

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, 92<sup>nd</sup> Congress) as amended,

Permit No. MO-0028746

Owner: City of Brookfield  
Address: 116 West Brooks, Brookfield, MO 65628

Continuing Authority: Same as above  
Address: Same as above

Facility Name: Brookfield Northeast Wastewater Treatment Facility  
Facility Address: West of Highway 11, Brookfield, MO 64628

Legal Description: SW ¼, NE ¼, Sec. 05, T57N, R19W, Linn County  
UTM Coordinates: X= 495407, Y= 4404525

Receiving Stream: West Yellow Creek (U)  
First Classified Stream and ID: Yellow Creek (P) (0595)  
USGS Basin & Sub-watershed No.: (10280103-1206)

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

**FACILITY DESCRIPTION**

Outfall #001 - POTW- SIC #4952

The use or operation of this facility shall be by or under the supervision of a **Certified "D" Operator**  
Four-cell lagoon / Aerated primary / sludge is retained in Lagoon  
Design population equivalent is 5,900  
Design flow is 606,000 gallons per day  
Actual flow is 600,000 gallons per day  
Design sludge production is 88.5 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 1, 2013  
Effective Date

Sara Parker Pauley, Director, Department of Natural Resources

December 31, 2016  
Expiration Date

John Madras, Director, Water Protection Program

OUTFALL #001	TABLE A FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS				PAGE NUMBER 2 of 6	
					PERMIT NUMBER MO-0028746	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Flow	MGD	*		*	once/weekday**	24 hr. total
Biochemical Oxygen Demand <sub>5</sub>	mg/L		65	45	once/month	grab
Total Suspended Solids	mg/L		120	80	once/month	grab
pH – Units	SU	***		***	once/month	grab
E. Coli (Note 1, Page 2)	#/100 ml		1030	206	once/month	grab
Ammonia as N (April 1 – Sept 30)	mg/L	5.9		1.2	once/month	grab
(Oct 1 – March 31)		10.0		2.8		
Oil & Grease	mg/L	15		10	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>OCTOBER 28, 2013</u> . 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 #20			once/permit cycle	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>ONCE/PERMIT CYCLE</u> ; THE FIRST REPORT IS DUE <u>BY JANUARY 28, 2017</u> .						

\* Monitoring requirement only.

\*\* Once each weekday means: Monday, Tuesday, Wednesday, Thursday, and Friday

\*\*\* pH is measured in pH units and is not to be averaged. The pH is to be maintained at or above 6.5 pH units.

Note 1 - Effluent limitations and monitoring requirements for *E. coli* are applicable only during the recreational season from April 1 through October 31. The Monthly Average Limit for *E. coli* is expressed as a 30-day geometric mean. The Weekly Average for *E. coli* will be expressed as a 7-day geometric mean if more than one (1) sample is collected during a calendar week (Sunday through Saturday).

<b>TABLE B INFLUENT MONITORING REQUIREMENTS</b>		PAGE NUMBER 3 of 6	
		PERMIT NUMBER MO-0028746	
The facility is required to meet a removal efficiency of 65% or more as a monthly average. The monitoring requirements shall become effective upon issuance and remain in effect until expiration of the permit. To determine removal efficiencies, the influent wastewater shall be monitored by the permittee as specified below:			
SAMPLING LOCATION AND PARAMETER(S)	UNITS	MONITORING REQUIREMENTS	
		MEASUREMENT FREQUENCY	SAMPLE TYPE
Biochemical Oxygen Demand <sub>5</sub>	mg/L	once/quarter****	grab
Total Suspended Solids	mg/L	once/quarter****	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2014</u> .			

\*\*\*\* See table below for quarterly sampling.

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

### C. STANDARD CONDITIONS

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

### D. SPECIAL CONDITIONS

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

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

2. All outfalls must be clearly marked in the field.
3. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(3)(B) within 90 days of notice of its availability.
4. Water Quality Standards
  - (a) To the extent required by law, discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
  - (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:

D. SPECIAL CONDITIONS (continued)

- (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
- (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
- (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
- (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
- (5) There shall be no significant human health hazard from incidental contact with the water;
- (6) There shall be no acute toxicity to livestock or wildlife watering;
- (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
- (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

5. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

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

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

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

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

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

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

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

12. A least one gate must be provided to access the wastewater treatment facility and provide for maintenance and mowing. The gate shall remain locked except when opened by the permittee to perform operational monitoring, sampling, maintenance, mowing, or for inspections by the Department.

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

**D. SPECIAL CONDITIONS** (continued)

14. An Operation and Maintenance (O & M) manual shall be maintained by the permittee and made available to the operator. The O & M manual shall include key operating procedures and a brief summary of the operation of the facility.
15. An all-weather access road shall be provided to the treatment facility.
16. The discharge from the wastewater treatment facility shall be conveyed to the receiving stream via a closed pipe or a paved or rip-rapped open channel. Sheet or meandering drainage is not acceptable. The outfall sewer shall be protected against the effects of floodwater, ice or other hazards as to reasonably insure its structural stability and freedom from stoppage. The outfall shall be maintained so that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters.
17. A minimum of two (2) feet freeboard must be maintained in the lagoon cell.
18. The berms of the lagoon(s) shall be mowed and kept free of any deep-rooted vegetation, animal dens, or other potential sources of damage to the berms.
19. The facility shall ensure that adequate provisions are provided to prevent surface water intrusion into the lagoon and to divert stormwater runoff around the lagoon and protect embankments from erosion.
20. 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 during the last year of the permit cycle	grab	Any

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 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.

D. SPECIAL CONDITIONS (continued)

- (4) If the effluent fails the test for BOTH test species, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met: Note: Written request regarding single species multiple dilution accelerated testing will be address by THE WATER PROTECTION PROGRAM on a case by case basis.
    - (i) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
    - (ii) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
  - (5) Follow-up tests do not negate an initial failed test.
  - (6) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
  - (7) Additionally, the following shall apply upon failure of the third follow up MULTIPLE DILUTION test The permittee should contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. If the permittee does not contact THE WATER PROTECTION PROGRAM upon the third follow up test failure, a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of the automatic trigger or DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
  - (8) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
  - (9) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
  - (10) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.
  - (11) Submit a concise summary in tabular format of all WET test results with the annual report.
- (b) Test Conditions
- (1) Test Type: Acute Static non-renewal
  - (2) All tests, including repeat tests for previous failures, shall include both test species listed below unless approved by the Department on a case by case basis.
  - (3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.
  - (4) Test period: 48 hours at the "Allowable Effluent Concentration" (AEC) specified above.
  - (5) Upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.
  - (6) Tests will be run with 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent, and reconstituted water.
  - (7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
  - (8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.
  - (9) Whole-effluent-toxicity test shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms

**MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**FACT SHEET**  
**FOR THE PURPOSE OF RENEWAL**  
**OF**  
**MO-0028746**  
**BROOKFIELD NORTHEAST 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:

Minor

**Part I – Facility Information**

Facility Type: POTW - SIC #4952

Facility Description:

Four-cell lagoon / Aerated primary / sludge is retained in lagoon

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

No

Application Date: 04/11/2011

Expiration Date: 11/16/2011

**OUTFALL(S) TABLE:**

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
001	0.94	Equivalent Secondary	Domestic

Facility Performance History:

The Department has conducted three record reviews and one site inspection during the previous permit cycle and the facility has been found in compliance.

Comments:

According to facilities Discharge Monitoring Reports (DMR's) the facility is capable of meeting the new limits for Ammonia (N).

The facility responded to the Public Noticed draft operating permit for Brookfield NE WWTF. They had concerns about their ability to meet the proposed Effluent BOD, TSS, Removal Efficiency limits, but the limits are the same as in the previous permit. No changes were made. The facility was also concerned with the proposed Ammonia limits and the limit has been changes to reflect the values calculated in the RPA.

**Part II – Operator Certification Requirements**

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

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

Check boxes below that are applicable to the facility;

- Owned or operated by or for:
  - Municipalities

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

- Department required:
  - The Department requires this facility to retain the services of a certified operator due to designation as a POTW.

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

Operator’s Name: Bryan Armstrong  
 Certification Number: 9283  
 Certification Level: C

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

**Part III– Operational Monitoring**

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

**Part IV – Receiving Stream Information**

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

**RECEIVING STREAM(S) TABLE:**

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT
West Yellow Creek	U	---	General Criteria	10280103-1206	~17
Yellow Creek	P	0595	LWW, AQL, WBC(B)		

\* - 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

**RECEIVING STREAM(S) LOW-FLOW VALUES:**

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
West Yellow Creek (U)	0.0	0.0	0.0

**MIXING CONSIDERATIONS**

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 Water Body's Water Quality:

**PLEASE SEE APPENDIX B – ANTIDegradation ANALYSIS.**

**Part V – Rationale and Derivation of Effluent Limitations & Permit Conditions**

**ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:**

As per [10 CSR 20-7.015(4)(A)], discharges to losing streams shall be permitted only after other alternatives including land application, discharges to a gaining stream and connection to a regional wastewater treatment facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons.

Not Applicable; The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)], or is an existing facility.

**ANTI-BACKSLIDING:**

A provision in the Federal Regulations [CWA §303(d)(4); CWA §402(c); 40 CFR Part 122.44(I)] that requires a reissued permit to be as stringent as the previous permit with some exceptions.

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

**ANTIDegradation:**

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

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

**AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:**

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

**BIOSOLIDS & SEWAGE SLUDGE:**

Biosolids are solid materials resulting from domestic wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works. Additional information regarding biosolids and sludge is located at the following web address: <http://dnr.mo.gov/env/wpp/pub/index.html>, items WQ422 through WQ449.

Permittee is not authorized to land apply biosolids. Sludge/biosolids are removed by contract hauler, incinerated, stored in the lagoon, etc.

**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 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)].

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.

Applicable; A RPA was conducted on appropriate parameters, however, due to anti-backsliding policies, the Ammonia limits have been kept the same as the previous permit. Please see **APPENDIX B – RPA RESULTS**.

**REMOVAL EFFICIENCY:**

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

Applicable; Secondary Treatment is 65% 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.

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.

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 in **ANTIDegradation Analysis**

**WLA MODELING:**

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

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

**WATER QUALITY STANDARDS:**

Per [10 CSR 20-7.031(3)], General Criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the Department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

**WHOLE EFFLUENT TOXICITY (WET) TEST:**

A WET test is a quantifiable method of determining if a discharge from a facility may be causing toxicity to aquatic life by itself, in combination with or through synergistic responses when mixed with receiving stream water.

Applicable; Under the federal Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System (NPDES). WET testing is also required by 40 CFR 122.44(d)(1). WET testing ensures that the provisions in the 10 CSR 20-6.010(8)(A)7. and the Water Quality Standards 10 CSR 20-7.031(3)(D),(F),(G),(I)2.A & B are being met. Under [10 CSR 20-6.010(8)(A)4], the Department may require other terms and conditions that it deems necessary to assure compliance with the Clean Water Act and related regulations of the Missouri Clean Water Commission. In addition the following MCWL apply: §§644.051.3 requires the Department to set permit conditions that comply with the MCWL and CWA; 644.051.4 specifically references toxicity as an item we must consider in writing permits (along with water quality-based effluent limits, pretreatment, etc...); and 644.051.5 is the basic authority to require testing conditions. WET test will be required by facilities meeting the following criteria:

Facility is a municipality or domestic discharger with a Design Flow  $\geq$  22,500 gpd.

**40 CFR 122.41(M) - BYPASSES:**

The federal Clean Water Act (CWA), Section 402 prohibits wastewater dischargers from “bypassing” untreated or partially treated sewage (wastewater) beyond the headworks. A bypass is defined as an intentional diversion of waste streams from any portion of a treatment facility, [40 CFR 122.41(m)(1)(i)]. Additionally, Missouri regulation 10 CSR 20-2.010(11) defines a bypass as the diversion of wastewater from any portion of wastewater treatment facility or sewer system to waters of the state. Only under exceptional and specified limitations do the federal regulations allow for a facility to bypass some or all of the flow from its treatment process.

Bypasses are prohibited by the CWA unless a permittee can meet all of the criteria listed in 40 CFR 122.41(m)(4)(i)(A), (B), & (C). Any bypasses from this facility are subject to the reporting required in 40 CFR 122.41(l)(6) and per Missouri’s Standard Conditions I, Section B, part 2.b. Additionally, Anticipated Bypasses include bypasses from peak flow basins or similar devices designed for peak wet weather flows.

Applicable; Bypasses occur or have occurred at this facility.

**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 VI – Effluent Limits Determination**

**APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:**

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

All Other Waters [10 CSR 20-7.015(8)]

**OUTFALL #001 – MAIN FACILITY OUTFALL**

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

**OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:**

PARAMETER	Unit	Basis for Limits	Daily Maximum	Weekly Average	Monthly Average	Modified	Previous Permit Limitations
Flow	MGD	1	*		*	No	*/*
BOD <sub>5</sub>	mg/L	1, 4		65	45	No	65/45
TSS	mg/L	1, 4		120	80	No	120/80
pH	SU	1, 4	≥6.5			Yes	≥6.0
Ammonia as N (April 1 – Sept 30) (Oct 1 – March 31)	mg/L	2, 3, 5	5.9 10.0		1.2 2.8	No	4.7/2.3 9.3/4.7
Escherichia coli	***	1, 3		1030	206	Yes	100/400 fecal
Oil & Grease (mg/L)	mg/L	1, 3	15		10	No	15/10
Whole Effluent Toxicity (WET) Test	% Survival	11	Please see WET Test in the Derivation and Discussion Section below.				

\* - Monitoring requirement only.

\*\* - For DO the Daily Maximum is a Daily Minimum and the Monthly Average is a Monthly Average Minimum.

\*\*\* - # of colonies/100mL; the Monthly Average for *E. coli* is a geometric mean.

\*\*\*\* - Parameter not previously established in previous state operating permit.

**Basis for Limitations Codes:**

- |  |                                    |
|--|------------------------------------|
| 1. State or Federal Regulation/Law       | 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. 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<sub>5</sub>).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
- **Total Suspended Solids (TSS).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**
- **pH.** Effluent limitation range is ≥ 6.5 Standard pH Units (SU), as per the applicable section of 10 CSR 20-7.015. pH is not to be averaged.
- **Escherichia coli (E. coli).** Monthly average of 206 per 100 ml as a 30-day geometric mean and Weekly Average of 1030 as a 7-day geometric mean during the recreational season (April 1 – October 31), to protect Whole Body Contact Recreation (B) designated use of the receiving stream, as per 10 CSR 20-7.031(4)(C). An effluent limit for both monthly average and weekly average is required by 40 CFR 122.45(d).
- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

- **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	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

Summer: April 1 – September 30

Chronic WLA:  $C_e = ((1.55 + 0.0)1.5 - (0.0 * 0.01))/1.55$   
 $C_e = 1.5 \text{ mg/L}$

Acute WLA:  $C_e = ((1.55 + 0.0)12.1 - (0.0 * 0.01))/1.55$   
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 1.5 \text{ mg/L} (0.534) = 0.8 \text{ mg/L}$

$LTA_a = 12.1 \text{ mg/L} (0.137) = 1.66 \text{ mg/L}$

[CV = 1.6, 99<sup>th</sup> Percentile, 30 day avg.]

[CV = 1.6, 99<sup>th</sup> Percentile]

Use most protective number of  $LTA_c$  or  $LTA_a$ .

MDL = 0.8 mg/L (7.31) = **5.9** mg/L

AML = 0.8 mg/L (1.31) = **1.2** mg/L

[CV = 1.6, 99<sup>th</sup> Percentile]

[CV = 1.6, 95<sup>th</sup> Percentile, n =30]

Winter: October 1 – March 31

Chronic WLA:  $C_e = ((1.55 + 0.0)3.1 - (0.0 * 0.01))/1.55$   
 $C_e = 3.1 \text{ mg/L}$

Acute WLA:  $C_e = ((1.55 + 0.0)12.1 - (0.0 * 0.01))/1.55$   
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 3.1 \text{ mg/L} (0.675) = 2.1 \text{ mg/L}$

$LTA_a = 12.1 \text{ mg/L} (0.21) = 2.54 \text{ mg/L}$

[CV = 0.97, 99<sup>th</sup> Percentile, 30 day avg.]

[CV = 0.97, 99<sup>th</sup> Percentile]

Use most protective number of  $LTA_c$  or  $LTA_a$ .

MDL = 2.1 mg/L (4.77) = **10.0** mg/L

AML = 2.1 mg/L (1.31) = **2.8** mg/L

[CV = 0.97, 99<sup>th</sup> Percentile]

[CV = 0.97, 95<sup>th</sup> Percentile, n =30]

- **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 (default)

No less than ONCE/PERMIT CYCLE:

Municipality or domestic facility with a design flow  $\geq 22,500$  gpd, but less than 1.0 MGD.

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.**

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
Flow	once/weekday	once/month
BOD <sub>5</sub>	once/month	once/month
TSS	once/month	once/month
pH	once/month	once/month
Ammonia as N	once/month	once/month
<i>E. coli</i>	once/month	once/month
Oil & Grease	once/month	once/month

**Sampling Frequency Justification:**

The Clean Water Commission has directed the Department to proceed with amending 10 CSR 20-7.015 to reduce the sampling frequency required 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.

**Sampling Type Justification**

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

**Part VII – Finding of Affordability**

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

Applicable; The Department is required to determine findings of affordability because the permit applies to a **combined or separate sanitary sewer system for a publically-owned treatment works.**

**Finding of affordability** - The department has made a reasonable search for empirical data indicating the permit is affordable. The search consisted of a review of department records that might contain economic data on the community, a review of information provided by the applicant as part of the application, and public comments received in response to public notices of this draft permit. If the empirical cost data was used by the permit writer, this data may consist of median household income, any other ongoing projects that the Department has knowledge, and other demographic financial information that the community provided as contemplated by Section 644. 145.3. See **APPENDIX B – ANTIDegradation Analysis, SECTION 5.3.2 AFFORDABILITY**

**Part VIII – Administrative Requirements**

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

**PERMIT SYNCHRONIZATION:**

The Department of Natural Resources is currently undergoing a synchronization process for operating permits. Permits are normally issued on a five-year term, but to achieve synchronization many permits will need to be issued for less than the full five years allowed by regulation. The intent is that all permits within a watershed will move through the Watershed Based Management (WBM) cycle together will all expire in the same fiscal year. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the department to explore a watershed based permitting effort at some point in the future.

**PUBLIC NOTICE:**

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

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

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 June 28 to July 29, 2013. 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:** MARCH 28, 2013

**COMPLETED BY:**

**JOHNNY O'DELL, ENVIRONMENTAL SPECIALIST III**  
**MISSOURI DEPARTMENT OF NATURAL RESOURCES**  
**WATER PROTECTION PROGRAM**  
**OPERATING PERMITS SECTION - DOMESTIC WASTEWATER UNIT**  
**(417) 891-4325**  
**JOHNNY.O'DELL@DNR.MO.GOV**

**Appendices**

**APPENDIX A - CLASSIFICATION WORKSHEET:**

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
Maximum Population Equivalent (P.E.) served (Max 10 pts.)	1 pt./10,000 PE or major fraction thereof.	
Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)	1 pt. / MGD or major fraction thereof.	
<b>EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY:</b>		
Missouri or Mississippi River	0	
All other stream discharges except to losing streams and stream reaches supporting whole body contact	1	1
Discharge to lake or reservoir outside of designated whole body contact recreational area	2	
Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation	3	
<b>PRELIMINARY TREATMENT – Headworks</b>		
Screening and/or comminution	3	
Grit removal	3	
Plant pumping of main flow (lift station at the headworks)	3	
<b>PRIMARY TREATMENT</b>		
Primary clarifiers	5	
Combined sedimentation/digestion	5	
Chemical addition (except chlorine, enzymes)	4	
<b>REQUIRED LABORATORY CONTROL – performed by plant personnel (highest level only)</b>		
Push – button or visual methods for simple test such as pH, Settleable solids	3	
Additional procedures such as DO, COD, BOD, titrations, solids, volatile content	5	
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	7	7
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	
<b>ALTERNATIVE FATE OF EFFLUENT</b>		
Direct reuse or recycle of effluent	6	
Land Disposal – low rate	3	
High rate	5	
Overland flow	4	
<b>Total from page ONE (1)</b>	----	8

**APPENDIX A - CLASSIFICATION WORKSHEET (CONTINUED):**

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
<b>VARIATION IN RAW WASTE (highest level only) (DMR exceedances and Design Flow exceedances)</b>		
Variation do not exceed those normally or typically expected	0	
Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow	2	
Recurring deviations or excessive variations of more than 200 % in strength and/or flow	4	
Raw wastes subject to toxic waste discharge	6	
<b>SECONDARY TREATMENT</b>		
Trickling filter and other fixed film media with secondary clarifiers	10	
Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches)	15	
Stabilization ponds without aeration	5	5
Aerated lagoon	8	8
Advanced Waste Treatment Polishing Pond	2	2
Chemical/physical – without secondary	15	
Chemical/physical – following secondary	10	
Biological or chemical/biological	12	
Carbon regeneration	4	
<b>DISINFECTION</b>		
Chlorination or comparable	5	
Dechlorination	2	
On-site generation of disinfectant (except UV light)	5	
UV light	4	
<b>SOLIDS HANDLING - SLUDGE</b>		
Solids Handling Thickening	5	
Anaerobic digestion	10	
Aerobic digestion	6	
Evaporative sludge drying	2	
Mechanical dewatering	8	
Solids reduction (incineration, wet oxidation)	12	
Land application	6	
Total from page <b>TWO (2)</b>	----	15
Total from page <b>ONE (1)</b>	---	8
<b>Grand Total</b>	---	23

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

**APPENDIX B – RPA RESULTS:**

Parameter	CMC*	RWC Acute*	CCC*	RWC Chronic*	n**	Range max/min	CV***	MF	RP Yes/No
Total Ammonia as Nitrogen (Summer) mg/L	12.1	43.36	1.5	43.36	30	10.5/0.04	1.6	4.13	Yes
Total Ammonia as Nitrogen (Winter) mg/L	12.1	32.16	3.1	32.16	27	11/0.1	0.97	2.92	Yes

N/A – Not Applicable

\* - Units are (µg/L) unless otherwise noted.

\*\* - If the number of samples is 10 or greater, then the CV value must be used in the WQBEL for the applicable constituent. If the number of samples is < 10, then the default CV value must be used in the WQBEL for the applicable constituent.

\*\*\* - Coefficient of Variation (CV) is calculated by dividing the Standard Deviation of the sample set by the Mean of the same sample set.

RWC – Receiving Water Concentration. It is the concentration of a toxicant or the parameter toxicity in the receiving water after mixing (if applicable).

n – Is the number of samples.

MF – Multiplying Factor. 99% Confidence Level and 99% Probability Basis.

RP – Reasonable Potential. It is where an effluent is projected or calculated to cause an excursion above a water quality standard based on a number of factors including, as a minimum, the four factors listed in 40 CFR 122.44(d)(1)(ii).

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

Missouri Department of Natural Resources  
Water Protection Program  
Water Pollution Control Branch  
NPDES Permits and Engineering Section

# Water Quality and Antidegradation Review

*For the Protection of Water Quality and Determination of Effluent Limits for Discharge to  
Tributary of West Fork Yellow Creek*

*by*

***Brookfield Wastewater Treatment Facility***



April 2012

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**1. FACILITY INFORMATION**

FACILITY NAME: Brookfield WWTF NPDES #: NEW FACILITY

FACILITY TYPE/DESCRIPTION: Currently the City of Brookfield has two permitted lagoons, which they are proposing to close and consolidate into one new extended aeration treatment plant. The facility is proposing to build an Aeromod system or an oxidation ditch with ultraviolet disinfection. The proposed design flow is 1.0 MGD.

COUNTY: Linn UTM COORDINATES: X= 494830, Y= 4404349  
 12- DIGIT HUC: 10280103-1206 LEGAL DESCRIPTION: SE ¼, NW ¼, Sec. 05, T57N, R19W  
 EDU\*: Central Plains/ Grand/ Chariton ECOREGION: Plains/Grand River Hills

\* - Ecological Drainage Unit

**2. WATER QUALITY INFORMATION**

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 Missouri Department of Natural Resources (MDNR) developed 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 (AIP)* for new and expanded wastewater discharges.

**2.1. WATER QUALITY HISTORY:**

Brookfield currently has two permitted lagoon systems. The Northeast system is a three cell aerated lagoon. In a review of the previous five years of discharge monitoring reports, the facility had three ammonia exceedances in January, February and March 2011. The Southwest system is a three cell aerated lagoon, with no exceedances in the last five years. Yellow Creek is listed on the 2010 305(b) report as potentially impaired by habitat degradation.

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	RECEIVING WATERBODY	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.94	Secondary	West Yellow Creek	~0.8

**3. RECEIVING WATERBODY INFORMATION**

WATERBODY NAME	CLASS	WBID	LOW-FLOW VALUES (CFS)			DESIGNATED USES**
			1Q10	7Q10	30Q10	
West Yellow Creek	U	--	--	--	--	General Criteria
Yellow Creek*	P	595		0.02†		AQL, IRR, LWW, SCR, WBC(B)

\* Due to an oversight in the water quality standards, West Yellow Creek is not currently listed in the state standards and has no beneficial uses designated at this location. The department has proposed to fix this oversight with the upcoming revision to the water quality standards. The beneficial uses listed above, are the proposed beneficial uses for the facility.

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

† 0.02 cfs is the minimum data sample from the department’s online database for sixty-five samples over eight years.

RECEIVING WATER BODY SEGMENT #1: Tributary to West Fork Yellow Creek

Upper end segment\* UTM coordinates: x= 494830; y= 4404349 (Outfall)

Lower end segment\* UTM coordinates: x= 495878; y= 4403218 (confluence with West Yellow Creek)

\*Segment is the portion of the stream where discharge occurs. Segment is used to track changes in assimilative capacity and is bound at a minimum by existing sources and confluences with other significant water bodies.

#### 4. GENERAL COMMENTS

Allstate Consultants prepared, on behalf of City of Brookfield, the *Preliminary Engineering and Antidegradation Report for Brookfield Wastewater Treatment Plant* dated January 2012. Geohydrological Evaluation was submitted with the request and the receiving stream is gaining for discharge purposes (Appendix A: Map). Applicant elected to assume that all pollutants of concern (POC) are significantly degrading the receiving stream in the absence of existing water quality. An alternative analysis was conducted to fulfill the requirements of the AIP. Dissolved oxygen modeling analysis was submitted for review. Staff believes that the results of the model are protective of the water quality standards for dissolved oxygen. A Missouri Department of Conservation Natural Heritage Review was obtained and no endangered species were found to be impacted by the discharge. Due to an oversight in the water quality standards, West Yellow Creek is not currently listed in the state standards and has no beneficial uses designated at this location. The department has proposed to fix this oversight with the upcoming revision to the water quality standards. The beneficial uses listed in the Receiving Waterbody Information above, are the proposed beneficial uses for the facility.

#### 5. ANTIDegradation REVIEW INFORMATION

The following is a review of the *Antidegradation Report* received February 2012.

##### 5.1. TIER DETERMINATION

Below is a list of pollutants of concern reasonably expected to be in the discharge (see Appendix D: Tier Determination and Effluent Limit Summary). Pollutants of concern are defined as those pollutants “proposed for discharge that affects beneficial use(s) in waters of the state. POCs include pollutants that create conditions unfavorable to beneficial uses in the water body receiving the discharge or proposed to receive the discharge.” (AIP, Page 7). Tier 2 was assumed for all POCs (see Appendix D).

TABLE 1: POLLUTANTS OF CONCERN AND TIER DETERMINATION

POLLUTANTS OF CONCERN	TIER*	DEGRADATION	COMMENT
BOD <sub>5</sub> /DO	2	Significant	
Total Suspended Solids (TSS)	**	Significant	
Ammonia	2	Significant	
pH	***	Significant	Permit limits applied
Escherichia coli (E. coli)	2	Significant	UV disinfection

\* Tier assumed. Tier determination not possible: \*\* No in-stream standards for these parameters. \*\*\* Standards for these parameters are ranges

##### 5.2. EXISTING WATER QUALITY

No existing water quality data was submitted. All POCs were considered to be Tier 2 and significantly degraded in the absence of existing water quality. The City of Brookfield elected to assume all pollutants of concern were significantly degrading as the two treatment plants go to different receiving streams. However, the biochemical oxygen demand, total suspended solids and ammonia loads are less than currently being discharged.

TABLE 2: PROPOSED CHANGE IN POLLUTANT LOADS VERSUS EXISTING LOADING

	Design Flow		Biochemical Oxygen Demand		Total Suspended Solids		Ammonia as N
	MGD	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day
Northeast	0.606	65	328.5	120	606.5	9.3	47
Southwest	0.4	65	216.8	120	400.3	7.5*	25
Total	1.06		545.3		1006.8		72
New Plant	1.0	24	200.2	24	200.2	7.5	62.6
% Change			-73.3%		-80.1%		-13.1%

\* Current permit has monitoring only for the Southwest treatment plant for ammonia. Assume default ammonia effluent limit.

### 5.3.DEMONSTRATION OF NECESSITY AND SOCIAL AND ECONOMIC IMPORTANCE

Missouri's antidegradation implementation procedures specify that if the proposed activity does result in significant degradation then a demonstration of necessity (i.e., alternatives analysis) and a determination of social and economic importance are required. The first alternative evaluated was to do nothing, which did not address the required installation of disinfection systems. It was determined a single facility would be better for Brookfield in operations and maintenance, and to provide capacity for future growth. Since the proposed facility is replacing two facilities in different watersheds, the applicant elected to evaluate the various alternatives. Six alternatives from non-degrading to less degrading to degrading alternatives were evaluated. The first alternative evaluated was land application. This option would include the construction of additional holding basins, irrigation system, and the purchase /lease of fields. The applicant estimated at least 750 acres would be required for land application. The capital cost estimate for land application was \$19,647,111.

The second alternative evaluated was retrofitting the existing lagoons with proper aeration, clarifiers and disinfection equipment. There are various technologies such as the EDI Atlas and Lemna systems that have been used in the state. This alternative would keep the two existing lagoons in service, increasing the cost for operations and maintenance. The applicant also evaluated constructing new cells and having one discharge outfall for the flows. This would require a large footprint to handle existing flows. The capital cost estimate for lagoon retrofits to an EDI Atlas or Lemna system was \$11,456,899.

The third alternative evaluated was a membrane bioreactor (MBR) system. This would achieve the highest level of treatment. Construction, operation and maintenance costs are higher for a membrane bioreactor than traditional wastewater treatment plants. This alternative was not economically efficient for Brookfield. The capital cost estimate for a membrane bioreactor was \$13,574,720.

The fourth alternative evaluated was a sequencing batch reactor (SBR). Flow equalization would be required for this facility also. SBR facilities handle shocks to the system well. SBRs are a proven technology in the state. There are multiple SBR facilities in the state able to meet the proposed effluent limits. The capital cost estimate for the SBR was \$10,161,750.

The fifth alternative evaluated was an oxidation ditch with two or three channels. Oxidation ditches are used throughout the state and can consistently meet the protective effluent limits required to protect the stream dissolved oxygen. The capital cost estimate for the oxidation ditch was \$9,480,322. The oxidation ditch will be put out for bid, under the USDA guidelines. Depending on the bids received, Brookfield will either build an oxidation ditch or the sixth alternative they proposed, the Aeromod system.

The sixth alternative evaluated and the preferred alternative was an Aeromod system. This process utilizes compressed aeration with diffusers, clarification chamber, air lift pumps. The city personnel like this alternative because it is manufacturer specific system with equipment manufactured in Manhattan, Kansas and the system is compact using common wall concrete construction and no moving parts below the water level. There are two Aeromod systems currently in the state, one privately owned near Kansas City and the one in LaGrange. Below is a schematic from the Aeromod website on what the Aeromod system may be at the proposed facility (<http://www.aeromod.net/sequox.cfm>). This capital cost estimate for the Aeromod is \$9,111,854.

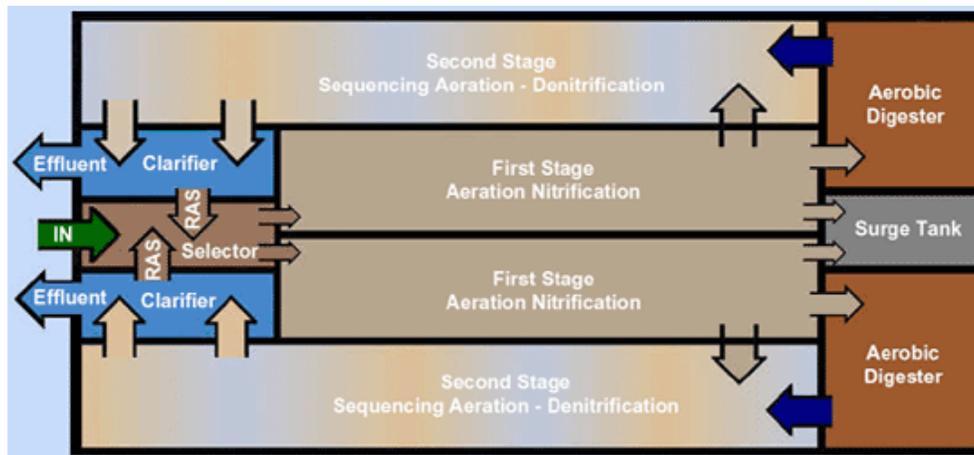


TABLE 3: ALTERNATIVE ANALYSIS COMPARISON

	Land App.	MBR	SBR	Oxidation Ditch	Aeromod
Practical	No	No	Yes	Yes	Yes
Economical	No	No	No	Yes	Yes
Present Worth*	\$44,433,105	\$32,705,574	\$27,088,158	\$22,869,485	\$22,121,226
Ratio	200%	148%	122%	103%	Base

\* Present worth cost at 20 year design life and 2.5% interest

The applicant first identified the City of Brookfield will be affected by the proposed degradation of water quality. The construction of this facility will remove the Southwest lagoon from Elm Creek and replace the Northeast lagoon with a mechanical treatment plant that provides higher treatment than currently exists. By increasing the plant size, it allows for potential growth in the City and for the City to meet more protective environmental concerns in the future.

### 5.3.1. REGIONALIZATION ALTERNATIVE

Within Section II B 1. of the AIP, discussion of the potential for discharge to a regional waste water collection system is mentioned. Brookfield serves the city of Brookfield. There is not a regional wastewater treatment system available. NEEDS A WAIVER TO PREVENT CONFLICT WITH AREA WIDE MANAGEMENT PLAN APPROVED UNDER SECTION 208 OF THE CLEAN WATER ACT AND/OR UNDER 10 CSR 20-6.010(3) (B) 1 OR 2 CONTINUING AUTHORITIES? (Y OR N) N

### 5.3.2. AFFORDABILITY

Under Missouri Revised Statutes Chapter 644.145, the department is required to make a finding of affordability for permit decisions. To help support the department in making the determination of affordability, the City provided detailed information on debts, bonds, expenses, and audits in their preliminary engineering report.

The preliminary engineering report was originally submitted in February 2009 and revised in January 2012. For improvements to the City's wastewater challenges, funding from the USDA Rural Development program has been secured. Along with the funding from USDA, the City will need to raise their sewer rates. The City's current wastewater rate structure is \$2.20 per 1,000 gallons, which gives a monthly cost for 5,000 gallons of \$11.00 per month. The City is proposing increasing rates to approximately \$40 to \$50 a month, which is almost 2% of the median household income. The City has been active in reducing flows to the treatment plant by completing extensive studies, repairs and mapping to reduce inflow and infiltration to the system. More than twenty-five manholes in the city have been replaced, along with sections of the sewer.

Other projects in the City include the water supply system improvements and the expansion of the Pershing Memorial Hospital. The City recently spent over a million dollars on improvements to the water supply and treatment facilities to comply with the Federal Safe Drinking Water Standards. The City paid for these improvements with cash, depleting the City's savings. The City is looking to do further improvements and engineering on the water supply for the City. The Pershing Memorial Hospital in Brookfield just finished an expansion and renovation project with a total cost of over ten million dollars.

According to the US Census data, the median household income for Linn County is \$37,706 in 2010 (<http://quickfacts.census.gov/qfd/states/29/29115.html>). From the 2000 Census, the median household income in Brookfield was \$25,753. There was a 7% drop in population in Linn County from 2000 to 2010. The unemployment rate for Linn County is 10.1%, which is higher than the state's unemployment rate of 8.0% (<http://geofred.stlouisfed.org>).

## 6. GENERAL ASSUMPTIONS OF THE WATER QUALITY AND ANTIDegradation REVIEW

1. A Water Quality and Antidegradation Review (WQAR) assumes that [10 CSR 20-6.010(3) Continuing Authorities and 10 CSR 20-6.010(4) (D), consideration for no discharge] has been or will be addressed in a Missouri State Operating Permit or Construction Permit Application.
2. A WQAR 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 WQAR 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 WQAR 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 WQAR may change as Water Quality Standards, Methodology, and Implementation procedures change.
8. Nothing in this WQAR removes any obligations to comply with county or other local ordinances or restrictions.
9. If the proposed treatment technology is not covered in 10 CSR 20-8 Design Guides, the treatment process may be considered a new technology. As a new technology, the permittee will need to work with the review engineer to ensure equipment is sized properly. The operating permit may contain additional requirements to evaluate the effectiveness of the technology once the facility is in operation. This Antidegradation Review is based on the information provided by the facility and is not a comprehensive review of the proposed treatment technology. If the review engineer determines the proposed technology will not consistently meet proposed effluent limits, the permittee will be required to revise their Antidegradation Report.

## 7. MIXING CONSIDERATIONS

**Mixing Zone (MZ):** Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(a)].

**Zone of Initial Dilution (ZID):** Not Allowed [10 CSR 20-7.031(4)(A)4.B.(I)(b)]

## 8. PERMIT LIMITS AND MONITORING INFORMATION

WASTELOAD ALLOCATION                      USE ATTAINABILITY                      WHOLE BODY CONTACT  
STUDY CONDUCTED:                          No          ANALYSIS CONDUCTED :                          No          USE RETAINED:                          Yes    

WET TEST :                          YES          FREQUENCY:                          ONCE/YEAR          AEC:                          100%          METHOD:                          MULTIPLE

TABLE 4: EFFLUENT LIMITS

PARAMETER	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	BASIS FOR LIMIT (NOTE 2)	MONITORING FREQUENCY
FLOW	MGD	*		*	FSR	ONCE/WEEK
BIOCHEMICAL OXYGEN DEMAND <sub>5</sub> ***	MG/L		24	16	PEL	ONCE/WEEK
TOTAL SUSPENDED SOLIDS	MG/L		24	16	PEL	ONCE/WEEK
PH	SU	6.5–9.0		6.5–9.0	FSR	ONCE/WEEK
AMMONIA AS N (APR 1 – SEPT 30)	MG/L	3.7		1.4	PEL/WQBEL	ONCE/WEEK
AMMONIA AS N (OCT 1 – MAR 31)	MG/L	7.5		2.9	PEL/WQBEL	ONCE/WEEK
ESCHERICHIA COLIFORM (E. COLI)	NOTE 1		1030**	206**	FSR	ONCE/WEEK
OIL AND GREASE	MG/L	15		10	FSR	ONCE/WEEK

NOTE 1 – COLONIES/100 ML

NOTE 2– WATER QUALITY-BASED EFFLUENT LIMITATION --WQBEL; OR MINIMALLY DEGRADING EFFLUENT LIMIT--MDEL; OR PREFERRED ALTERNATIVE EFFLUENT LIMIT-PEL; TECHNOLOGY-BASED EFFLUENT LIMIT-TBEL; OR NO DEGRADATION EFFLUENT LIMIT--NDEL; OR FSR --FEDERAL/STATE REGULATION; OR N/A--NOT APPLICABLE. ALSO, PLEASE SEE THE **GENERAL ASSUMPTIONS OF THE WQAR #4 & #5.**

\* - Monitoring requirements only.

\*\* - The Monthly Average for E. coli shall be reported as a Geometric Mean.

\*\*\*This facility is required to meet a removal efficiency of 85% or more for BOD<sub>5</sub> and TSS. Influent BOD<sub>5</sub> and TSS data should be reported to ensure removal efficiency requirements are met.

## 9. RECEIVING WATER MONITORING REQUIREMENTS

No receiving water monitoring requirements recommended at this time.

## 10. DERIVATION AND DISCUSSION OF LIMITS

Wasteload allocations and limits were calculated using two methods:

1) Water quality-based – 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

C<sub>s</sub> = upstream concentration

Q<sub>s</sub> = upstream flow

C<sub>e</sub> = effluent concentration

Q<sub>e</sub> = effluent flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration). 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).

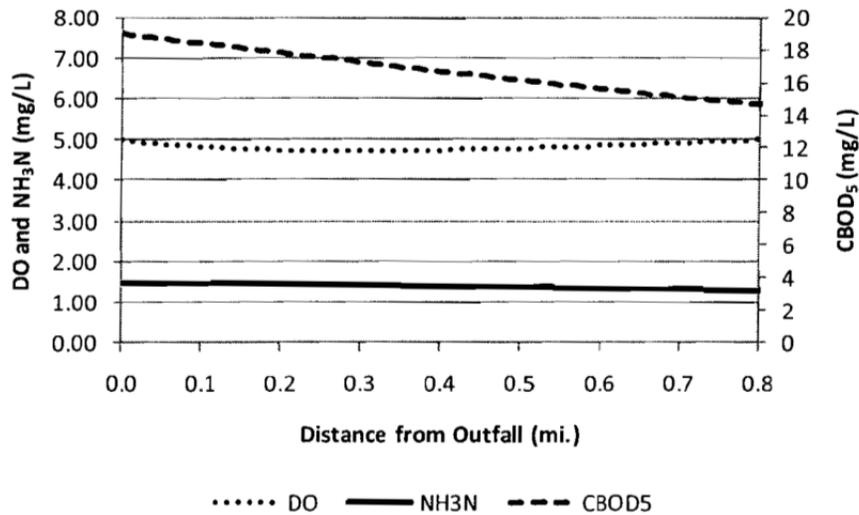
2) Alternative Analysis-based – Using the preferred alternative's treatment capacity for conventional pollutants such as BOD<sub>5</sub> and TSS that are provided by the consultant as the WLA, the significantly-degrading effluent average monthly and average weekly limits are determined by applying the WLA as the average monthly (AML) and multiplying the AML by 1.5 to derive the average weekly limit (AWL). For toxic and nonconventional pollutant such as ammonia, the treatment capacity is applied as the significantly-degrading effluent monthly average (AML). A maximum daily can be derived by dividing the AML by 1.19 to determine the long-term average (LTA). The LTA is then multiplied by 3.11 to obtain the maximum daily limitation. This is an accepted procedure that is defined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Note: Significantly-degrading effluent limits have been based on the authority included in Section III. Permit Consideration of the AIP. Also under 40 CFR 133.105, permitting authorities shall require more stringent limitations than equivalent to secondary treatment limitations for 1) existing facilities if the permitting authority determines that the 30-day average and 7-day average BOD<sub>5</sub> and SS effluent values that could be achievable through proper operation and maintenance of the treatment works, and 2) new facilities if the permitting authority determines that the 30-day average and 7-day average BOD<sub>5</sub> and SS effluent values that could be achievable through proper operation and maintenance of the treatment works, considering the design capability of the treatment process.

10.1. OUTFALL #001 – MAIN FACILITY OUTFALL LIMIT DERIVATION

- **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<sub>5</sub>).** Applicant proposed seasonal BOD<sub>5</sub> effluent limits with summer BOD<sub>5</sub> limits of 16 mg/L monthly average, 24 mg/L average weekly limits and winter BOD<sub>5</sub> limits of 30 mg/L monthly average, 45 mg/L average weekly limits. It is not the department’s policy to set seasonal BOD<sub>5</sub> limits. As a part of the dissolved oxygen modeling conducted by Geosyntec, the BOD<sub>5</sub> should be set to 16 mg/L to ensure the dissolved oxygen reaches 5 mg/L at the classified stream. Influent monitoring may be required for this facility in its Missouri State Operating Permit.
- To protect beneficial uses within the West Yellow Creek, the consultant used 19 mg/L CBOD<sub>5</sub> as input to the Streeter Phelps analysis. Streeter Phelps modeling simulated using the proposed design flow, the modeled lowest dissolved oxygen or critical dissolved oxygen sag was 4.73 mg/L at 0.34 miles downstream of the discharge. **As a result of this analysis, MDNR staff concludes that the above mentioned effluent limits are protective of beneficial uses and existing water quality.**

Summer Dissolved Oxygen Modeling



- **Total Suspended Solids (TSS).** Applicant proposed the same effluent limits as biochemical oxygen demand. As BOD and TSS effluent limits are normally set equal, 16 mg/L monthly average, 24 mg/L average weekly limit. The influent monitoring may be required for this facility in its Missouri State Operating Permit.
- **pH.** pH shall be maintained in the range from 6.5 to nine (6.5– 9.0) standard units [10 CSR 20-7.015 (8)(A)2.].
- **Total Ammonia Nitrogen.** Applicant proposed water quality based effluent limits as the preferred alternative. 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 (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

Summer: April 1 – September 30

Chronic WLA:  $C_e = ((1.55 + 0.0)1.5 - (0.0 * 0.01))/1.55$   
 $C_e = 1.5 \text{ mg/L}$

Acute WLA:  $C_e = ((1.55 + 0.0)12.1 - (0.0 * 0.01))/1.55$   
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 1.5 \text{ mg/L} (0.780) = 1.2 \text{ mg/L}$   
 $LTA_a = 12.1 \text{ mg/L} (0.321) = 3.88 \text{ mg/L}$

[CV = 0.6, 99<sup>th</sup> Percentile, 30 day avg.]  
 [CV = 0.6, 99<sup>th</sup> Percentile]

Use most protective number of  $LTA_c$  or  $LTA_a$ .

MDL = 1.2 mg/L (3.11) = **3.7** mg/L  
 AML = 1.2 mg/L (1.19) = **1.2** mg/L

[CV = 0.6, 99<sup>th</sup> Percentile]  
 [CV = 0.6, 95<sup>th</sup> Percentile, n=30]

Winter: October 1 – March 31

Chronic WLA:  $C_e = ((1.55 + 0.0)3.1 - (0.0 * 0.01))/1.55$   
 $C_e = 3.1 \text{ mg/L}$

Acute WLA:  $C_e = ((1.55 + 0.0)12.1 - (0.0 * 0.01))/1.55$   
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 3.1 \text{ mg/L} (0.780) = 2.4 \text{ mg/L}$   
 $LTA_a = 12.1 \text{ mg/L} (0.321) = 3.9 \text{ mg/L}$

[CV = 0.6, 99<sup>th</sup> Percentile, 30 day avg.]  
 [CV = 0.6, 99<sup>th</sup> Percentile]

Use most protective number of  $LTA_c$  or  $LTA_a$ .

MDL = 2.4 mg/L (3.11) = **7.5** mg/L  
 AML = 2.4 mg/L (1.19) = **2.9** mg/L

[CV = 0.6, 99<sup>th</sup> Percentile]  
 [CV = 0.6, 95<sup>th</sup> Percentile, n=30]

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

- **E. coli.** Effluent limitations for WBC(B) are 206 colonies per 100 ml monthly average and 1030 colonies per 100 ml weekly average [10 CSR 20-7.015 (8)(A)4.] and [10 CSR 20-7.031(4)(C), Table A]. For facilities greater than 100,00 gpd: At a minimum, weekly monitoring is required during the recreational season (April 1 – October 31), with compliance to be determined by calculating the geometric mean of all samples collected during the reporting period (samples collected during the calendar week for the weekly average, and samples collected during the calendar month for the monthly average). The weekly average requirement is consistent with EPA federal regulation 40 CFR 122.45(d). Further, the limit may change depending on the outcome of future state effluent regulation revision. Please see **GENERAL ASSUMPTIONS OF THE WQAR #7**. Facility proposes to meet the *E. Coli* effluent limits by using UV disinfection.
- **Oil & Grease.** Conventional pollutant, [10 CSR 20-7.031, Table A]. Effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Whole Effluent Toxicity 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. WET Testing should be acute test no less than once per year, as the proposed facility is a municipality with a design flow equal to or greater than 1.0 MGD.

## **11. ANTIDegradation Review Preliminary Determination**

The proposed new facility discharge, Brookfield WWTF, 1.0 MGD will result in significant degradation of the segment identified in Tributary to West Fork Yellow Creek. The Aeromod Extended Aeration System was determined to be the base case technology (lowest cost alternative that meets technology and water quality based effluent limitations. The cost effectiveness of the other technologies were evaluated, and the Aeromod and the oxidation ditch were found to be cost effective and to be the preferred alternatives.

Per the requirements of the AIP, the effluent limits in this review were developed to be protective of beneficial uses and to attain the highest statutory and regulatory requirements. MDNR has determined that the submitted review is sufficient and meets the requirements of the AIP. No further analysis is needed for this discharge.

Reviewer: Leasue Meyers  
Date: April 2012  
Unit Chief: John Rustige, P.E.

Appendix A: Map of Discharge Location



## Appendix B: Natural Heritage Review



### Natural Heritage Review On-line LEVEL 1 REPORT

Print this page and use/attach as documentation that your project has consulted with the Missouri Department of Conservation and the U.S. Fish and Wildlife Service about species of conservation concern. No further consultation about this project is necessary.

March 1, 2012

#### Your login and project information below:

User ID: 1071  
First Name: Leasue  
Last Name: Meyers  
Email Address: leasue.meyers@dnr.mo.gov  
Business: Department of Natural Resources  
Project: Wastewater

#### Your query information below:

User ID	Response Level	Township	Range	Section	Direction	Latitude	Longitude	Point	Line	UTM North	UTM East	Rectangle	TimeStamp
1071						0	0			4404291	495213		3/1/2012 3:03:57 PM

#### Wastewater

Wastewater – storm sewer, sanitary sewer, treatment plant, discharge

[Clean Water Act](#) permits issued by other agencies regulate both construction and operation of wastewater and storm water systems, and provide many important protections for fish and wildlife resources throughout the project area and at some distance downstream.

Fish and wildlife almost always benefit when unnatural pollutants are removed from water, and concerns are minimal if (a) the project area includes no protected species or restricted habitat identified in this report, and (b) construction is managed to minimize erosion and sedimentation/runoff to nearby streams and lakes, including adherence to any "Clean Water Permit" conditions.

Revegetation of disturbed areas is recommended to minimize erosion, as is restoration with of native plant species compatible with the local landscape and for wildlife needs. Annual ryegrass may be combined with native perennials for quicker green-up. Avoid aggressive exotic perennials such as crown vetch and sericea lespedeza.

[Management Recommendations for Construction Projects Affecting Missouri Streams and Rivers](http://www.mdc.mo.gov/documents/nathis/endorangered/streams.pdf) is a Conservation Department publication available at <http://www.mdc.mo.gov/documents/nathis/endorangered/streams.pdf>

#### Cautions related to species/habitats of concern or project type. Please reflect these concerns and recommendations in your plans :

- Even if records of species/habitats of concern do not exist, there is a possibility that your project will encounter a species of concern that is not on record. In Missouri, 93% of the land is in private ownership, and most of that has never been checked for endangered species. Animals move over varying ranges, and in time both animal and plant populations can move.
- If your project encounters and potentially affects a federally-listed species, immediately report it to the U.S. Fish and Wildlife Service or Missouri Department of Conservation.

**No further consultation with the U.S. Fish and Wildlife Service or the Missouri Department of Conservation is necessary.** Print this document to establish compliance with requirements to consult with U.S. Fish and Wildlife Service and the Missouri Department of Conservation about this project.

If you need additional information, please contact:

MDC Natural Heritage Review  
Policy Coordination Unit  
P.O. Box 180  
Jefferson City, MO 65102-0180  
(Phone 573-522-4115 ext. 3250 )  
[www.mdc.mo.gov](http://www.mdc.mo.gov)

or

U.S. Fish and Wildlife Service Ecological Services  
101 Park Deville Drive, Suite A  
Columbia, Missouri 65203-0007  
(Phone 573-234-2132 )

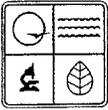
A HERITAGE REVIEW provides information about species and habitats of concern that could be affected by the project. Heritage records note things that were positively identified at some date and time, marked at a location that may be more or less precise. Animals move quickly but plant communities can move also. 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 may not encounter something. Because of this, reports include information about records near but not necessarily on the project site. Three different kinds of information are provided.

- FEDERAL Concerns are species/habitats protected under the Federal Endangered Species Act and that have been known near enough to the project site to warrant consideration. For these, project managers must contact the U.S. Fish and Wildlife Service Ecological Services ( 101 Park Deville Drive Suite A, Columbia, Missouri 65203-0007 ; Phone 573-234-2132; Fax 573-234-2181 ) for consultation.
- STATE Concerns are species/habitats known to exist near enough to the project site to warrant concern and protected under the Wildlife Code of Missouri ( RSMo 3 CSR 10 ) . . . State Endangered Status, is determined by the Missouri Conservation Commission under constitutional authority, with requirements expressed in the Missouri Wildlife Code, rule 3CSR10-4.111. . . State Rank, is numeric rank of relative rarity, protected under general provisions of the Wildlife Code but not endangered.
- . . . Concerns & management recommendations, are things for which one might prudently look. There is no specific heritage record, but our knowledge of the surrounding landscape suggests consideration. 93% of Missouri's land is in private ownership, so most sites have never been carefully inspected by conservation professionals

This report is not a site clearance letter. Rather, it provides an indication of whether or not public lands and sensitive resources are known to be ( or are likely to be ) located close to the proposed project. Incorporating information from our Heritage Database into project plans is an important step that can help reduce unnecessary impacts to Missouri's sensitive natural resources. However, the Heritage Database is only one reference that should be used to evaluate potential adverse impacts. Other types of information, such as wetland and soils maps and on-site inspections or surveys, should be considered. Reviewing current landscape and habitat information and species biological characteristics would additionally ensure that species of conservation concern are appropriately identified and addressed.

Additional information on rare, endangered and watched species may be found at <http://www.mdc.mo.gov/nathis/endorangered/>. Detailed information about species mentioned may be accessed at [http://mdc4.mdc.mo.gov/applications/mofwis/mofwis\\_search1.aspx](http://mdc4.mdc.mo.gov/applications/mofwis/mofwis_search1.aspx). If you would like printed copies of best management practices cited as internet URLs, please contact us.

AP 4799



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH  
**FORM B2 – APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT FOR FACILITIES WHICH RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY**

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COUNTY \_\_\_\_\_ US MAIL \_\_\_\_\_  
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 Linn \_\_\_\_\_  
 Hand Delivery \_\_\_\_\_ Fed Ex \_\_\_\_\_

FACILITY NAME  
 Brookfield Northeast Wastewater Treatment Facility

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PERMIT NO.  
 MO-0028746

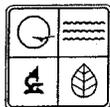
**APPLICATION OVERVIEW**

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

- BASIC APPLICATION INFORMATION**
- A. Basic Application Information for all Applicants. All applicants must complete Part A.
  - B. Additional Application Information for all Applicants. All applicants must complete Part B.
  - C. Certification. All applicants must complete Part C.

- SUPPLEMENTAL APPLICATION INFORMATION**
- D. Expanded Effluent Testing Data. A treatment works that discharges effluent to surface water of the United States and meets one or more of the following criteria must complete *Part D - Expanded Effluent Testing Data*:
    1. Has a design flow rate greater than or equal to 1 million gallons per day.
    2. Is required to have or currently has a pretreatment program.
    3. Is otherwise required by the permitting authority to provide the information.
  - E. Toxicity Testing Data. A treatment works that meets one or more of the following criteria must complete *Part E - Toxicity Testing Data*:
    1. Has a design flow rate greater than or equal to 1 million gallons per day.
    2. Is required to have or currently has a pretreatment program.
    3. Is otherwise required by the permitting authority to provide the information.
  - F. Industrial User Discharges and Resource Conservation and Recovery Act / Comprehensive Environmental Response, Compensation and Liability Act Wastes. A treatment works that accepts process wastewater from any significant industrial users, also known as SIUs, or receives a Resource Conservation and Recovery Act or CERCLA wastes must complete *Part F - Industrial User Discharges and Resource Conservation and Recovery Act / CERCLA Wastes*.  
 SIUs are defined as:
    1. All Categorical Industrial Users, or CIUs, subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations 403.6 and 40 Code of Federal Regulations 403.6 and 40 CFR Chapter 1, Subchapter N.
    2. Any other industrial user that meets one or more of the following:
      - i. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions).
      - ii. Contributes a process waste stream that makes up five percent or more of the average dry weather hydraulic or organic capacity of the treatment plant.
      - iii. Is designated as an SIU by the control authority.
  - G. Combined Sewer Systems. A treatment works that has a combined sewer system must complete *Part G - Combined Sewer Systems*.

**ALL APPLICANTS MUST COMPLETE PARTS A, B and C**



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
 WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH  
**FORM B2 – APPLICATION FOR CONSTRUCTION OR OPERATING  
 PERMIT FOR FACILITIES WHICH RECEIVE PRIMARILY DOMESTIC  
 WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS  
 PER DAY**

Department of Natural Resources  
 Northeast Regional Office

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CHECK NUMBER

APR 11 2011

DATE RECEIVED: \_\_\_\_\_ FEE SUBMITTED: \_\_\_\_\_

US MAIL \_\_\_\_\_ FAX \_\_\_\_\_ UPS \_\_\_\_\_

Email \_\_\_\_\_ Hand Delivery \_\_\_\_\_ Fed Ex \_\_\_\_\_

**PART A – BASIC APPLICATION INFORMATION**

1. This application is for:

- An operating permit and antidegradation review public notice.
- A construction permit following an appropriate operating permit and antidegradation review public notice.
- A construction permit, a concurrent operating permit and antidegradation review public notice.
- A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required).
- An operating permit for a new or unpermitted facility. Construction Permit # \_\_\_\_\_
- An operating permit renewal: Permit #MO-0028746 Expiration Date 11-16-11
- An operating permit modification: Permit #MO-\_\_\_\_\_ Reason: \_\_\_\_\_

1.1 Is this a Federal/State Funded Project?  Yes  No Funding Agency/Project #: \_\_\_\_\_

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

**2. FACILITY**

NAME Brookfield Northeast Wastewater Treatment Facility		TELEPHONE NUMBER WITH AREA CODE 660-258-3377	
ADDRESS (PHYSICAL) 116 W. Brooks	CITY Brookfield	STATE MO	ZIP 64628

2.1 LEGAL DESCRIPTION (Plant Site):  $\frac{1}{4}$  SW  $\frac{1}{4}$  NE  $\frac{1}{4}$ , Sec. 5, T57N, R19W County Linn

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

**3. OWNER**

NAME City of Brookfield		TELEPHONE NUMBER WITH AREA CODE 660-258-3377	
ADDRESS 116 W. Brooks	CITY Brookfield	STATE MO	ZIP 64628

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

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

NAME Same		CITY	
ADDRESS	CERTIFICATE NUMBER (IF APPLICABLE)	STATE	ZIP

**5. OPERATOR**

NAME Bryan Armstrong		TELEPHONE NUMBER WITH AREA CODE 660-734-0984	
TITLE Water Specialist II			

**6. FACILITY CONTACT**

NAME Kenny Bivens		TITLE Water/Wastewater Foreman	
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APR 11 2011

FACILITY NAME  
Brookfield Northeast  
Wastewater Treatment Facility

PERMIT NO.  
MO-0028746

**PART A - BASIC APPLICATION INFORMATION**

**7. ADDITIONAL FACILITY INFORMATION**

**7.1 BRIEF DESCRIPTION OF FACILITIES**

A four cell lagoon system with aerated primary of 1.85 acres, secondary of 18 acres, atertiary cell of 3 acres & polishing cell of 1.0 acres.

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

- a. The area surrounding the treatment plant, including all unit processes.
- b. The location of the downstream landowner(s). (See Item 10.)
- c. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.
- d. The actual point of discharge.
- e. Wells, springs, other surface water bodies and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.
- f. Any areas where the sewage sludge produced by the treatment works is stored, treated or disposed.
- g. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act, or RCRA, by truck, rail or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored or disposed.

**7.3 PROCESS FLOW DIAGRAM OR SCHEMATIC.** PROVIDE A DIAGRAM SHOWING THE PROCESSES OF THE TREATMENT PLANT. ALSO, PROVIDE A WATER BALANCE SHOWING ALL TREATMENT UNITS, INCLUDING DISINFECTION (E.G. CHLORINATION AND DECHLORINATION). THE WATER BALANCE MUST SHOW DAILY AVERAGE FLOW RATES AT INFLUENT AND DISCHARGE POINTS AND APPROXIMATE DAILY FLOW RATES BETWEEN TREATMENT UNITS. INCLUDE A BRIEF NARRATIVE DESCRIPTION OF THE DIAGRAM.

**7.4 FACILITY SIC CODE** \_\_\_\_\_ **DISCHARGE SIC CODE:** \_\_\_\_\_ **FACILITY NAICS CODE:** \_\_\_\_\_ **DISCHARGE NAICS CODE:** \_\_\_\_\_

**7.5 NUMBER OF SEPARATE DISCHARGE POINTS**  
One

**7.6 NUMBER OF PEOPLE PRESENTLY CONNECTED OR POPULATION EQUIVALENT** \_\_\_\_\_ **DESIGN POPULATION EQUIVALENT** \_\_\_\_\_  
3,500 5,900

NUMBER OF UNITS PRESENTLY CONNECTED  
HOMES \_\_\_\_\_ APARTMENTS \_\_\_\_\_ TRAILERS \_\_\_\_\_ OTHER \_\_\_\_\_

TOTAL DESIGN FLOW (ALL OUTFALLS) \_\_\_\_\_ ACTUAL FLOW \_\_\_\_\_  
.606 MGD 0.6 MGD

**7.7 DOES ANY BYPASSING OCCUR ANYWHERE IN THE COLLECTION SYSTEM OR AT THE TREATMENT FACILITY?**  
Yes  No  (If Yes, attach an explanation.) During heavy rain, manholes over load

**7.8 LENGTH OF THE SANITARY SEWER COLLECTION SYSTEM IN MILES**  
\_\_\_\_\_

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

**7.10 WILL THE DISCHARGE BE CONTINUOUS THROUGH THE YEAR?** Yes  No

**A. DISCHARGE WILL OCCUR DURING THE FOLLOWING MONTHS** \_\_\_\_\_ **B. HOW MANY DAYS OF THE WEEK WILL THE DISCHARGE OCCUR?** \_\_\_\_\_  
As needed to control level. As needed

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

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

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

**8. LABORATORY CONTROL INFORMATION**

**8.1 LABORATORY WORK CONDUCTED BY PLANT PERSONNEL**

Lab work conducted outside of plant. NH<sub>3</sub>, Fecal Coliform, Oil/Grease Yes  No   
Push-button or visual methods for simple test such as pH, settleable solids. Yes  No   
Additional procedures such as Dissolved Oxygen, Chemical Oxygen Demand, Biological Oxygen Demand, titrations, solids, volatile content. Yes  No   
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc. Yes  No   
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph. Yes  No

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 APR 11 2011  
 US MAIL  
 Email FAX 885 UPS  
 Hand Dry Tons/Year Fed Ex

FACILITY NAME: Brookfield Northeast Wastewater Treatment Facility PERMIT NO. MO- 0028746 OUTFALL NO. \_\_\_\_\_

**PART A - BASIC APPLICATION INFORMATION**

**9. SLUDGE HANDLING, USE AND DISPOSAL**

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

9.2 SLUDGE PRODUCTION, INCLUDING SLUDGE RECEIVED FROM OTHERS  
 Design Dry Tons/Year \_\_\_\_\_

9.3 CAPACITY OF SLUDGE HOLDING STRUCTURES

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

9.5 TYPE OF STORAGE  
 Holding Tank  Basin  Building  Concrete Pad  Other (Describe) \_\_\_\_\_

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

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

9.8 PERSON RESPONSIBLE FOR HAULING SLUDGE TO DISPOSAL FACILITY  
 NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

CONTACT PERSON \_\_\_\_\_ TELEPHONE NUMBER WITH AREA CODE \_\_\_\_\_ PERMIT NO. MO-

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

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

CONTACT PERSON \_\_\_\_\_ TELEPHONE NUMBER WITH AREA CODE \_\_\_\_\_ PERMIT NO. MO-

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

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

NAME Wilbert Gandy  
 ADDRESS Route #1 CITY Brookfield STATE MO ZIP 64628

**11. DRINKING WATER SUPPLY INFORMATION**

11.1 SOURCE OF YOUR DRINKING WATER SUPPLY

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

B. PRIVATE WELL

C. SURFACE WATER (LAKE, POND OR STREAM)  
Lake

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

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

**END OF PART A**

MO 780-1805 (09-08)

**MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL**

FACILITY NAME: West Fork Northeast Wastewater Treatment Facility PERMIT NO. MO 0028746 OUTFALL NO. APR 11 2011

**PART B - ADDITIONAL APPLICATION INFORMATION**

**20. INFLOW AND INFILTRATION**

ESTIMATE THE AVERAGE NUMBER OF GALLONS PER DAY THAT FLOW INTO THE TREATMENT WORKS FROM INFLOW AND INFILTRATION. US MAIL  
 Hand Delivery  Fed Ex  UPS

0.25 Gallons Per Day

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

Smoke Testing, replacing manholes and sewer lines that are in

**20.1 OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)** terrible condition.

ARE ANY OPERATIONAL OR MAINTENANCE ASPECTS (RELATED TO WASTEWATER TREATMENT AND EFFLUENT QUALITY) OF THE TREATMENT WORKS THE RESPONSIBILITY OF A CONTRACTOR?  
 Yes  No  If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)

NAME  
Inovetia Laboratories LLC

MAILING ADDRESS  
120 E. Davis St. Fayette, MO 65248

TELEPHONE NUMBER WITH AREA CODE  
1-800-280-1912

RESPONSIBILITIES OF CONTRACTOR  
Monthly testing of NH<sub>3</sub>, oil/grease, fecal coliform, wet testing

**20.2 SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION.** PROVIDE INFORMATION ABOUT ANY UNCOMPLETED IMPLEMENTATION SCHEDULE OR UNCOMPLETED PLANS FOR IMPROVEMENTS THAT WILL AFFECT THE WASTEWATER TREATMENT, EFFLUENT QUALITY OR DESIGN CAPACITY OF THE TREATMENT WORKS. IF THE TREATMENT WORKS HAS SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES OR IS PLANNING SEVERAL IMPROVEMENTS, SUBMIT SEPARATE RESPONSES FOR EACH. (IF NONE, GO TO QUESTION B-20.3.)

A. List the outfall number that is covered by this implementation schedule  
 Outfall No. 1

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

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

**20.4 DESCRIPTION OF OUTFALL**

OUTFALL NUMBER 1

A. LOCATION  
1/4 SW 1/4 NE 1/4 Section 5 Township 57N Range 19  E  W  
 UTM Coordinates Easting (X): \_\_\_\_\_ Northing (Y): \_\_\_\_\_  
 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

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

E. Does this outfall have either an intermittent or periodic discharge?  
 Yes  No If Yes, Provide the following information:

Number of Days Per Year Discharge Occurs: <u>365</u>	Average Duration of Each Discharge: <u>24 Hrs.</u>	Average Flow Per Discharge: <u>.606</u> mgd	Months in Which Discharge Occurs: <u>Jan.-Dec.</u>
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Is Outfall Equipped with a Diffuser?  Yes  No

**20.5 DESCRIPTION OF RECEIVING WATER**

B. Name of Receiving Water  
West Fork Yellow Creek

B. Name of Watershed (If Known) \_\_\_\_\_ U.S. Soil Conservation Service 14-Digit Watershed Code (If Known) 10280103-120005

B. Name of State Management/River Basin (If Known) \_\_\_\_\_ U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known) 10280103

B. Critical Flow of Receiving Stream (If Applicable)  
 Acute \_\_\_\_\_ cfs Chronic \_\_\_\_\_ cfs

B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable) \_\_\_\_\_ mg/L of CaCO<sub>3</sub>

Department of Natural Resources  
 Northeast Regional Office  
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OUTFALL NO. APR 11 2011

FACILITY NAME: Brookfield Northeast Wastewater Treatment Facility  
 PERMIT NO.: MO 0028746

**PART B - ADDITIONAL APPLICATION INFORMATION (CONTINUED)**

**20.6 DESCRIPTION OF TREATMENT**

A. WHAT LEVELS OF TREATMENT ARE PROVIDED? Check All That Apply  
 Primary  Secondary  Advanced  Other (Describe) Four cell aerated lagoons

B. INDICATE THE FOLLOWING REMOVAL RATES (AS APPLICABLE)  
 Design BOD<sub>5</sub> Removal Or Design CBOD<sub>5</sub> Removal 65 % Design SS Removal 65 %  
 Design P Removal \_\_\_ % Design N Removal \_\_\_ % Other \_\_\_ %

C. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe:  
None

If disinfection is by chlorination, is dechlorination used for this outfall?  Yes  No  
 Does the treatment plant have post aeration?  Yes  No

**20.7 EFFLUENT TESTING DATA. ALL APPLICANTS THAT DISCHARGE TO WATERS OF THE U.S. MUST PROVIDE EFFLUENT TESTING DATA FOR THE FOLLOWING PARAMETERS. PROVIDE THE INDICATED EFFLUENT DATA FOR EACH OUTFALL THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION OF COMBINED SEWER OVERFLOWS IN THIS SECTION. ALL INFORMATION REPORTED MUST BE BASED ON DATA COLLECTED THROUGH ANALYSIS CONDUCTED USING 40 CFR PART 136 METHODS. IN ADDITION, THIS DATA MUST COMPLY WITH QA/QC REQUIREMENTS OF 40 CFR PART 136 AND OTHER APPROPRIATE QA/QC REQUIREMENTS FOR STANDARD METHODS FOR ANALYTES NOT ADDRESSED BY 40 CFR PART 136.**

OUTFALL NUMBER #001-WWTF4952

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	VALUE	UNITS	VALUE	UNITS	NO. OF SAMPLES
pH (Minimum)	6.0	S.U.	7.6	S.U.	7
pH (Maximum)	8.8	S.U.	8.8	S.U.	7
FLOW RATE	0.4	MGD	0.25	MGD	
TEMPERATURE (Winter)	34	°C		°C	
TEMPERATURE (Summer)	84	°C		°C	

\*For pH report a minimum and a maximum daily value.

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	CONC.	UNITS	CONC.	UNITS	NO. OF SAMPLES		

**Conventional and Nonconventional Compounds**

BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD <sub>5</sub>		mg/L		mg/L		
	CBOD <sub>5</sub>		mg/L		mg/L		
FECAL COLIFORM	1000	#/100 mL		#/100 mL	1		
TOTAL SUSPENDED SOLIDS (TSS)	17	mg/L		mg/L	1		
AMMONIA (AS N)	4.7	mg/L		mg/L	1		
CHLORINE (TOTAL RESIDUAL, TRC)		mg/L		mg/L			
DISSOLVED OXYGEN		mg/L		mg/L			
TOTAL KJELDAHL NITROGEN (TKN)		mg/L		mg/L			
NITRATE PLUS NITRITE NITROGEN		mg/L		mg/L			
OIL AND GREASE	15	mg/L		mg/L	1		
PHOSPHORUS (TOTAL)		mg/L		mg/L			
TOTAL DISSOLVE SOLIDS (TDS)		mg/L		mg/L			
OTHER		mg/L		mg/L			

**END OF PART B**

APR 11 2011

**PART C - CERTIFICATION**

**30. CERTIFICATION**

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

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

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

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

David W. Hane, City Manager

SIGNATURE



TELEPHONE NUMBER WITH AREA CODE

660-258-3377

DATE SIGNED

4-8-11

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

For Design Flows Less than 1 Million Gallons Per Day,  
 Send Completed Form to:

**Appropriate Regional Office**

Map of regional offices with addresses and phone numbers is available on the Web at [www.dnr.mo.gov/regions/ro-map.pdf](http://www.dnr.mo.gov/regions/ro-map.pdf).

For Design Flows of 1 Million Gallons Per Day or Greater,  
 Send Completed Form to:

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

**END OF PART C.**

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

Do not complete the remainder of this application, unless:

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

Submittal of an incomplete application may result in the application being returned. Permit fees for returned applications shall be forfeited. Permit fees for applications being processed by the department that are withdrawn by the applicant shall be forfeited.

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.

APR 11 2011

FACILITY NAME	PERMIT NO. MO-
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OUTFALL NO.
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**PART D – EXPANDED EFFLUENT TESTING DATA**

**40. EXPANDED EFFLUENT TESTING DATA**

US MAIL		
<input type="checkbox"/> Email	<input type="checkbox"/> FAX	<input type="checkbox"/> UPS
<input type="checkbox"/> Hand Delivery	<input type="checkbox"/> Fed Ex	

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

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

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

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	CONC	UNITS	MASS	UNITS	CONC	UNITS	MASS	UNITS	NO. OF SAMPLES		
METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS AND HARDNESS											
ANTIMONY											
ARSENIC											
BERYLLIUM											
CADMIUM											
CHROMIUM											
COPPER											
LEAD											
MERCURY											
NICKEL											
SELENIUM											
SILVER											
THALLIUM											
ZINC											
CYANIDE											
TOTAL PHENOLIC COMPOUNDS											
HARDNESS (as CaCO <sub>3</sub> )											

USE THIS SPACE (OR A SEPARATE SHEET) TO PROVIDE INFORMATION ON OTHER METALS REQUESTED BY THE PERMIT WRITER.


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**PART D – EXPANDED EFFLUENT TESTING DATA (CONTINUED)**

**40.1 EXPANDED EFFLUENT TESTING DATA (CONTINUED)**

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

US MAIL		UPS
<input type="checkbox"/> Email	<input type="checkbox"/> FAX	
<input type="checkbox"/> Hand Delivery	<input type="checkbox"/> Fed Ex	

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

MO 780-1805 (09-08)

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**PART D – EXPANDED EFFLUENT TESTING DATA (CONTINUED)**

**40.1 EXPANDED EFFLUENT TESTING DATA (CONTINUED)**

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

US MAIL  
 Email FAX UPS  
 Hand Delivery Fed Ex

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL	
	CONC	UNITS	MASS	UNITS	CONC	UNITS	MASS	UNITS	NO. OF SAMPLES			
BIS (2-CHLOROTHOXY) METHANE												
BIS (2-CHLOROETHYL) – ETHER												
BIS (2-ETHYLHEXYL) PHTHALATE												
4-BROMOPHENYL PHENYL ETHER												
BUTYL BENZYL PHTHALATE												
2-CHLORONAPH-THALENE												
4-CHLORPHENYL PHENYL ETHER												
CHRYSENE												
DI-N-BUTYL PHTHALATE												
DEBENZO (A,H) ANTHRACENE												
1,2-DICHLORO-BENZENE												
1,3-DICHLORO-BENZENE												
1,4-DICHLORO-BENZENE												
3,3-DICHLORO-BENZIDINE												
DIETHYL PHTHALATE												
DIMETHYL PHTHALATE												
2,4-DINITRO-TOLUENE												
2,6-DINITRO-TOLUENE												
1,2-DIPHENYL-HYDRAZINE												
1,1,1-TRICHLORO-ETHANE												
1,1,2-TRICHLORO-ETHANE												
TRICHLORETHYLENE												
VINYL CHLORIDE												

USE THIS SPACE (OR A SEPARATE SHEET) TO PROVIDE INFORMATION ON OTHER VOLATILE ORGANIC COMPOUNDS REQUESTED BY THE PERMIT WRITER




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**PART D – EXPANDED EFFLUENT TESTING DATA (CONTINUED)** APR 11 2011

**40.1 EXPANDED EFFLUENT TESTING DATA (CONTINUED)**

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE				NO. OF SAMPLES	ANALYTICAL METHOD	ML/MDL UPS
	CONC	UNITS	MASS	UNITS	CONC	UNITS	MASS	UNITS			

BASE-NEUTRAL COMPOUNDS											
ACENAPHTHENE											
ACENAPHTHYLENE											
ANTHRACENE											
BENZIDINE											
BENZO(A)ANTHRACENE											
BENZO(A)PYRENE											
FLUORANTHENE											
FLUORENE											
HEXACHLOROENZENE											
HEXACHLOROCYCLO-PENTADIENE											
HEXACHLOROETHANE											
INDENO (1,2,3-CD) PYRENE											
ISOPHORONE											
NAPHTHALENE											
NITROBENZENE											
N-NITROSODI-PROPYLAMINE											
N-NITROSODI-METHYLAMINE											
N-NITROSODI-PHENYLAMINE											
PHENANTHRENE											
PYRENE											
1,2,4-TRICHLOROENZENE											

USE THIS SPACE (OR SEPARATE SHEET) TO PROVIDE INFORMATION ON OTHER BASE-NEUTRAL COMPOUNDS REQUESTED BY THE PERMIT WRITER.


END OF PART D

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.

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**PART E – TOXICITY TESTING DATA**

**50. TOXICITY TESTING DATA**

US MAIL

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

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

- A. POTWS with a design flow rate greater than or equal to 1 million gallons per day.
- B. POTWS with a pretreatment program (or those that are required to have one under 40 CFR Part 403).
- C. POTWS required by the permitting authority to submit data for these parameters
  - ◆ At a minimum, these results must include quarterly testing for a 12-month period within the past one year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute or chronic toxicity, depending on the range of receiving water dilution. Do not include information about combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.
  - ◆ If EPA methods were not used, report the reason for using alternative methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E. If no biomonitoring data is required, do not complete Part E. Refer to the application overview for directions on which other sections of the form to complete.

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

CHRONIC	ACUTE
---------	-------

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

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

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**PART E - TOXICITY TESTING DATA (CONTINUED)**

**50.1 WHOLE EFFLUENT TOXICITY TESTS DATA (CONTINUED)**

	MOST RECENT	2 <sup>ND</sup> MOST RECENT	3 <sup>RD</sup> MOST RECENT
I. TYPE OF DILUTION WATER, IF SALT WATER, SPECIFY "NATURAL" OR TYPE OF ARTIFICIAL SEA SALTS OR BRINE USED.			
FRESH WATER			
SALT WATER			

Hand Delivery  Fed Ex  UPS   
 U.S. MAIL  FAX

J. GIVE THE PERCENTAGE EFFLUENT USED FOR ALL CONCENTRATIONS IN THE TEST SERIES.


K. PARAMETERS MEASURED DURING THE TEST. (STATE WHETHER PARAMETER MEETS TEST METHOD SPECIFICATIONS)

pH			
SALINITY			
TEMPERATURE			
AMMONIA			
DISSOLVED OXYGEN			

L. TEST RESULTS

ACUTE:

PERCENT IN SURVIVAL IN 100% EFFLUENT			
LC <sub>50</sub>			
95% C.I.			
CONTROL PERCENT SURVIVAL			
OTHER (DESCRIBE)			

CHRONIC:

NOEC			
IC <sub>25</sub>			
CONTROL PERCENT SURVIVAL			
OTHER (DESCRIBE)			

M. QUALITY CONTROL ASSURANCE

IS REFERENCE TOXICANT DATA AVAILABLE?			
WAS REFERENCE TOXICANT TEST WITHIN ACCEPTABLE BOUNDS?			
WHAT DATE WAS REFERENCED TOXICANT TEST RUN (MM/DD/YYYY)?			
OTHER (DESCRIBE)			

50.2 TOXICITY REDUCTION EVALUATION

Is the treatment works involved in a toxicity reduction evaluation?  Yes  No  
 If yes, describe:

50.3 SUMMARY OF SUBMITTED BIOMONITORING TEST INFORMATION

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

Date Submitted (MM/DD/YYYY)

Summary of Results (See Instructions)

**END OF PART E**

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.

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**PART F - INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES**

**60. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES**

Refer to the Supplemental Application Information to determine whether Part F applies to the treatment works.  US MAIL  FAX  UPS  Hand Delivery  Fed Ex

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

**GENERAL INFORMATION**

**60.1 PRETREATMENT PROGRAM**

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

Yes  No

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

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

**60.3 SIGNIFICANT INDUSTRIAL USER INFORMATION**

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

NAME			
MAILING ADDRESS	CITY	STATE	ZIP

**60.4 INDUSTRIAL PROCESSES**

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

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

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

PRINCIPAL PRODUCT(S)
RAW MATERIAL(S)

**60.6 FLOW RATE**

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

gpd  Continuous  Intermittent

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

C. gpd  Continuous  Intermittent

**60.7 PRETREATMENT STANDARDS**

Indicate whether the SIU is subject to the following

A. Local Limits	<input type="checkbox"/> Yes	<input type="checkbox"/> No
B. Categorical Pretreatment Standards	<input type="checkbox"/> Yes	<input type="checkbox"/> No

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

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

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

Yes  No If Yes, describe each episode

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

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

RCRA WASTE. Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail, or dedicated pipe?

Yes  No

Email  US MAIL  
 FAX  
 UPS  
 Fed Ex

WASTE TRANSPORT. Method by which RCRA waste is received. (Check all that apply)

Truck  Rail  Dedicated Pipe

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

EPA HAZARDOUS WASTE NUMBER	AMOUNT	UNITS

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

REMEDIAL WASTE. Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities?

Yes  No Provide a list of sites and the requested information for each current and future site.

60.11 WASTE ORIGIN

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

60.12 POLLUTANTS

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

60.13 WASTE TREATMENT

A. Is this waste treated (or will it be treated) prior to entering the treatment works?

Yes  No

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

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

Continuous  Intermittent

If intermittent, describe the discharge schedule:

**END OF PART F**

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

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MO-

US MAIL

**PART G – COMBINED SEWER SYSTEMS**

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

Email \_\_\_\_\_ FAX \_\_\_\_\_ UPS \_\_\_\_\_  
Hand Delivery \_\_\_\_\_ Fed Ex \_\_\_\_\_

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

**70.1 SYSTEM MAP**

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

- A. All CSO Discharges.
- B. Sensitive Use Areas Potentially Affected by CSOs. (e.g., beaches, drinking water supplies, shellfish beds, sensitive aquatic ecosystems and Outstanding Natural Resource Waters.)
- C. Waters that Support Threatened and Endangered Species Potentially Affected by CSOs.

**70.2 SYSTEM DIAGRAM**

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

- A. Locations of Major Sewer Trunk Lines, Both Combined and Separate Sanitary.
- B. Locations of Points where Separate Sanitary Sewers Feed into the Combined Sewer System.
- C. Locations of In-Line or Off-Line Storage Structures.
- D. Locations of Flow-Regulating Devices.
- E. Locations of Pump Stations.

**70.3 PERCENT OF COLLECTION SYSTEM THAT IS COMBINED SEWER**

**70.4 POPULATION SERVED BY COMBINED SEWER COLLECTION SYSTEM**

**70.5 NAME OF ANY SATELLITE COMMUNITY WITH COMBINED SEWER COLLECTION SYSTEM**

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

**70.7 DESCRIPTION OF OUTFALL**

A. Outfall Number

B. Location

C. Distance from Shore (if applicable)  
\_\_\_\_\_ ft

D. Depth Below Surface (if applicable)  
\_\_\_\_\_ ft

E. Which of the following were monitored during the last year for this CSO?

- Rainfall     CSO Pollutant Concentrations     CSO     CSO Flow Volume     Receiving Water Quality

F. How many storm events were monitored last year?

**70.8 CSO EVENTS**

A. Give the Number of CSO Events in the Last Year  
\_\_\_\_\_ Events     Actual     Approximate

B. Give the Average Duration Per CSO Event  
\_\_\_\_\_ Hours     Actual     Approximate

C. Give the Average Volume Per CSO Event  
\_\_\_\_\_ Million Gallons     Actual     Approximate

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

**70.9 DESCRIPTION OF RECEIVING WATERS**

A. Name of Receiving Water

B. Name of Watershed/River/Stream System

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

Name of State Management/River Basin

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

**70.10 CSO OPERATIONS**

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

**END OF PART G.**

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