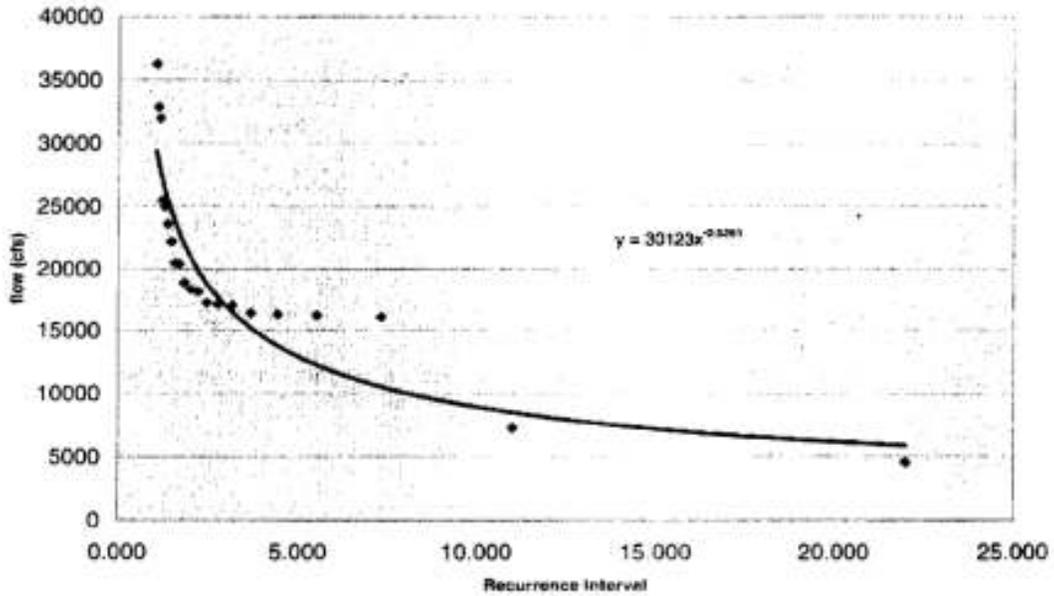
C: SWMP
KCRO
Mid-America Regional Council - Solid Waste Management District E
Mimi Garstang, Director, DGLS



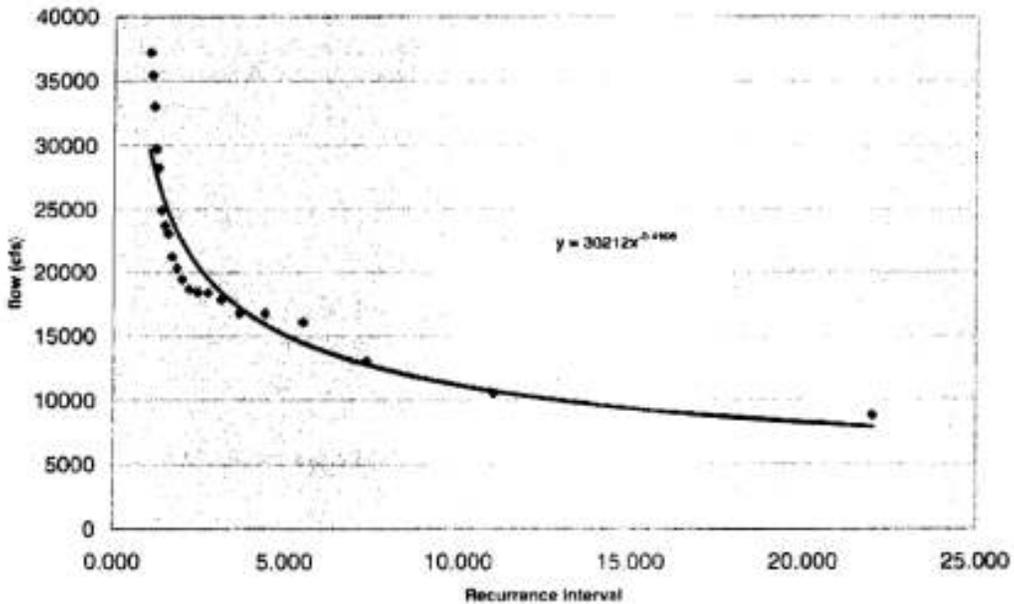
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Appendix D

1Q10 Missouri River past 21 years



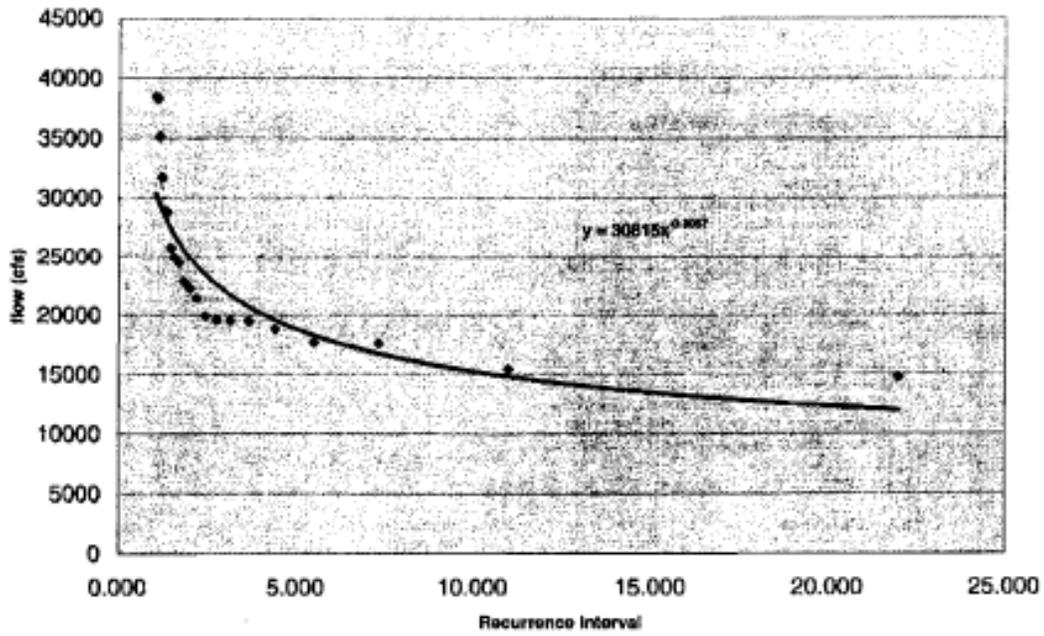
7Q10 Missouri River past 21 years



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Appendix D

30Q10 Missouri River past 21 years



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Appendix E

Streeter-PHELPS analysis of critical dissolved oxygen sag.

Based on Lotus File DOSAG2.WK1 Revised 19-Oct-93

INPUT

1. EFFLUENT CHARACTERISTICS			
Discharge (cfs):			32.72
CBOD5 (mg/L):			40
NBOD (mg/L):			5
Dissolved Oxygen (mg/L):			0
Temperature (deg C):			20
2. RECEIVING WATER CHARACTERISTICS			
Upstream Discharge (cfs):			2602
Upstream CBOD5 (mg/L):			1.8
Upstream NBOD (mg/L):			0.22222
Upstream Dissolved Oxygen (mg/L):			6.9
Upstream Temperature (deg C):			26
Elevation (ft NGVD):			767.89
Downstream Average Channel Slope (ft/ft):			0.00023
Downstream Average Channel Depth (ft):			18.07
Downstream Average Channel Velocity (fps):			1.88
3. REAERATION RATE (Base e) AT 20 deg C (day⁻¹):			
			0.17
Reference	Applc. Vel (fps)	Applc. Dep (ft)	Suggested Values
Churchill	1.5 - 6	2 - 50	0.17
O'Connor and Dobbins	1 - 1.5	2 - 50	0.22
Owens	1 - 6	1 - 2	0.16
Tshoglou-Wallace	1 - 6	1 - 2	0.18
4. BOD DECAY RATE (Base e) AT 20 deg C (day⁻¹):			
			0.39
Reference			Suggested Value
Wright and McDonnell, 1979			0.36

OUTPUT

1. INITIAL MIXED RIVER CONDITION	
CBOD5 (mg/L):	2.2
NBOD (mg/L):	0.3
Dissolved Oxygen (mg/L):	6.9
Temperature (deg C):	20.0
2. TEMPERATURE ADJUSTED RATE CONSTANTS (Base e)	
Reaerator (day ⁻¹):	0.20
BOD Decay (day ⁻¹):	0.51
3. CALCULATED INITIAL ULTIMATE CBODU AND TOTAL BODU	
Initial Mixed CBODU (mg/L):	3.3
Initial Mixed Total BODU (CBODU + NBOD) (mg/L):	3.6
4. INITIAL DISSOLVED OXYGEN DEFICIT	
Saturation Dissolved Oxygen (mg/L):	7.82
Initial Deficit (mg/L):	1.37
5. TRAVEL TIME TO CRITICAL DO CONCENTRATION (days)	
	2.46
6. DISTANCE TO CRITICAL DO CONCENTRATION (miles)	
	76.95
7. CRITICAL DO DEFICIT (mg/L)	
	2.58
8. CRITICAL DO CONCENTRATION (mg/L)	
	5.31

dosag2.wk1, Printed 2/17/2009

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Appendix E

Sutton-Phelps analysis of critical dissolved oxygen sag.

Based on Lonr: File DOSAG2.WK: Revised 19-Oct-91

INPUT

1 EFFLUENT CHARACTERISTICS			
Discharge (cfs):			32.72
CBOD5 (mg/L):			40
NBOD (mg/L):			6
Dissolved Oxygen (mg/L):			0
Temperature (deg C):			26
2 RECEIVING WATER CHARACTERISTICS			
Upstream Discharge (cfs):			2602
Upstream CBOD5 (mg/L):			1.8
Upstream NBOD (mg/L):			0.222222
Upstream Dissolved Oxygen (mg/L):			6.9
Upstream Temperature (deg C):			37.77
Elevation (ft NGVD):			767.99
Downstream Average Channel Slope (ft/ft):			0.000023
Downstream Average Channel Depth (ft):			18.07
Downstream Average Channel Velocity (fps):			1.98
3 REAERATION RATE (Base e) AT 20 deg C (day⁻¹):			
			0.17
Reference	Applic. Vel. (fps)	Applic. Dep. (ft)	Suggested Values
Crunchill	1.5 - 6	2 - 50	0.17
O'Connor and Dobbins	1 - 1.5	2 - 50	0.22
Owens	1 - 5	1 - 2	0.16
Tsiloglou-Wallace	1 - 5	1 - 2	0.16
4 BOD DECAY RATE (Base e) AT 20 deg C (day⁻¹):			
			0.39
Reference			Suggested Value
Wright and McDonnell, 1979			0.39

OUTPUT

1 INITIAL MIXED RIVER CONDITION	
CBOD5 (mg/L):	3.3
NBOD (mg/L):	0.7
Dissolved Oxygen (mg/L):	6.9
Temperature (deg C):	37.6
2 TEMPERATURE ADJUSTED RATE CONSTANTS (Base e)	
Reaerator (day ⁻¹):	0.26
BOD Decay (day ⁻¹):	0.96
3 CALCULATED INITIAL, ULTIMATE CBODU AND TOTAL BODU	
Initial Mixed CBODU (mg/L):	3.3
Initial Mixed Total BODU (CBODU + NBOD, mg/L):	3.5
4 INITIAL DISSOLVED OXYGEN DEFICIT	
Saturation Dissolved Oxygen (mg/L):	6.477
Initial Deficit (mg/L):	-0.34
5 TRAVEL TIME TO CRITICAL DO CONCENTRATION (days):	
	2.36
6 DISTANCE TO CRITICAL DO CONCENTRATION (miles):	
	64.32
7 CRITICAL DO DEFICIT (mg/L):	
	1.92
8 CRITICAL DO CONCENTRATION (mg/L):	
	4.56

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Appendix F

Winter Months	Temp / pH		Summer Months	Temp / pH	
	Avg Temp	7.74		Avg Temp	22.78
Avg pH	7.931612903	Avg pH	7.918439716		
Acute and Chronic values based off average Temp and Avg pH above		Acute and Chronic values based off average Temp and Avg pH above			
Acute	9.556259123	Acute	9.79234221		
Chronic	2.612001572	Chronic	1.577679895		
Based from individual samples		Based from individual samples			
Avg Acute	10.76450073	Avg Acute	11.31729108		
Avg Chronic	2.476716549	Avg Chronic	1.660778056		
H ⁺		H ⁺			
pH from Avg H ⁺	4.913264968	pH from Avg H ⁺	5.06423913		
Avg Temp	7.74	Avg Temp	22.78		
Acute	58.1046121	Acute	57.98270019		
Chronic	7.07616019	Chronic	4.151854438		