

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No. MO-0137553

Owner: City of Brookfield
Address: 116 West Brooks, Brookfield, MO 64628

Continuing Authority: Same as above
Address: Same as above

Facility Name: Brookfield WWTF
Facility Address: 110 N. Brunswick, Brookfield, MO 64628

Legal Description: SW¹/₄, NW¹/₄, Sec. 5, T57N, R19W, Linn County
UTM Coordinates: X= 494659, Y= 4404249

Receiving Stream: Tributary to West Yellow Creek
First Classified Stream and ID: West Yellow Creek (P) (599)
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 “C” Operator.
Automated Bar Screen/Grit removal/ Extended Aeration/Ultraviolet Disinfection/Aerobic sludge digestion/belt press/sludge disposal at off- site sanitary landfill
Design population equivalent (PE) is – 10,000.
Design flow is 1,000,000 gallons per day.
Actual flow is 850,000 gallons per day.
Design sludge production is 148.5 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 621.250 RSMo, Section 640.013 RSMo and Section 644.051.6 of the Law.

August 1, 2016
Effective Date

Sara Parker Pauley, Director, Department of Natural Resources

March 31, 2019
Expiration Date

John Madras, Director, Water Protection Program

OUTFALL #001	TABLE A FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	PERMIT NUMBER MO-0137553
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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 ₅	mg/L		24	16	once/week	composite**
Total Suspended Solids	mg/L		24	16	once/week	composite**
<i>E. coli</i> (Note 1)	#/100 ml	1030		206	once/week	grab
pH – Units	SU	***		***	once/week	grab
Ammonia as N (April 1 – Sept 30) (Oct 1 – March 31)	mg/L	3.7 7.5		1.4 2.9	once/week	grab
Oil & Grease	mg/L	15		10	once/week	grab

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE **September 28, 2016**. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

EFFLUENT PARAMETER(S)	UNITS	DAILY MINIMUM	WEEKLY AVERAGE MINIMUM	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Whole Effluent Toxicity (WET) test	% Survival	See Special Condition #18			once/year	composite**

WET TEST REPORTS SHALL BE SUBMITTED **ANNUALLY**; THE FIRST REPORT IS DUE **January 28, 2018**.

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

Note 1 - Effluent limitations and monitoring requirements for *E. coli* are applicable only during the recreational season from April 1 through October 31. The Monthly Average Limit for *E. coli* is expressed as a geometric mean.

TABLE B. INFLUENT MONITORING REQUIREMENTS	PERMIT NUMBER MO-0137553
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The facility is required to meet a removal efficiency of 85% or more as a monthly average. The monitoring requirements shall become effective upon issuance and remain in effect until expiration of the permit. To determine removal efficiencies, the influent wastewater shall be monitored by the permittee as specified below:

SAMPLING LOCATION AND PARAMETER(S)	UNITS	MONITORING REQUIREMENTS	
		MEASUREMENT FREQUENCY	SAMPLE TYPE
Biochemical Oxygen Demand ₅	mg/L	once/month	composite**
Total Suspended Solids	mg/L	once/month	composite**

MONITORING REPORTS SHALL BE SUBMITTED **MONTHLY**; THE FIRST REPORT IS DUE **September 28, 2016**.

C. STANDARD CONDITIONS

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

D. SPECIAL CONDITIONS

1. This permit establishes final ammonia limitations based on Missouri's current Water Quality Standard. On August 22, 2013, the U.S. Environmental Protection Agency (EPA) published a notice in the Federal Register announcing of the final national recommended ambient water quality criteria for protection of aquatic life from the effects of ammonia in freshwater. The EPA's guidance, Final Aquatic Life Ambient Water Quality Criteria for Ammonia – Fresh Water 2013, is not a rule, nor automatically part of a state's water quality standards. States must adopt new ammonia criteria consistent with EPA's published ammonia criteria into their water quality standards that protect the designated uses of the water bodies. The Department of Natural Resources intends to adopt the new ammonia criteria during the next water quality standards triennial review. For additional information concerning potential future ammonia effluent limitations for this facility, please see Section VI of the attached factsheet. It is recommended the permittee view the Department's 2013 EPA criteria Factsheet located at <http://dnr.mo.gov/pubs/pub2481.pdf>.
2. This permit may be reopened and modified, or alternatively revoked and reissued, to:
 - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
 - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.
 - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
 - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.
 - (d) Incorporate the requirement to develop a pretreatment program pursuant to 40 CFR 403.8(a) when the Director of the Water Protection Program determines that a pretreatment program is necessary due to any new introduction of pollutants into the Publically Owned Treatment Works or any substantial change in the volume or character of pollutants being introduced.

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

3. All outfalls must be clearly marked in the field.
4. The permittee shall submit a report annually in January to the Northeast Regional Office with the Discharge and Monitoring reports which describes measures taken to locate and eliminate sources of infiltration and inflow into the collection system serving the facility for the previous year.
5. 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.
6. Water Quality Standards
 - (a) To the extent required by law, discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
 - (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
 - (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;

D. SPECIAL CONDITIONS (continued)

- (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.
7. 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.
8. Report as no-discharge when a discharge does not occur during the report period.
9. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
10. 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.
11. Bypasses are not authorized at this facility and are subject to 40 CFR 122.41(m). If a bypass occurs, the permittee shall report in accordance to 40 CFR 122.41(m)(3)(i), and with Standard Condition Part I, Section B, subsection 2.b. Bypasses are to be reported to the Northeast Regional Office.
12. The facility must be sufficiently secured to restrict entry by children, livestock and unauthorized persons as well as to protect the facility from vandalism.
13. At least one gate must be provided to access the wastewater treatment facility and provide for maintenance and mowing. The gate shall remain closed except when temporarily opened by; the permittee to access the facility, perform operational monitoring, sampling, maintenance, mowing, or for inspections by the Department. The gate shall be closed and locked when the facility is not staffed.
14. At least one (1) warning sign shall be placed on each side of the facility enclosure in such positions as to be clearly visible from all directions of approach. There shall also be one (1) sign placed for every five hundred feet (500') (150 m) of the perimeter fence. A sign shall also be placed on each gate. Minimum wording shall be SEWAGE TREATMENT FACILITY—KEEP OUT. Signs shall be made of durable materials with characters at least two inches (2") high and shall be securely fastened to the fence, equipment or other suitable locations.
15. An Operation and Maintenance (O&M) manual shall be maintained by the permittee and made available to the operator. The O&M manual shall include key operating procedures and a brief summary of the operation of the facility.
16. An all-weather access road shall be provided to the treatment facility.

D. SPECIAL CONDITIONS (continued)

17. The discharge from the wastewater treatment facility shall be conveyed to the receiving stream via a closed pipe or a paved or riprapped open channel. Sheet or meandering drainage is not acceptable. The outfall sewer shall be protected against the effects of floodwater, ice or other hazards as to reasonably insure its structural stability and freedom from stoppage. The outfall shall be maintained so that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving waters.
18. 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%	Annually	24 hr. composite**	Any

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

(a) Test Schedule and Follow-Up Requirements

- (1) Perform a MULTIPLE-dilution acute WET test in the months and at the frequency specified above. For tests which are successfully passed, submit test results using the Department's WET test report form #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.
 - (i) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.
 - (ii) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analysis performed upon any other effluent concentration.
 - (iii) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.
- (2) The WET test will be considered a failure if mortality observed in effluent concentrations for either specie, equal to or less than the AEC, is significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available, synthetic laboratory control water may be used.
- (3) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (4) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.
- (4) If the effluent fails the test for BOTH test species, a multiple dilution test shall be performed for BOTH test species within 30 calendar days and biweekly thereafter (for storm water, tests shall be performed on the next and subsequent storm water discharges as they occur, but not less than 7 days apart) until one of the following conditions are met: Note: Written request regarding single species multiple dilution accelerated testing will be address by THE WATER PROTECTION PROGRAM on a case by case basis.
 - (i) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
 - (ii) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
- (5) Follow-up tests do not negate an initial failed test.
- (6) The permittee shall submit a summary of all test results for the test series along with complete copies of the test reports as received from the laboratory to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the third failed test.

D. SPECIAL CONDITIONS (continued)

- (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 A NEW FACILITY TO BE CONSTRUCTED
OF
MO-0137553
BROOKFIELD WWTF

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

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

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

This Factsheet is for a Major

Part I – Facility Information

Facility Type: POTW - SIC #4952

Facility Description:

Automated Bar Screen/Grit removal/Extended Aeration/Ultraviolet Disinfection/Aerobic sludge digestion/belt press/sludge disposal at off- site sanitary landfill.

Design population equivalent (PE) is – 10,000.

Design flow is 1,000,000 gallons per day.

Actual flow is 850,000 gallons per day.

Design sludge production is 148.5 dry tons/year.

This project also adds a new NE pump station/forcemain/gravity sewer and a new SW pump station/forcemain/gravity sewer.

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

- Yes; New facility, with antidegradation review.

- No.

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE
#001	1.55	Secondary	Municipal

Facility Performance History:

This proposed new facility will be replacing Brookfield Southwest (MO-0028738) and Brookfield Northeast (MO-0028746).

Comments:

Facility construction is expected to be completed in 2016. Construction covered under CP0001578 and CP0001823.

Part II – Operator Certification Requirements

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

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

Check boxes below that are applicable to the facility;

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

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

This facility currently requires an operator with a **C Certification Level**. Please see **Appendix - Classification Worksheet**. Modifications to the wastewater treatment facility, laboratory control (testing performed by plant personnel), influent variability, sludge management, or other consideration that could increase the complexity of facility operations may cause the classification to be modified.

Operator’s Name: Justin Griffin
 Certification Number: 10356
 Certification Level: B

The listing of the operator above only signifies that Department staff drafting this operating permit have reviewed appropriate records and determined that the name listed on the operating permit application currently has a B level certification.

Part III– Operational Monitoring

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

Part IV – Receiving Stream Information

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

RECEIVING STREAM(S) TABLE: OUTFALL #001

WATER-BODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	DISTANCE TO CLASSIFIED SEGMENT (MI)
Tributary to West Yellow Creek		----	General Criteria	10280103	0.8
West Yellow Creek	P	0599	AQL, IRR, LWW, SCR, WBC(B)	1206	

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

RECEIVING STREAM(S) LOW-FLOW VALUES:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Tributary to West Yellow Creek	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 STREAM MONITORING REQUIREMENTS:

No receiving water monitoring requirements recommended at this time.

Receiving Water Body's Water Quality

See Appendix - Water Quality and Antidegradation Review

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.

- New facility, backsliding does not apply.

ANTIDegradation:

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

- New and/or expanded discharge, please see **APPENDIX FOR ANTIDegradation ANALYSIS**.

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 disposed of in off-site sanitary landfill.

COMPLIANCE AND ENFORCEMENT:

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

Applicable : The Brookfield NE WWTF was referred to Enforcement in June 2013.

PRETREATMENT PROGRAM:

The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a Publicly Owned Treatment Works [40 CFR Part 403.3(q)]. Pretreatment programs are required at any POTW (or combination of POTW operated by the same authority) and/or municipality with a total design flow greater than 5.0 MGD and receiving industrial wastes that interfere with or pass through the treatment works or are otherwise subject to the pretreatment standards. Pretreatment programs can also be required at POTWs/municipals with a design flow less than 5.0 MGD if needed to prevent interference with operations or pass through.

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 given pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

Not Applicable : A RPA was not conducted for this facility as this is a new facility.

REMOVAL EFFICIENCY:

Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals.

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

SANITARY SEWER OVERFLOWS (SSO) AND INFLOW AND INFILTRATION (I&I):

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

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

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

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

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

In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in February 2009], BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure. Additionally in accordance with the Storm Water Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of storm water discharges.

Not Applicable ; At this time, the permittee is not required to develop and implement a SWPPP. No exposure.

VARIANCE:

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

Not Applicable ; This operating permit is not drafted under premises of a petition for variance.

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:

As per [10 CSR 20-2.010(78)], the amount of pollutant each discharger is allowed by the Department to release into a given stream after the Department has determined total amount of pollutant that may be discharged into that stream without endangering its water quality.

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

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

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

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID). Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Number of Samples "n":

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

WLA MODELING:

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

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

WATER QUALITY STANDARDS:

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

WHOLE EFFLUENT TOXICITY (WET) TEST:

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

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

- Facility is a designated Major.
- Facility continuously or routinely exceeds its design flow.
- Facility (industrial) that alters its production process throughout the year.
- Facility handles large quantities of toxic substances, or substances that are toxic in large amounts.
- Facility has Water Quality-based Effluent Limitations for toxic substances (other than NH₃)
- Facility is a municipality or domestic discharger with a Design Flow ≥ 22,500 gpd.
- Other – please justify.

40 CFR 122.41(M) - BYPASSES:

The federal Clean Water Act (CWA), Section 402 prohibits wastewater dischargers from “bypassing” untreated or partially treated sewage (wastewater) beyond the headworks. A bypass is defined as an intentional diversion of waste streams from any portion of a treatment facility, [40 CFR 122.41(m)(1)(i)]. Additionally, Missouri regulation 10 CSR 20-2.010(11) defines a bypass as the diversion of wastewater from any portion of wastewater treatment facility or sewer system to waters of the state. Only under exceptional and specified limitations do the federal regulations allow for a facility to bypass some or all of the flow from its treatment process. Bypasses are prohibited by the CWA unless a permittee can meet all of the criteria listed in 40 CFR 122.41(m)(4)(i)(A), (B), & (C). Any bypasses from this facility are subject to the reporting required in 40 CFR 122.41(l)(6) and per Missouri’s Standard Conditions I, Section B, part 2.b. Additionally, Anticipated Bypasses include bypasses from peak flow basins or similar devices designed for peak wet weather flows.

Not Applicable ; This facility does not anticipate bypassing.

303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):

Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

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

Part VI –2013 Water Quality Criteria for Ammonia

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

On August 22, 2013, the U.S. Environmental Protection Agency (EPA) finalized new water quality criteria for ammonia, based on toxicity studies of mussels. Missouri's current ammonia criteria are based on toxicity testing of several species, but did not include data from mussels. Missouri is home to 65 of North America's mussel species, which are spread across the state. According to the Missouri Department of Conservation nearly two-thirds of the mussel species in Missouri are considered to be "of conservation concern". Nine species are listed as federally endangered, with an additional species currently proposed as endangered and another species proposed as threatened.

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

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

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

Ammonia toxicity varies by temperature and by pH of the water. Assuming a stable pH value, but taking into account winter and summer temperatures, Missouri includes two seasons of ammonia effluent limitations. Current effluent limits for ammonia in this permit are:

Summer – 4.7 mg/L daily maximum, 2.3 mg/L monthly average.
Winter – 9.3 mg/L daily maximum, 4.7 mg/L monthly average.

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

Summer – 1.7 mg/L daily maximum, 0.6 mg/L monthly average.
Winter – 5.6 mg/L daily maximum, 2.1 mg/L monthly average.

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

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

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

Part 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. See Appendix – Water Quality and Antidegradation Review.

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. Renewal applications must continue to be submitted within 180 days of expiration, however, in instances where effluent data from the previous renewal is less than 4 years old, that data may be re-submitted to meet the requirements of the renewal application. If the permit provides a schedule of compliance for meeting new water quality based effluent limits beyond the expiration date of the permit, the time remaining in the schedule of compliance will be allotted in the renewed permit. This permit will expire in the **1st Quarter of calendar year 2018.**

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 November 15-December 16, 2013. No responses received.

DATE OF FACT SHEET: NOVEMBER 5, 2013.

COMPLETED BY:

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WATER PROTECTION PROGRAM
ENGINEERING SECTION
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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.	1
Maximum: 10 pt Design Flow (avg. day) or peak month; use greater (Max 10 pts.)	1 pt. / MGD or major fraction thereof.	1
EFFLUENT DISCHARGE RECEIVING WATER SENSITIVITY:		
Missouri or Mississippi River	0	
All other stream discharges except to losing streams and stream reaches supporting whole body contact	1	
Discharge to lake or reservoir outside of designated whole body contact recreational area	2	
Discharge to losing stream, or stream, lake or reservoir area supporting whole body contact recreation	3	3
PRELIMINARY TREATMENT - Headworks		
Screening and/or comminution	3	3
Grit removal	3	3
Plant pumping of main flow (lift station at the headworks)	3	
PRIMARY TREATMENT		
Primary clarifiers	5	
Combined sedimentation/digestion	5	
Chemical addition (except chlorine, enzymes)	4	
REQUIRED LABORATORY CONTROL – performed by plant personnel (highest level only)		
Push – button or visual methods for simple test such as pH, Settleable solids	3	
Additional procedures such as DO, COD, BOD, titrations, solids, volatile content	5	5
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	7	
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph	10	
ALTERNATIVE FATE OF EFFLUENT		
Direct reuse or recycle of effluent	6	
Land Disposal – low rate	3	
High rate	5	
Overland flow	4	
Total from page ONE (1)	----	16

APPENDIX A - CLASSIFICATION WORKSHEET (CONTINUED):

ITEM	POINTS POSSIBLE	POINTS ASSIGNED
VARIATION IN RAW WASTE (highest level only) (DMR exceedances and Design Flow exceedances)		
Variation do not exceed those normally or typically expected	0	0
Recurring deviations or excessive variations of 100 to 200 % in strength and/or flow	2	
Recurring deviations or excessive variations of more than 200 % in strength and/or flow	4	
Raw wastes subject to toxic waste discharge	6	
SECONDARY TREATMENT		
Trickling filter and other fixed film media with secondary clarifiers	10	
Activated sludge with secondary clarifiers (including extended aeration and oxidation ditches)	15	15
Stabilization ponds without aeration	5	
Aerated lagoon	8	
Advanced Waste Treatment Polishing Pond	2	
Chemical/physical – without secondary	15	
Chemical/physical – following secondary	10	
Biological or chemical/biological	12	
Carbon regeneration	4	
DISINFECTION		
Chlorination or comparable	5	
Dechlorination	2	
On-site generation of disinfectant (except UV light)	5	
UV light	4	4
SOLIDS HANDLING - SLUDGE		
Solids Handling Thickening	5	
Anaerobic digestion	10	
Aerobic digestion	6	6
Evaporative sludge drying	2	
Mechanical dewatering	8	8
Solids reduction (incineration, wet oxidation)	12	
Land application	6	
Total from page TWO (2)	----	33
Total from page ONE (1)	---	16
Grand Total	---	49

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

APPENDIX B – ANTIDegradation ANALYSIS:

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	1.55	Secondary	Tributary to West Fork Yellow Creek	~0.8

3. RECEIVING WATERBODY INFORMATION

WATERBODY NAME	CLASS	WBID	LOW-FLOW VALUES (CFS)			DESIGNATED USES **
			1Q10	7Q10	30Q10	
Tributary to West Yellow Creek	U	--	--	--	--	General Criteria
West Yellow Creek*	P	599		0.02 [†]		AQL, IRR, LWV, 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 ₅ /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.

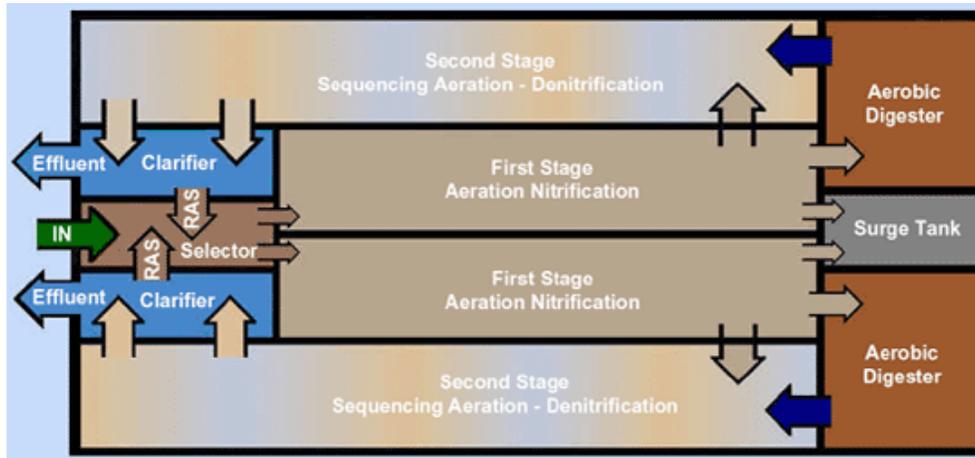


Table 3: Alternatives Analysis Comparison

	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 STUDY CONDUCTED: No USE ATTAINABILITY ANALYSIS CONDUCTED: No WHOLE BODY CONTACT 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 ₅ ***	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 BOD₅ and TSS. Influent BOD₅ 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_s = upstream concentration

Q_s = upstream flow

C_e = effluent concentration

Q_e = 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 BOD₅ 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).

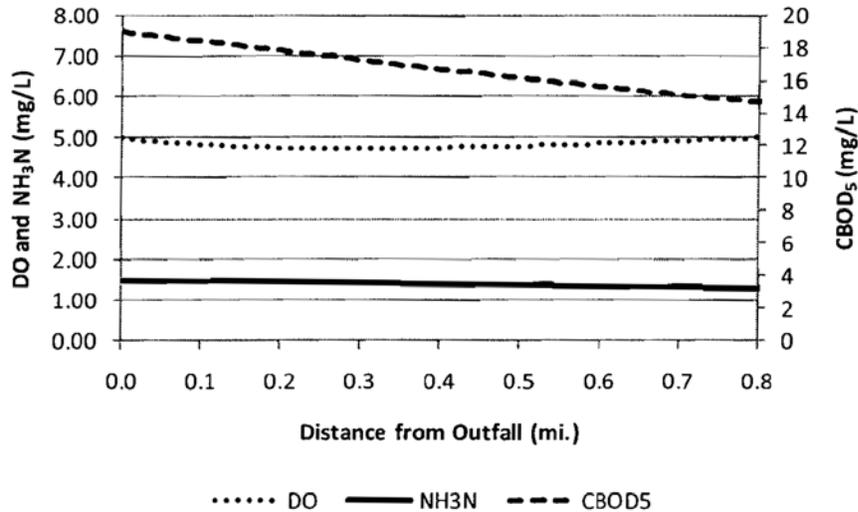
Note: Significantly-degrading effluent limits have been based on the authority included in Section III. Permit Consideration of the AIP. Also under 40 CFR 133.105, permitting authorities shall require more stringent limitations than equivalent to secondary treatment limitations for 1) existing facilities if the permitting authority determines that the 30-day average and 7-day average BOD₅ 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 BOD₅ 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 (BOD₅).** Applicant proposed seasonal BOD₅ effluent limits with summer BOD₅ limits of 16 mg/L monthly average, 24 mg/L average weekly limits and winter BOD₅ limits of 30 mg/L monthly average, 45 mg/L average weekly limits. It is not the department’s policy to set seasonal BOD₅ limits. As a part of the dissolved oxygen modeling conducted by Geosyntec, the BOD₅ 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 CBOD₅ 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 N/L)	Total Ammonia Nitrogen CMC (mg N/L)
Summer	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

Summer: April 1 – September 30, Winter: October 1 – March 31.

Summer

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

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: $C_e = ((1.55 + 0.0)12.1 - (0.0 * 0.01)) / 1.55$

$$C_e = 12.1 \text{ mg/L}$$

$$LTA_c = 1.5 \text{ mg/L} (0.780) = \mathbf{1.2 \text{ mg/L}}$$

$$LTA_a = 12.1 \text{ mg/L} (0.321) = 3.88 \text{ mg/L}$$

$$MDL = 1.2 \text{ mg/L} (3.11) = 3.7 \text{ mg/L}$$

$$AML = 1.2 \text{ mg/L} (1.19) = 1.4 \text{ mg/L}$$

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

[CV = 0.6, 99th Percentile]

[CV = 0.6, 99th Percentile]

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

Winter

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: $C_e = ((1.55 + 0.0)12.1 - (0.0025 * 0.01))/1.55$
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 3.1 \text{ mg/L} (0.780) = 2.4 \text{ mg/L}$ [CV = 0.6, 99th Percentile, 30 day avg.]
 $LTA_a = 12.1 \text{ mg/L} (0.321) = 3.9 \text{ mg/L}$ [CV = 0.6, 99th Percentile]
 $MDL = 2.4 \text{ mg/L} (3.11) = 7.5 \text{ mg/L}$ [CV = 0.6, 99th Percentile]
 $AML = 2.4 \text{ mg/L} (1.19) = 2.9 \text{ mg/L}$ [CV = 0.6, 95th Percentile, n = 30]

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

-
- **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](#) is a Conservation Department publication available at <http://www.mdc.mo.gov/documents/nathis/endangered/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

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/endangered/>. Detailed information about species mentioned may be accessed at http://mdc4.mdc.mo.gov/applications/mofws/mofws_search1.aspx. If you would like printed copies of best management practices cited as internet URLs, please contact us.



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

These Standard Conditions incorporate permit conditions as required by 40 CFR 122.41 or other applicable state statutes or regulations. These minimum conditions apply unless superseded by requirements specified in the permit.

Part I – General Conditions

Section A – Sampling, Monitoring, and Recording

1. **Sampling Requirements.**
 - a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
 - b. All samples shall be taken at the outfall(s) or Missouri Department of Natural Resources (Department) approved sampling location(s), and unless specified, before the effluent joins or is diluted by any other body of water or substance.
2. **Monitoring Requirements.**
 - a. Records of monitoring information shall include:
 - i. The date, exact place, and time of sampling or measurements;
 - ii. The individual(s) who performed the sampling or measurements;
 - iii. The date(s) analyses were performed;
 - iv. The individual(s) who performed the analyses;
 - v. The analytical techniques or methods used; and
 - vi. The results of such analyses.
 - b. If the permittee monitors any pollutant more frequently than required by the permit at the location specified in the permit using test procedures approved under 40 CFR Part 136, or another method required for an industry-specific waste stream under 40 CFR subchapters N or O, the results of such monitoring shall be included in the calculation and reported to the Department with the discharge monitoring report data (DMR) submitted to the Department pursuant to Section B, paragraph 7.
3. **Sample and Monitoring Calculations.** Calculations for all sample and monitoring results which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in the permit.
4. **Test Procedures.** The analytical and sampling methods used shall conform to the reference methods listed in 10 CSR 20-7.015 unless alternates are approved by the Department. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. The facility shall ensure that the selected methods are able to quantify the presence of pollutants in a given discharge at concentrations that are low enough to determine compliance with Water Quality Standards in 10 CSR 20-7.031 or effluent limitations unless provisions in the permit allow for other alternatives. A method is “sufficiently sensitive” when; 1) the method minimum level is at or below the level of the applicable water quality criterion for the pollutant or, 2) the method minimum level is above the applicable water quality criterion, but the amount of pollutant in a facility’s discharge is high enough that the method detects and quantifies the level of pollutant in the discharge, or 3) the method has the lowest minimum level of the analytical methods approved under 10 CSR 20-7.015. These methods are also required for parameters that are listed as monitoring only, as the data collected may be used to determine if limitations need to be established. A permittee is responsible for working with their contractors to ensure that the analysis performed is sufficiently sensitive.
5. **Record Retention.** Except for records of monitoring information required by the permit related to the permittee’s sewage sludge use and disposal activities, which shall be retained for a period of at least five (5) years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

6. **Illegal Activities.**
 - a. The Federal Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under the permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than two (2) years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than four (4) years, or both.
 - b. The Missouri Clean Water Law provides that any person or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than six (6) months, or by both. Second and successive convictions for violation under this paragraph by any person shall be punished by a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.

Section B – Reporting Requirements

1. **Planned Changes.**
 - a. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility when:
 - i. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
 - ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42(a)(1);
 - iii. The alteration or addition results in a significant change in the permittee’s sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;
 - iv. Any facility expansions, production increases, or process modifications which will result in a new or substantially different discharge or sludge characteristics must be reported to the Department 60 days before the facility or process modification begins. Notification may be accomplished by application for a new permit. If the discharge does not violate effluent limitations specified in the permit, the facility is to submit a notice to the Department of the changed discharge at least 30 days before such changes. The Department may require a construction permit and/or permit modification as a result of the proposed changes at the facility.
2. **Twenty-Four Hour Reporting.**
 - a. The permittee shall report any noncompliance which may endanger health or the environment. Relevant information shall be provided orally or via the current electronic method approved by the Department, within 24 hours from the time the permittee becomes aware of the circumstances, and shall be reported to the appropriate Regional Office during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours. A written submission shall also be provided within five (5) business days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.



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- b. The following shall be included as information which must be reported within 24 hours under this paragraph.
 - i. Any unanticipated bypass which exceeds any effluent limitation in the permit.
 - ii. Any upset which exceeds any effluent limitation in the permit.
 - iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit required to be reported within 24 hours.
 - c. The Department may waive the written report on a case-by-case basis for reports under paragraph 2. b. of this section if the oral report has been received within 24 hours.
3. **Sanitary Sewer Overflow Reporting.** The following requirements solely reflect reporting obligations, and reporting does not necessarily reflect noncompliance, which may depend on the circumstances of the incident reported.
- a. **Twenty-Four Hour (24-Hour) Reporting.** The permittee or owner shall report any incident in which wastewater escapes the collection system such that it reaches waters of the state or it may pose an imminent or substantial endangerment to the health or welfare of persons. Relevant information shall be provided orally or via the current electronic method approved by the Department within 24 hours from the time the permittee becomes aware of the incident. A written submission shall also be provided within five (5) business days of the time the permittee or owner becomes aware of the incident. The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The five (5) day reports may be provided via the current electronic method approved by the Department.
 - b. **Incidents Reported via Discharge Monitoring Reports (DMRs).** The permittee or owner shall report any event in which wastewater escapes the collection system, which does not enter waters of the state and is not expected to pose an imminent or substantial endangerment to the health or welfare of persons, which occur typically during wet weather events. Relevant information shall be provided with the permittee's or owner's DMRs.
4. **Anticipated Noncompliance.** The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The notice shall be submitted to the Department 60 days prior to such changes or activity.
5. **Compliance Schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date. The report shall provide an explanation for the instance of noncompliance and a proposed schedule or anticipated date, for achieving compliance with the compliance schedule requirement.
6. **Other Noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs 2, 3, 4, and 7 of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph 2. a. of this section.
7. **Other Information.** Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.
8. **Discharge Monitoring Reports.**
- a. Monitoring results shall be reported at the intervals specified in the permit.
 - b. Monitoring results must be reported to the Department via the current method approved by the Department, unless the permittee has been granted a waiver from using the method. If the permittee has been granted a waiver, the permittee must use forms provided by the Department.
 - c. Monitoring results shall be reported to the Department no later than the 28th day of the month following the end of the reporting period.

Section C – Bypass/Upset Requirements

1. **Definitions.**
 - a. *Bypass*: the intentional diversion of waste streams from any portion of a treatment facility.
 - b. *Severe Property Damage*: substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
 - c. *Upset*: an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
2. **Bypass Requirements.**
 - a. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2. b. and 2. c. of this section.
 - b. Notice.
 - i. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
 - ii. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Section B – Reporting Requirements, paragraph 5 (24-hour notice).
 - c. Prohibition of bypass.
 - i. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:
 1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 3. The permittee submitted notices as required under paragraph 2. b. of this section.
 - ii. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three (3) conditions listed above in paragraph 2. c. i. of this section.
3. **Upset Requirements.**
 - a. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph 3. b. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
 - b. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - i. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - ii. The permitted facility was at the time being properly operated; and
 - iii. The permittee submitted notice of the upset as required in Section B – Reporting Requirements, paragraph 2. b. ii. (24-hour notice).
 - iv. The permittee complied with any remedial measures required under Section D – Administrative Requirements, paragraph 4.
 - c. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.



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Section D – Administrative Requirements

1. **Duty to Comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Missouri Clean Water Law and Federal Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.
 - a. The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
 - b. The Federal Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed \$25,000 per day for each violation. The Federal Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of \$2,500 to \$25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than \$250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can be fined up to \$2,000,000 for second or subsequent convictions.
 - c. Any person may be assessed an administrative penalty by the EPA Director for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed \$10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed \$25,000. Penalties for Class II violations are not to exceed \$10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed \$125,000.
 - d. It is unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law, or any standard, rule or regulation promulgated by the commission. In the event the commission or the director determines that any provision of sections 644.006 to 644.141 of the Missouri Clean Water Law or standard, rules, limitations or regulations promulgated pursuant thereto, or permits issued by, or any final abatement order, other order, or determination made by the commission or the director, or any filing requirement pursuant to sections 644.006 to 644.141 of the Missouri Clean Water Law or any other provision which this state is required to enforce pursuant to any federal water pollution control act, is being, was, or is in imminent danger of being violated, the commission or director may cause to have instituted a civil action in any court of competent jurisdiction for the injunctive relief to prevent any such violation or further violation or for the assessment of a penalty not to exceed \$10,000 per day for each day, or part thereof, the violation occurred and continues to occur, or both, as the court deems proper. Any person who willfully or negligently commits any violation in this paragraph shall, upon conviction, be punished by a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both. Second and successive convictions for violation of the same provision of this paragraph by any person shall be punished by a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.
2. **Duty to Reapply.**
 - a. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.
 - b. A permittee with a currently effective site-specific permit shall submit an application for renewal at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Department. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
 - c. A permittees with currently effective general permit shall submit an application for renewal at least 30 days before the existing permit expires, unless the permittee has been notified by the Department that an earlier application must be made. The Department may grant permission for a later submission date. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
3. **Need to Halt or Reduce Activity Not a Defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
4. **Duty to Mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
5. **Proper Operation and Maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
6. **Permit Actions.**
 - a. Subject to compliance with statutory requirements of the Law and Regulations and applicable Court Order, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:
 - i. Violations of any terms or conditions of this permit or the law;
 - ii. Having obtained this permit by misrepresentation or failure to disclose fully any relevant facts;
 - iii. A change in any circumstances or conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
 - iv. Any reason set forth in the Law or Regulations.
 - b. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.



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7. **Permit Transfer.**
- Subject to 10 CSR 20-6.010, an operating permit may be transferred upon submission to the Department of an application to transfer signed by the existing owner and the new owner, unless prohibited by the terms of the permit. Until such time the permit is officially transferred, the original permittee remains responsible for complying with the terms and conditions of the existing permit.
 - The Department may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Missouri Clean Water Law or the Federal Clean Water Act.
 - The Department, within 30 days of receipt of the application, shall notify the new permittee of its intent to revoke or reissue or transfer the permit.
8. **Toxic Pollutants.** The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the Federal Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
9. **Property Rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.
10. **Duty to Provide Information.** The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.
11. **Inspection and Entry.** The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:
- Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
 - Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
 - Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Federal Clean Water Act or Missouri Clean Water Law, any substances or parameters at any location.
12. **Closure of Treatment Facilities.**
- Persons who cease operation or plan to cease operation of waste, wastewater, and sludge handling and treatment facilities shall close the facilities in accordance with a closure plan approved by the Department.
 - Operating Permits under 10 CSR 20-6.010 or under 10 CSR 20-6.015 are required until all waste, wastewater, and sludges have been disposed of in accordance with the closure plan approved by the Department and any disturbed areas have been properly stabilized. Disturbed areas will be considered stabilized when perennial vegetation, pavement, or structures using permanent materials cover all areas that have been disturbed. Vegetative cover, if used, shall be at least 70% plant density over 100% of the disturbed area.
13. **Signatory Requirement.**
- All permit applications, reports required by the permit, or information requested by the Department shall be signed and certified. (See 40 CFR 122.22 and 10 CSR 20-6.010)
 - The Federal Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six (6) months per violation, or by both.
14. **Severability.** The provisions of the permit are severable, and if any provision of the permit, or the application of any provision of the permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of the permit, shall not be affected thereby.
- The Missouri Clean Water Law provides that any person who knowingly makes any false statement, representation or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than ten thousand dollars, or by imprisonment for not more than six months, or by both.



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MISSOURI CLEAN WATER COMMISSION
REVISED
MAY 1, 2013

PART II - SPECIAL CONDITIONS – PUBLICLY OWNED
TREATMENT WORKS
SECTION A – INDUSTRIAL USERS

1. Definitions

Definitions as set forth in the Missouri Clean Water Laws and approved by the Missouri Clean Water Commission shall apply to terms used herein.

Significant Industrial User (SIU). Except as provided in the *General Pretreatment Regulation* 10 CSR 20-6.100, the term Significant Industrial User means:

1. All Industrial Users subject to Categorical Pretreatment Standards; and
2. Any other Industrial User that: discharges an average of 25,000 gallons per day or more of process wastewater to the Publicly-Owned Treatment Works (POTW) (excluding sanitary, noncontact cooling and boiler blowdown wastewater); contributes a process wastestream which makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority on the basis that the Industrial User has a reasonable potential for adversely affecting the POTW's or for violating any Pretreatment Standard or requirement.

Clean Water Act (CWA) is the the federal Clean Water Act of 1972, 33 U.S.C. § 1251 et seq. (2002).

2. Identification of Industrial Discharges

Pursuant to 40 CFR 122.44(j)(1), all POTWs shall identify, in terms of character and volume of pollutants, any Significant Industrial Users discharging to the POTW subject to Pretreatment Standards under section 307(b) of the CWA and 40 CFR 403.

3. Application Information

Applications for renewal or modification of this permit must contain the information about industrial discharges to the POTW pursuant to 40 CFR 122.21(j)(6)

4. Notice to the Department

Pursuant to 40 CFR 122.42(b), all POTWs must provide adequate notice of the following:

1. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of CWA if it were directly discharging these pollutants; and
2. Any substantial change into the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
3. For purposes of this paragraph, adequate notice shall include information on:
 - i. the quality and quantity of effluent introduced into the POTW, and
 - ii. any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

For POTWs without an approved pretreatment program, the notice of industrial discharges which was not included in the permit application shall be made as soon as practicable. For POTWs with an approved pretreatment program, notice is to be included in the annual pretreatment report required in the special conditions of this permit. Notice may be sent to:

Missouri Department of Natural Resources
Water Protection Program
Attn: Pretreatment Coordinator
P.O. Box 176
Jefferson City, MO 65102

**STANDARD CONDITIONS FOR NPDES PERMITS
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MISSOURI CLEAN WATER COMMISSION
AUGUST 15, 1994**

PART III – SLUDGE & BIOSOLIDS FROM DOMESTIC WASTEWATER TREATMENT FACILITIES

SECTION A – GENERAL REQUIREMENTS

1. This permit pertains to sludge requirements under the Missouri Clean Water Law and regulation and incorporates applicable federal sludge disposal requirements under 40 CFR 503. The Environmental Protection Agency (EPA) has principal authority for permitting and enforcement of the federal sludge regulations under 40 CFS 503 until such time as Missouri is delegated the new EPA sludge program. EPA has reviewed and accepted these standard sludge conditions. EPA may choose to issue a separate sludge addendum to this permit or a separate federal sludge permit at their discretion to further address federal requirements.
2. These PART III Standard Conditions apply only to sludge and biosolids generated at domestic wastewater treatment facilities, including public owned treatment works (POTW) and privately owned facilities.
3. Sludge and Biosolids Use and Disposal Practices.
 - a. Permittee is authorized to operate the sludge and biosolids treatment, storage, use, and disposal facilities listed in the facility description of this permit.
 - b. Permittee shall not exceed the design sludge volume listed in the facility description and shall not use sludge disposal methods that are not listed in the facility description, without prior approval of the permitting authority.
 - c. Permittee is authorized to operate the storage, treatment or generating sites listed in the Facility Description section of this permit.
 - d. A separate operating permit is required for each operating location where sludge or biosolids are generated, stored, treated, or disposed, unless specifically exempted in this permit or in 10 CSR 20, Chapter 6 regulations. For land application, see section H, subsection 3 of these standard conditions.
4. Sludge Received From Other Facilities
 - a. Permittees may accept domestic wastewater sludge from other facilities including septic tank pumpings from residential sources as long as the design sludge volume is not exceeded and the treatment facility performance is not impaired.
 - b. The permittee shall obtain a signed statement from the sludge generator or hauler that certifies the type and source of the sludge.
 - c. Sludge received from out-of-state generators shall receive prior approval of the permitting authority and shall be listed in the facility description or special conditions section of the permit.
5. These permit requirements do not supersede nor remove liability for compliance with county and other local ordinances.
6. These permit requirements do not supersede nor remove liability for compliance with other environmental regulations such as odor emissions under the Missouri Air Pollution Control Law and regulations.
7. This permit may (after du process) be modified, or alternatively revoked and reissued, to comply with any applicable sludge disposal standard or limitation issued or approved under Section 405(d) of the Clean Water Act or under Chapter 644 RsMo.
8. In addition to the STANDARD CONDITIONS, the department may include sludge limitations in the special conditions portion or other sections of this permit.
9. Alternate Limits in Site Specific Permit.

Where deemed appropriate, the department may require an individual site specific permit in order to authorize alternate limitations:

 - a. An individual permit must be obtained for each operating location, including application sites.
 - b. To request a site specific permit, an individual permit application, permit fees, and supporting documents shall be submitted for each operating location. This shall include a detailed sludge/biosolids management plan or engineering report.
10. Exceptions to these Standard Conditions may be authorized on a case-by-case basis by the department, as follows:
 - a. The department will prepare a permit modification and follow permit public notice provisions as applicable under 10 CSR 20-6.020, 40 CFR 124.10, and 40 CFR 501.15(a)(2)(ix)(E). This includes notification of the owners of property located adjacent to each land application site, where appropriate.
 - b. Exceptions cannot be granted where prohibited by the federal sludge regulations under 40 CFR 503.
11. Compliance Period
Compliance shall be achieved as expeditiously as possible but no later than the compliance dates under 40 CFR 503.2.

SECTION B – DEFINITIONS

1. Biosolids means an organic fertilizer or soil amendment produced by the treatment of domestic wastewater sludge. Untreated sludge or sludge that does not conform to the pollutants and pathogen treatment requirements in this permit is not considered biosolids.
2. Biosolids land application facility is a facility where biosolids are spread onto the land at agronomic rates for production of food or fiber. The facility includes any structures necessary to store the biosolids until soil, weather, and crop conditions are favorable for land application.
3. Class A biosolids means a material that has met the Class A pathogen reduction requirements or equivalent treatment by a Process to Further Reduce Pathogens (PFRP) in accordance with 40 CFR 503.
4. Class B biosolids means a material that has met the Class B pathogen reduction requirements or equivalent treatment by a Process to Significantly Reduce Pathogens (PFRP) in accordance with 40 CFR 503.
5. Domestic wastewater means wastewater originating from the sanitary conveniences of residences, commercial buildings, factories and institutions; or co-mingled sanitary and industrial wastewater processed by a public owned treatment works (POTW) or privately owned facility.
6. Mechanical treatment plants are wastewater treatment facilities that use mechanical devices to treat wastewater, including septic tanks, extended aeration, activated sludge, contact stabilization, trickling filters, rotating biological discs, and other similar facilities. It does not include un aerated wastewater treatment lagoons and constructed wetlands for wastewater treatment.
7. Operating location as defined in 10 CSR 20-2.010 is all contiguous lands owned, operated or controlled by one (1) person or by two (2) or more persons jointly or as tenants in common.
8. Plant Available Nitrogen (PAN) is the nitrogen that will be available to plants during the next growing season after biosolids application.
9. Sinkhole is a depression in the land surface into which surface water flows to join an underground drainage system.
10. Site Specific Permit is a permit that has alternate limits developed to address specific site conditions for each land application site or storage site.
11. Sludge is the solid, semisolid, or liquid residue removed during the treatment of wastewater. Sludge includes septage removed from septic tanks.
12. Sludge lagoon is an earthen basin that receives sludge that has been removed from a wastewater treatment facility. It does not include a wastewater treatment lagoon or sludge treatment units that are not a part of a mechanical wastewater treatment facility.
13. Wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamp, marshes, bogs, and similar areas. Wetlands do not include constructed wetlands used for wastewater treatment.

SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES

1. Sludge shall be routinely removed from the wastewater treatment facilities and handled according to the permit facility description and sludge conditions in this permit.
2. The permittee shall operate the facility so that there is no sludge loss into the discharged effluent in excess of permit limits, no sludge bypassing, and no discharge of sludge to waters of the state.
3. Mechanical treatment plants shall have separate sludge storage compartments in accordance with 10 CSR 20, Chapter 8. Failure to remove sludge from these storage compartments on the required design schedule is a violation of this permit.

SECTION D – SLUDGE DISPOSED AT OTHER TREATMENT FACILITY OR CONTRACT HAULER

1. This section applies to permittees that haul sludge to another treatment facility for disposal or use contract haulers to remove and dispose of sludge.
2. Permittees that use contract haulers are responsible for compliance with all the terms of this permit including final disposal, unless the hauler has a separate permit for sludge or biosolids disposal issued by the department; or the hauler transports the sludge to another permitted treatment facility.
3. The permittee shall require documentation from the contractor of the disposal methods used and permits obtained by the contractor.
4. Testing of sludge, other than total solids content, is not required if sludge is hauled to a municipal wastewater treatment facility or other permitted wastewater treatment facility.

SECTION E – WASTEWATER TREATMENT LAGOONS AND STORMWATER RETENTION BASINS

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

SECTION F – INCINERATION OF SLUDGE

1. Sludge incineration facilities shall comply with the requirements of 40 CFR 503 Subpart E; air pollution control regulations under 10 CSR 10; and solid waste management regulations under 10 CSR 80.
2. Permittee may be authorized under the facility description of this permit to store incineration ash in lagoons or ash ponds. This permit does not authorize the disposal of incineration ash. Incineration ash shall be disposed in accordance with 10 CSR 80; or if the ash is determined to be hazardous waste, shall be disposed in accordance with 10 CSR 25.
3. In addition to normal sludge monitoring, incineration facilities shall report the following as part of the annual report, quantity of sludge incinerated, quantity of ash generated, quantity of ash stored; and ash use or disposal method, quantity, and location. Permittee shall also provide the name of the disposal facility and the applicable permit number.
4. Additional limitations, monitoring, and reporting requirements may be addressed in the Special Conditions sections of this permit.

SECTION G – SURFACE DISPOSAL SITES AND SLUDGE LAGOONS

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

SECTION H – LAND APPLICATION

1. The permittee shall not land apply sludge or biosolids unless land application is authorized in the Facility Description or special conditions section of the permit.
2. This permit replaces and terminates all previous sludge management plan approvals by the department for land application of sludge or biosolids.
3. Land application sites within a 20 mile radius of the wastewater treatment facility are authorized under this permit when biosolids are applied for beneficial use in accordance with these standard conditions unless a site specific permit is required under Section A, Subsection 9.
4. Biosolids shall not be applied unless authorized in this permit or exempted under 10 CSR 20, Chapter 6.
 - a. This permit does not authorize the land application of sludge except when sludge meets the definition of biosolids.
 - b. This permit authorizes “Class A or B” biosolids derived from domestic wastewater sludges to be land applied onto grass land, crop land, timber land or other similar agricultural or silviculture lands at rates suitable for beneficial use as organic fertilizer and soil conditioner.
5. Public Contact Sites.
Permittees who wish to apply Class A biosolids to public contact sites must obtain approval from the department. Applications for approval shall be in the form of an engineering report and shall address priority pollutants and dioxin concentrations. Authorization for land applications must be provided in the special conditions section of this permit or in a separate site-specific permit.

6. Agricultural and Silvicultural Sites.

In addition to specified conditions herein, this permit is subject to the attached Water Quality Guides numbers WQ 422 through 426 published by the University of Missouri, and hereby incorporated as though fully set forth herein. The guide topics are as follows:

WQ 422	Land Application of Septage
WQ 423	Monitoring Requirements for Biosolids Land Application
WQ 424	Biosolids Standards for Pathogens and Vectors
WQ 425	Biosolids Standards for Metals and Other Trace Substances
WQ 426	Best Management Practices for Biosolids Land Applications

SECTION I – CLOSURE REQUIREMENTS

1. This section applies to all wastewater treatment facilities (mechanical and lagoons) and sludge or biosolids storage and treatment facilities and incineration ash ponds. It does not apply to land application sites.
2. Permittees who plan to cease operation must obtain department approval of a closure plan which addresses proper removal and disposal of all residues, including sludge, biosolids, and ash. Permittee must maintain this permit until the facility is properly closed per 10 CSR 20-6.010 and 10 CSR 20-6.015.
3. Residuals that are left in place during closure of a lagoon or earthen structure shall not exceed the agricultural loading rates as follows:
 - a. Residuals shall meet the monitoring and land application limits for agricultural rates as referenced in Section H of these standard conditions.
 - b. If a wastewater treatment lagoon has been in operation for 15 years or more, the sludge in the lagoon qualifies for Class B with respect to pathogens (see WQ 424, Table 3), and testing for fecal coliform is not required. For other lagoons, testing for fecal coliform is required to show compliance with Class B limitations. See WQ 423 and 424.
 - c. The allowable nitrogen loading that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. See WQ 426 for calculation procedures. For a grass cover crop, the allowable PAN is 300 pounds/acre.
4. When closing a wastewater treatment lagoon with a design treatment capacity equal or less than 150 persons, the residuals are considered “septage” under the similar treatment works” definition. See WQ 422. Under the septage category, residuals may be left in place as follows:
 - a. Testing for metals or fecal coliform is not required.
 - b. If the wastewater treatment lagoon has been in use for less than 15 years, mix lime with the sludge at the rate of 50 pounds of hydrated lime per 1000 gallons (134 cubic feet) of sludge.
 - c. The amount of sludge that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. 100 dry tons/acre of sludge may be left in the basin without testing for nitrogen. If more than 100 dry tons/acre will be left in the lagoon, test for nitrogen and determine the PAN in accordance with WQ 426. Allowable PAN loading is 300 pounds/acre.
5. Residuals left within the lagoon shall be mixed with soil on at least a 1 to 1 ratio, the lagoon berms shall be demolished, and the site shall be graded and vegetated so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion.
6. Lagoon closure activities shall obtain a storm water permit for land disturbance activities that equal or exceed five acres in accordance with 10 CSR 20-6.200.
7. If sludge exceeds agricultural loading rates under Section H or I, a landfill permit or solid waste disposal permit shall be obtained to authorize on-site sludge disposal under the Missouri Solid Waste Management Law and regulations per 10 CSR 80, and the permittee must comply with the surface disposal requirements under 40 CFR 503, Subpart C.

SECTION J – MONITORING FREQUENCY

1. At a minimum, sludge or biosolids shall be tested for volume and percent total solids on a frequency that will accurately represent sludge quantities produced and disposed.
2. Testing for land application is listed under Section H, Subsection 6 of these standard conditions (see WQ 423). Once per year is the minimum test frequency. Additional testing shall be performed for each 100 dry tons of sludge generated or stored during the year.
3. Additional testing may be required in the special conditions or other sections of the permit. Permittees receiving industrial wastewater may be required to conduct additional testing upon request from the department.
4. Monitoring requirements shall be performed in accordance with, “POTW Sludge Sampling and Analysis Guidance Document”, United States Environmental Protection Agency, August 1989, and subsequent revisions.

SECTION K – RECORD KEEPING AND REPORTING REQUIREMENTS

1. The permittee shall maintain records on file at the facility for at least five years for the items listed in these Standard Conditions and any additional items in the Special Conditions section of this permit. This shall include dates when the sludge facility is checked for proper operation, records of maintenance and repairs and other relevant information.
2. Reporting Period
 - a. By January 28th of each year, an annual report shall be submitted for the previous calendar year period for all mechanical wastewater treatment facilities, sludge lagoons, and sludge or biosolids disposal facilities.
 - b. Permittees with wastewater treatment lagoons shall submit the above annual report only when sludge or biosolids are removed from the lagoon during the report period or when the lagoon is closed.
3. Report Forms. The annual report shall be submitted on report forms provided by the department or equivalent forms approved by the department.
4. Report shall be submitted as follows:
Major facilities (those serving 10,000 persons or 1 million gallons per day) shall report to both the department and EPA. Other facilities need to report only to the department. Reports shall be submitted to the addresses listed as follows:

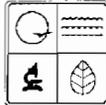
DNR regional office listed in your permit
(See cover letter of permit)

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

5. Annual Report Contents. The annual report shall include the following:
 - a. Sludge/biosolids testing performed. Include a copy or summary of all test results, even if not required by this permit.
 - b. Sludge or Biosolids quantity shall be reported as dry tons for quantity generated by the wastewater treatment facility, the quantity stored on site at end of year, and the quantity used or disposed.
 - c. Gallons and % solids data used to calculate the dry ton amounts.
 - d. Description of any unusual operating conditions.
 - e. Final disposal method, dates, and location, and person responsible for hauling and disposal.
 - (1) This must include the name, address and permit number for the hauler and the sludge facility. If hauled to a municipal wastewater treatment facility, sanitary landfill, or other approved treatment facility, give the name and permit number of that facility.
 - (2) Include a description of the type of hauling equipment used and the capacity in tons, gallons, or cubic feet.
 - f. Contract Hauler Activities.
If contract hauler, provide a copy of a signed contract or billing receipts from the contractor. Permittee shall require the contractor to supply information required under this permit for which the contractor is responsible. The permittee shall submit a signed statement from the contractor that he has complied with the standards contained in this permit, unless the contract hauler has a separate sludge disposal or biosolids use permit.
 - g. Land Application Sites.
 - (1) Report the location of each application site, the annual and cumulative dry tons/acre for each site, and the landowners name and address. The location for each spreading site shall be given as legal description for nearest ¼, ¼, Section, Township, Range, and County, or as latitude and longitude.
 - (2) If biosolids application exceeds 2 dry tons/acre/year, report biosolids nitrogen results. Plant Available Nitrogen (PAN) in pounds/acre, crop nitrogen requirement, available nitrogen in the soil prior to biosolids application, and PAN calculations for each site.
 - (3) If the “Low Metals” criteria is exceeded, report the annual and cumulative pollutant loading rates in pounds per acre for each applicable pollutant, and report the percent of cumulative loading which has been reached at each site.
 - (4) Report the method used for compliance with pathogen and vector attraction requirements.
 - (5) Report soil test results for pH, CEC, and phosphorus. If none was tested during the year, report the last date when tested and results.

MO-0137553 C11711

AP110208 CP0001378



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
**APPLICATION FOR CONSTRUCTION PERMIT –
WASTEWATER TREATMENT FACILITY**

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO.
FEE RECEIVED 6/28/13	CHECK NO. 83661
DATE RECEIVED	\$2200.00 8B

APPLICATION OVERVIEW

The Application for Construction Permit – Wastewater Treatment Facility form has been developed in a modular format and consists of Part A and B. **All applicants must complete Part A.** Part B should be completed for applicants who currently land-apply wastewater or propose land application for wastewater treatment. **Please read the accompanying instructions before completing this form. Submittal of an incomplete application may result in the application being returned.**

PART A – BASIC INFORMATION

1.0 APPLICATION INFORMATION (Note – If any of the questions in this section are answered NO, this application may be considered incomplete and returned.)

- 1.1 Is this a Federal/State funded project? YES N/A Funding Agency: USDA-RD Project #: _____
 - 1.2 Has the Missouri Department of Natural Resources approved the proposed project's antidegradation review?
 YES Date of Approval: 4/17/2012
 Attached is the No Degradation Evaluation Conclusion of Antidegradation Review form
 - 1.3 Has the department approved the proposed project's facility plan*?
 YES Date of Approval: 3/12/2013 NO N/A (If Not Applicable, complete No. 1.4.)
 - 1.4 [Complete only if answered Not Applicable on No. 1.3.] Is a copy of the engineering report* for wastewater treatment facilities with a design flow less than 22,500 gpd included with this application?
 YES NO
 - 1.5 Is a copy of the appropriate plans* and specifications* included with this application?
 YES Denote which form is submitted: Hard copy Electronic copy (See instructions.) NO
 - 1.6 Is a summary of design* included with this application? YES NO
 - 1.7 Has the appropriate operating permit application (A, B, or B2) been submitted to the department?
 YES Date of submittal: _____
 Enclosed is the appropriate operating permit application submittal. Denote which form: A B B2
 N/A Please explain: _____
 - 1.8 Is the facility currently under enforcement with the department or the Environmental Protection Agency? YES NO
 - 1.9 Is the appropriate fee included with this application? YES NO (See instructions for appropriate fee.)
- * Must be affixed with a Missouri registered professional engineer's seal, signature and date.

2.0 PROJECT INFORMATION

2.1 NAME OF PROJECT
Wastewater Treatment Facility - Brookfield, Missouri

2.2 PROJECT DESCRIPTION
Construction of a New Wastewater Treatment Facility to serve the entire City of Brookfield, Missouri including two Pump Stations, Force Mains, Sewers, and Appurtenances.

2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION
Aerobic Sludge Thickening/Digestion, Belt Filter Press then Land Fill.

2.4 DESIGN INFORMATION
A. Current population: 4,800 ; Design population: 10,000
B. Actual Flow: 850,000 gpd; Design Average Flow: 1,000,000 gpd;
Actual Peak Daily Flow: 4 MGD gpd; Design Maximum Daily Flow: 4 MGD gpd

2.5 ADDITIONAL INFORMATION
A. Is a topographic map attached? YES NO
B. Is a process flow diagram attached? YES NO

3.0 WASTEWATER TREATMENT FACILITY				
NAME City of Brookfield		TELEPHONE NUMBER WITH AREA CODE 660-258-3377		E-MAIL ADDRESS dltarpening@yahoo.com
ADDRESS (PHYSICAL) 116 West Brooks		CITY Brookfield	STATE MO	ZIP CODE 64628
COUNTY Linn				
Wastewater Treatment Facility: Mo- (Outfall 001 Of 001)				
3.1 Legal Description: _____ ¼, SW ¼, NW ¼, Sec. 5, T 57, R 19 (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): 494659 Northing (Y): 4404249 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: Unnamed Tributary to West Fork Yellow Creek				
4.0 PROJECT OWNER				
NAME City of Brookfield		TELEPHONE NUMBER WITH AREA CODE (660) 258-3377		E-MAIL ADDRESS dltarpening@yahoo.com
ADDRESS 116 West Brooks		CITY Brookfield	STATE MO	ZIP CODE 64628
5.0 CONTINUING AUTHORITY: Permanent organization that will serve as the continuing authority for the operation, maintenance and modernization of the wastewater collection system.				
NAME City of Brookfield		TELEPHONE NUMBER WITH AREA CODE (660) 258-3377		E-MAIL ADDRESS dltarpening@yahoo.com
ADDRESS 116 West Brooks		CITY Brookfield	STATE MO	ZIP CODE 64628
5.1 A letter from the continuing authority, if different than the owner, is included with this application. <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A				
5.2 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A MISSOURI PUBLIC SERVICE COMMISSION REGULATED ENTITY.				
A. Is a copy of the certificate of convenience and necessity included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
5.3 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A PROPERTY OWNERS ASSOCIATION.				
A. Is a copy of the as-filed restrictions and covenants included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
B. Is a copy of the as-filed warranty deed, quitclaim deed or other legal instrument which transfers ownership of the land for the wastewater treatment facility to the association included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
C. Is a copy of the as-filed legal instrument (typically the plat) that provides the association with valid easements for all sewers included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
D. Is a copy of the Missouri Secretary of State's nonprofit corporation certificate included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
6.0 ENGINEER				
ENGINEER NAME / COMPANY NAME Cary D. Sayre - Allstate Consultants LLC		TELEPHONE NUMBER WITH AREA CODE (660) 376-2941		E-MAIL ADDRESS carysayre@allstateconsultants.net
ADDRESS 30601 Highway 5, P.O. Box 156		CITY Marceline	STATE MO	ZIP CODE 64658
7.0 PROJECT OWNER: I hereby certify that I am familiar with the information contained in this application and to the best of my knowledge and belief such information is true, complete, and accurate, and if granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders, and decisions, subject to any legitimate appeal available to applicant under Missouri Clean Water Law. I also understand the issuance of the construction permit does not guarantee the proposed wastewater treatment will meet the required effluent limitations of the issued Missouri State Operating Permit for this facility.				
PROJECT OWNER SIGNATURE 				
PRINTED NAME Dana Tarpening			DATE 5-10-13	
TITLE OR CORPORATE POSITION City Manager		TELEPHONE NUMBER WITH AREA CODE (660) 258-3377		E-MAIL ADDRESS dltarpening@yahoo.com
Mail completed copy to: MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM P.O. BOX 176 JEFFERSON CITY, MO 65102-0176				
END OF PART A. REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHETHER PART B NEEDS TO BE COMPLETE.				

PART B – LAND APPLICATION ONLY

(Submit only if the proposed construction project includes land application of wastewater.)

8.0 FACILITY INFORMATION

8.1 Type of wastewater to be irrigated: Domestic State/National Park Seasonal business
 Municipal Municipal with a pretreatment program or significant industrial users
 Other (explain) _____

8.2 Months when the business or enterprise will operate or generate wastewater:
 12 months per year Part of the year (list months): _____

8.3 This system is designed for:
 No-discharge.
 Partial irrigation when feasible and discharge rest of time.
 Irrigation during recreational season, April – October, and discharge during November – March.
 Other (explain) _____.

9.0 STORAGE BASINS

9.1 Number of storage basins: _____ (Use additional pages if greater than three basins.)

9.2 Type of basins: Steel Concrete Fiberglass Earthen Earthen with membrane liner

9.3 Storage basin dimensions at inside top of berm (feet). Report freeboard as feet from top of berm to emergency spillway or overflow pipe.

Basin #1:	Length _____	Width _____	Depth _____	Freeboard _____	Berm Width _____	% Slope _____
Basin #2:	Length _____	Width _____	Depth _____	Freeboard _____	Berm Width _____	% Slope _____
Basin #3:	Length _____	Width _____	Depth _____	Freeboard _____	Berm Width _____	% Slope _____

9.4 Storage Basin operating levels (report as feet below emergency overflow level).

Basin #1:	Maximum operating water level _____ ft	Minimum operating water level _____ ft
Basin #2:	Maximum operating water level _____ ft	Minimum operating water level _____ ft
Basin #3:	Maximum operating water level _____ ft	Minimum operating water level _____ ft

9.5 Design depth of sludge in storage basins.

Basin #1: _____ ft Basin #2: _____ ft Basin #3: _____ ft

9.6 Existing sludge depth, if the basins are currently in operation.

Basin #1: _____ ft Basin #2: _____ ft Basin #3: _____ ft

9.7 Total design sludge storage: _____ dry tons and _____ cubic feet

10.0 LAND APPLICATION SYSTEM

10.1 Number of irrigation sites _____ Total Acres _____ Maximum % field slopes _____

Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ Acres
Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ Acres
Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ Acres
(Use additional pages if greater than three irrigation sites.)

10.2 Type of vegetation: Grass hay Pasture Timber Row crops
 Other (describe) _____

10.3 Wastewater flow (dry weather) gallons per day: Average annual _____ Seasonal _____ Off-season _____

10.4 Land application rate (design flow including 1-in-10 year storm water flows):

Design: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week
Actual: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week

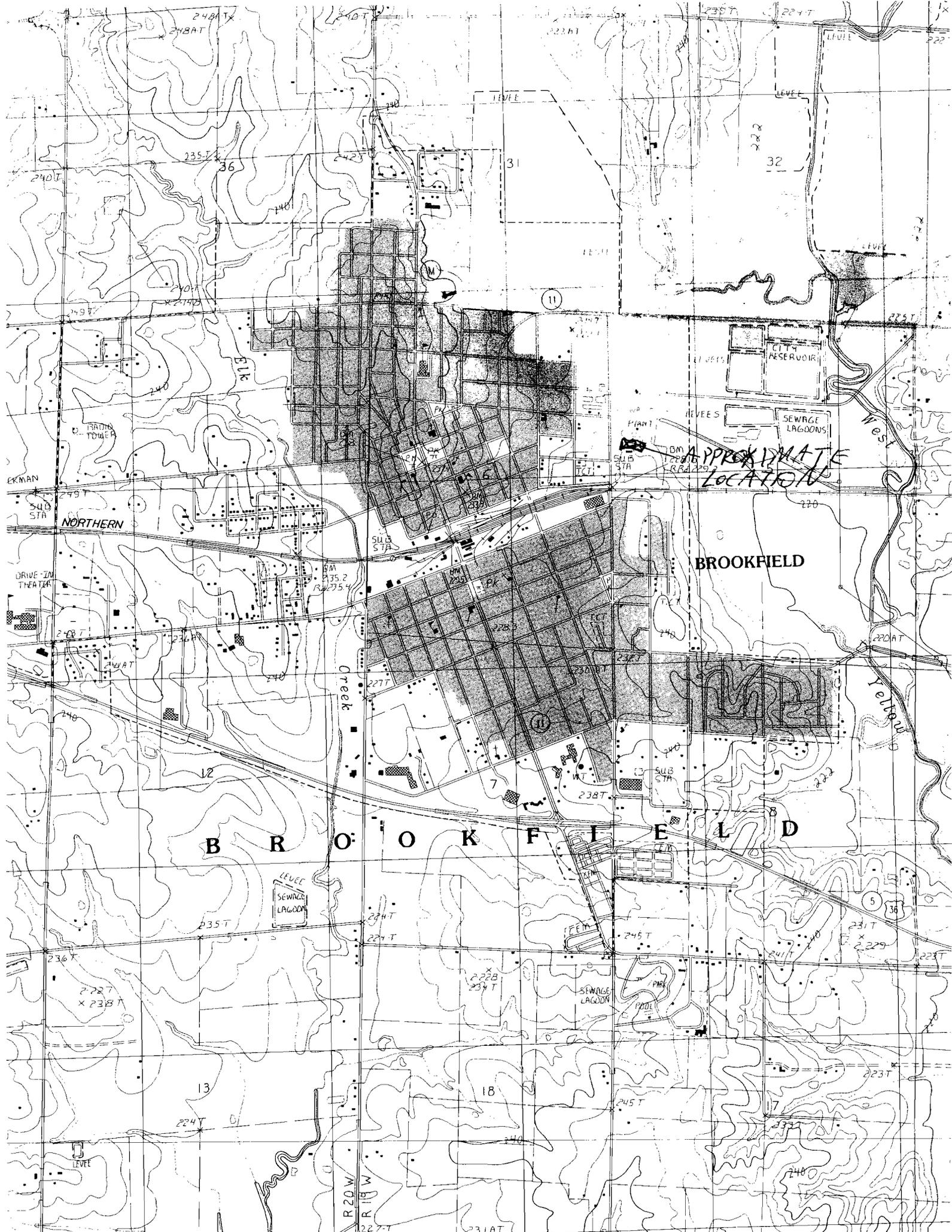
10.5 Total irrigation per year (gallons): Design: _____ gal Actual: _____ gal

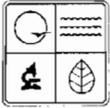
10.6 Actual months used for irrigation (check all that apply):

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

10.7 Land application rate is based on:

Hydraulic Loading Other (describe) _____
 Nutrient Management Plan (N&P) If N&P is selected, is the plan included? YES NO





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

FACILITY NAME City of Brookfield, Missouri - Wastewater System Improvements	
PERMIT NO	COUNTY Linn

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

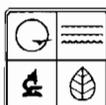
- D. Expanded Effluent Testing Data. A treatment works that discharges effluent to surface water of the United States and meets one or more of the following criteria must complete *Part D - Expanded Effluent Testing Data*:
 - 1. Has a design flow rate greater than or equal to 1 million gallons per day.
 - 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

MO 01375333

APPLICANT



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

FOR AGENCY USE ONLY	
CHECK NUMBER	
DATE RECEIVED	FEE SUBMITTED

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- _____ Expiration Date _____

An operating permit modification: Permit #MO- _____ Reason: _____

1.1 Is this a Federal/State Funded Project? Yes No Funding Agency/Project #: USDA-RD

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

2. FACILITY

NAME City of Brookfield		TELEPHONE NUMBER WITH AREA CODE 660-258-3377	
ADDRESS (PHYSICAL) 116 West Brooks	CITY Brookfield	STATE Missouri	ZIP 64628

2.1 LEGAL DESCRIPTION (Plant Site): ¼, SW ¼, NW ¼, Sec. 5, T 57, R 19 County Linn

2.2 UTM Coordinates Easting (X): 494659 Northing (Y): 4404249
 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

3. OWNER City of Brookfield

NAME Dana Tarpenting		TITLE City Manager	TELEPHONE NUMBER WITH AREA CODE 660-258-3377	
ADDRESS 116 West Brooks	CITY Brookfield	STATE Missouri	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 City of Brookfield		CITY Brookfield		
ADDRESS 116 West Brooks	CERTIFICATE NUMBER (IF APPLICABLE)	STATE Missouri	ZIP 64628	

5. OPERATOR

NAME Burnie Hicks		TITLE Operator (No. 8477)	TELEPHONE NUMBER WITH AREA CODE 660-258-3377	
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6. FACILITY CONTACT

NAME Dana Tarpenting		TITLE City Manager		
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MO 780-1805 (09-08)

FACILITY NAME Brookfield Wastewater Treatment Facility	PERMIT NO. MO-	OUTFALL NO. 001
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PART A – BASIC APPLICATION INFORMATION

7. ADDITIONAL FACILITY INFORMATION

7.1 BRIEF DESCRIPTION OF FACILITIES

Wastewater Collection and Treatment Facility Improvements

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.)

- The area surrounding the treatment plant, including all unit processes.
- The location of the downstream landowner(s). (See Item 10.)
- 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.
- The actual point of discharge.
- 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.
- Any areas where the sewage sludge produced by the treatment works is stored, treated or disposed.
- 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 4952	DISCHARGE SIC CODE: 1600 4950	FACILITY NAICS CODE: 221320	DISCHARGE NAICS CODE: 221320
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7.5 NUMBER OF SEPARATE DISCHARGE POINTS
1

7.6 NUMBER OF PEOPLE PRESENTLY CONNECTED OR POPULATION EQUIVALENT NE POTW 5900 PE	SW POTW 4000 PE	DESIGN POPULATION EQUIVALENT 9900 PE
--	-----------------	---

NUMBER OF UNITS PRESENTLY CONNECTED
 HOMES _____ APARTMENTS _____ TRAILERS _____ OTHER _____

TOTAL DESIGN FLOW (ALL OUTFALLS) NE 0.606 MGD SW 0.40 MGD Total 1.006 MGD	ACTUAL FLOW NE 0.6 MGD SW 0.25 MGD Total 0.85 MGD
--	--

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

7.8 LENGTH OF THE SANITARY SEWER COLLECTION SYSTEM IN MILES
50

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 January - December	B. HOW MANY DAYS OF THE WEEK WILL THE DISCHARGE OCCUR? 7
---	---

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.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Push-button or visual methods for simple test such as pH, settleable solids.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Additional procedures such as Dissolved Oxygen, Chemical Oxygen Demand, Biological Oxygen Demand, titrations, solids, volatile content.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

FACILITY NAME Brookfield Wastewater Treatment Facility	PERMIT NO. MO-	OUTFALL NO. 001
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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 88.5T NE + 60T SW Actual Dry Tons/Year 148.5

9.3 CAPACITY OF SLUDGE HOLDING STRUCTURES O-Ditch 44,800 cu.ft., Aeromod 45,581.25 cu.ft.

9.4 SLUDGE STORAGE PROVIDED
 Cubic Feet Days of Storage 20 Estimated Average Percent Solids of Sludge 1% 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
City of Brookfield

ADDRESS 116 West Brooks	CITY Brookfield	STATE Missouri	ZIP 64628
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CONTACT PERSON Dana Tarpenting	TELEPHONE NUMBER WITH AREA CODE 660-258-3377	PERMIT NO. MO-
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9.9 SLUDGE USE OR DISPOSAL FACILITY

By Applicant By Others (Complete Below)

NAME
City of Brookfield

ADDRESS 116 West Brooks	CITY Brookfield	STATE Missouri	ZIP 64628
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CONTACT PERSON Dana Tarpenting	TELEPHONE NUMBER WITH AREA CODE 660-258-3377	PERMIT NO. MO-
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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
SEE ATTACHED SHEET

ADDRESS	CITY	STATE	ZIP
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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)
City of Brookfield

B. PRIVATE WELL
N/A

C. SURFACE WATER (LAKE, POND OR STREAM)
City of Brookfield - City Lake and Yellow Creek Supplement

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

**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**

**Wastewater Treatment Facility
Brookfield, Missouri**

10. Downstream Landowner(s).

Kathleen Gapsch
1405 Vthoff Farm Trail
Fenton, Missouri 63026-2393

James Roush
27635 Justice Drive
Brookfield, Missouri 64628

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL

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

333,000 Gallons Per Day Estimate 5000 PE @ 100 GPD = 500,000 GPD In 2010, Flow Average was Approximately 833,000 GPD

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

City has Smoke Tested, GPS Mapped, Replaced Sewers, replaced Manholes, and Prioritized other Improvements

20.1 OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)

ARE ANY OPERATIONAL OR MAINTENANCE ASPECTS (RELATED TO WASTEWATER TREATMENT AND EFFLUENT QUALITY) OF THE TREATMENT WORKS THE RESPONSIBILITY OF A CONTRACTOR?

Yes No If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)

NAME

MAILING ADDRESS

TELEPHONE NUMBER WITH AREA CODE

RESPONSIBILITIES OF CONTRACTOR

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

A. List the outfall number that is covered by this implementation schedule
Outfall No. **NE 001**

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 **NE 001**

A. LOCATION

1/4 SE 1/4 NW Section 51.200 Township 57N Range 19 E W

UTM Coordinates Easting (X): ~~5X~~ Northing (Y): ~~5X~~ (X): 495213 (Y): 4404291
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

B. Distance from Shore (If Applicable) <u>N/A</u> ft.	C. Depth Below Surface (If Applicable) <u>N/A</u> ft.	D. Average Daily Flow Rate <u>1</u> 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: 365	Average Duration of Each Discharge: Continual	Average Flow Per Discharge: Design 1 mgd	Months in Which Discharge Occurs: January - December
--	--	---	---

Is Outfall Equipped with a Diffuser? Yes No

20.5 DESCRIPTION OF RECEIVING WATER

B. Name of Receiving Water
Unnamed Tributary of West Fork Yellow Creek

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

B. Name of State Management/River Basin (If Known) Central Plains/Grand/Chariton	U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known) 10280103-1206
--	---

B. Critical Flow of Receiving Stream (If Applicable) Acute <u>0</u> cfs Chronic <u>0</u> cfs	B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable) mg/L of CaCO ₃
---	---

FACILITY NAME Brookfield Wastewater Treatment Facility	PERMIT NO. MO-	OUTFALL NO. 001
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PART B – ADDITIONAL APPLICATION INFORMATION (CONTINUED)

20.6 DESCRIPTION OF TREATMENT

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

B. INDICATE THE FOLLOWING REMOVAL RATES (AS APPLICABLE)
 Design BOD₅ Removal Or Design CBOD₅ Removal BOD₅ 85 % Design SS Removal 85 %
 Design P Removal ___% Design N Removal ___% Other ___%

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

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

Does the treatment plant have post aeration? Yes Cascade No

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

OUTFALL NUMBER

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	VALUE	UNITS	VALUE	UNITS	NO. OF SAMPLES
pH (Minimum)	6.5	S.U.	6.5	S.U.	Once/Week
pH (Maximum)	9	S.U.	9	S.U.	Once/Week
FLOW RATE		MGD		MGD	Monitoring
TEMPERATURE (Winter)		°C		°C	
TEMPERATURE (Summer)		°C		°C	

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

(See Attachment A) POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE Weekly/Daily			ANALYTICAL METHOD	ML/MDL
	CONC.	UNITS	CONC.	UNITS	NO. OF SAMPLES		

Conventional and Nonconventional Compounds

BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD ₅		mg/L	24 WK 16 MO	mg/L	Once/Week		
	CBOD ₅		mg/L		mg/L			
E.Coli	FECAL COLIFORM	1030	#/100 mL	206	#/100 mL	Once/Week		
	TOTAL SUSPENDED SOLIDS (TSS)		mg/L	24 WK 16 MO	mg/L			
	AMMONIA (AS N)	3.7/7.5	mg/L	1.4/2.9 MO	mg/L	Once/Week		
	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	10 WK	mg/L			
	PHOSPHORUS (TOTAL)		mg/L		mg/L			
	TOTAL DISSOLVE SOLIDS (TDS)		mg/L		mg/L			
	OTHER		mg/L		mg/L			

END OF PART B

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.

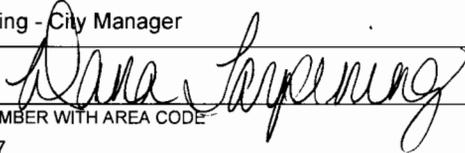
ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

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)

Dana Tarpening - City Manager

SIGNATURE



TELEPHONE NUMBER WITH AREA CODE

660-258-3377

DATE SIGNED

5-10-13

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.

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.

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

40. EXPANDED EFFLUENT TESTING DATA

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

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

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

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

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

FACILITY NAME	PERMIT NO. MO-	OUTFALL NO.
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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.

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

MO 780-1805 (09-08)

FACILITY NAME	PERMIT NO. MO-	OUTFALL NO.
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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.

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

MO 780-1805 (09-08)

FACILITY NAME	PERMIT NO. MO-	OUTFALL NO.
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PART D – EXPANDED EFFLUENT TESTING DATA (CONTINUED)

40.1 EXPANDED EFFLUENT TESTING DATA (CONTINUED)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	CONC	UNITS	MASS	UNITS	CONC	UNITS	MASS	UNITS	NO. OF SAMPLES		
BASE-NEUTRAL COMPOUNDS											
ACENAPHTHENE											
ACENAPHTHYLENE											
ANTHRACENE											
BENZIDINE											
BENZO(A)ANTHRACENE											
BENZO(A)PYRENE											
FLUORANTHENE											
FLUORENE											
HEXACHLOROBENZENE											
HEXACHLOROCYCLO-PENTADIENE											
HEXACHLOROETHANE											
INDENO (1,2,3-CD) PYRENE											
ISOPHORONE											
NAPHTHALENE											
NITROBENZENE											
N-NITROSODI-PROPYLAMINE											
N-NITROSODI-METHYLAMINE											
N-NITROSODI-PHENYLAMINE											
PHENANTHRENE											
PYRENE											
1,2,4-TRICHLOROBENZENE											

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

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.

FACILITY NAME	PERMIT NO. MO-	OUTFALL NO.
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PART E – TOXICITY TESTING DATA

50. TOXICITY TESTING DATA

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

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

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

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

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

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

FACILITY NAME	PERMIT NO. MO-	OUTFALL NO.
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PART E – TOXICITY TESTING DATA (CONTINUED)

50.1 WHOLE EFFLUENT TOXICITY TESTS DATA (CONTINUED)

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

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

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

pH			
SALINITY			
TEMPERATURE			
AMMONIA			
DISSOLVED OXYGEN			

L. TEST RESULTS

ACUTE:

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

CHRONIC:

NOEC			
IC ₂₅			
CONTROL PERCENT SURVIVAL			
OTHER (DESCRIBE)			

M. QUALITY CONTROL ASSURANCE

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

50.2 TOXICITY REDUCTION EVALUATION

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

If yes, describe:

50.3 SUMMARY OF SUBMITTED BIOMONITORING TEST INFORMATION

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

Date Submitted (MM/DD/YYYY)

Summary of Results (See Instructions)

END OF PART E

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.			
FACILITY NAME	PERMIT NO. MO-	OUTFALL NO.	
PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES			
60. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES			
Refer to the Supplemental Application Information to determine whether Part F applies to the treatment works.			
All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete this form.			
GENERAL INFORMATION			
60.1 PRETREATMENT PROGRAM			
Does the treatment works have, or is it subject to, an approved pretreatment program?			
<input type="checkbox"/> Yes <input type="checkbox"/> 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 <input type="checkbox"/> Continuous <input type="checkbox"/> 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 <input type="checkbox"/> Continuous <input type="checkbox"/> 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?			
<input type="checkbox"/> Yes <input type="checkbox"/> No If Yes, describe each episode			

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.

FACILITY NAME	PERMIT NO. MO-	OUTFALL NO.
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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

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

Truck Rail Dedicated Pipe

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

EPA HAZARDOUS WASTE NUMBER	AMOUNT	UNITS

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

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

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

60.11 WASTE ORIGIN

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

60.12 POLLUTANTS

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

60.13 WASTE TREATMENT

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

Yes No

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

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

Continuous Intermittent

If intermittent, describe the discharge schedule:

END OF PART F

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

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL.		
FACILITY NAME	PERMIT NO. MO-	OUTFALL NO.
PART G – COMBINED SEWER SYSTEMS		
70. COMBINED SEWER SYSTEMS (COMPLETE THIS PART IF THE TREATMENT WORKS HAS A COMBINED SEWER SYSTEM.)		
Refer to the Supplemental Application Information to determine whether Part G applies to the treatment works.		
70.1 SYSTEM MAP		
Provide a map indicating the following: (May be included with basic application information.)		
<ul style="list-style-type: none"> 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:		
<ul style="list-style-type: none"> 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?		
<input type="checkbox"/> Rainfall <input type="checkbox"/> CSO Pollutant Concentrations <input type="checkbox"/> CSO <input type="checkbox"/> CSO Flow Volume <input type="checkbox"/> 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 <input type="checkbox"/> Actual <input type="checkbox"/> Approximate		B. Give the Average Duration Per CSO Event _____ Hours <input type="checkbox"/> Actual <input type="checkbox"/> Approximate
C. Give the Average Volume Per CSO Event _____ Million Gallons <input type="checkbox"/> Actual <input type="checkbox"/> 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.		

INSTRUCTIONS FOR COMPLETING FORM B2
APPLICATION FOR CONSTRUCTION OR OPERATING PERMITS FOR FACILITIES WHICH RECEIVE
BASICALLY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY
(Facilities less than or equal to 100,000 gallons per day of domestic waste must use FORM B.)
(Facilities that receive wastes other than domestic must fill out FORM A and other forms as appropriate.)

PART A – BASIC APPLICATION INFORMATION

1. Check which parameter is applicable. **Do not check more than one item.** Construction and operating permit refer to permits issued by the Department of Natural Resources, Water Protection Program, Water Pollution Branch.

Effective Sept. 1, 2008, a facility will be required to use **MISSOURI'S ANTIDegradation Rule and Implementation Procedure**. For more information, this document is available at www.dnr.mo.gov/env/wpp/docs/aip-cwc-appr-050708.pdf. This procedure will be applicable to new and expanded wastewater facilities and requires the proposed discharge to a water body to undergo a level of Antidegradation Review that documents the use of a water body's available assimilative capacity is justified.

1.1 Self – explanatory.

- 1.2 An operating permit and antidegradation review public notice requires a Water Quality/Antidegradation Review Sheet to be submitted with the application (No fee required).

CONSTRUCTION PERMIT FEES (Include fee with application.)

\$750 for a sewage treatment facility with a design flow of less than 500,000 gallons per day.

\$2,200 for sewage treatment facility with a design flow of 500,000 gallons per day or more.

DOMESTIC OPERATING PERMIT FEES (Annual operating permit fees are based on flow.)

Annual fee/Design flow

Annual fee/Design flow

\$3,000.....30,000 gpd to 1 mgd

\$3,500.....>1 million gallons per day

New domestic wastewater treatment facilities must submit the annual fee with the original application.

If the application is for a site-specific permit re-issuance, send no fees. You will be invoiced separately by the department on the anniversary date of the original permit. Permit fees must be current for the department to reissue the operating permit. Late fees of two percent per month are charged and added to outstanding annual fees.

PUBLIC SEWER SYSTEM OPERATING PERMIT FEES (City, Public Sewer District, Public Water District, or other publicly owned treatment works). Annual fee is based on number of service connections. The table of fees is in 10 CSR 20-6.011 and is available at www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf. New Public Sewer System facilities should not submit any fee as the department will invoice the permittee.

OPERATING PERMIT MODIFICATIONS, including transfers, are subject to the following fees:

a. Municipals - \$200 each.

b. All others – 25 percent of annual fee.

Note: Facility name or address changes where owner, operator and continuing authority remain the same are not considered transfers.

2. Name of Facility – Include the name by which this facility is locally known. Example: Southwest Sewage Treatment Plant, Country Club Mobile Home Park, etc. Provide the street address or location of the facility. If the facility lacks a street name or route number, provide the names of the closest intersection, highway, country road, etc.

2.1 Self – explanatory.

- 2.2 Global Positioning System, or GPS, is a satellite-based navigation system. The department prefers that a GPS receiver is used and the displayed coordinates submitted. If access to a GPS receiver is not available, use a mapping system to approximate the coordinates; the department's mapping system is available at www.dnr.mo.gov/internetmapviewer/.

3. Owner – Provide the legal name and address of the owner.

- 3.1 Prior to submitting a permit to public notice, the Department of Natural Resources shall provide the permit applicant 10 days to review the draft permit for nonsubstantive drafting errors. In the interest of expediting permit issuance, permit applicants may waive the opportunity to review draft permits prior to public notice. Check Yes to review the draft permit prior to public notice. Check No to waive the process and expedite the permit.

4. Continuing Authority – Provide the permanent organization, which will serve as the continuing authority for the operation, maintenance and modernization of the facility. The regulatory requirement regarding continuing authority is available at www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf or contact the appropriate Department of Natural Resources Regional Office.

5. Operator – Provide the name, certificate number and telephone number of the operator of the facility.

6. Provide the name, title and work telephone number of a person who is thoroughly familiar with the operation of the facility and with the facts reported in this application and who can be contacted by the department, if necessary.

7.1 Provide a brief description of the wastewater treatment facilities.

- 7.2 A topographic map is available on the Web at www.dnr.mo.gov/internetmapviewer/ or from the Department of Natural Resources' Division of Geology and Land Survey in Rolla, Missouri at 573-368-2125.

7.3 Self – explanatory.

- 7.4 For Standard Industrial Codes, visit www.osha.gov/pls/imis/sicsearch.html and for the North American Industry Classification System, visit www.census.gov/naics or contact the appropriate Department of Natural Resources Regional Office.

7.5 – 8.1 Self – explanatory.

- 9.1 A copy of 10 CSR 25 is available at www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp#10-25.

9.2 – 9.9 Self – explanatory.

INSTRUCTIONS FOR COMPLETING FORM B2
APPLICATION FOR CONSTRUCTION OR OPERATING PERMITS FOR FACILITIES WHICH RECEIVE
BASICALLY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY
(Continued)

- 9.10 Refer to University of Missouri Extension Environmental Quality publications about biosolids - numbers WQ420-426. Available on the Web at <http://extension.missouri.edu/explore/envqual/>. Additionally, the federal sludge regulations are available through the U.S. Government Printing Office at www.gpoaccess.gov/cfr/index.html.
10. Provide the name and address of the first downstream landowner, different from that of the permitted facility, through whose property the discharge will flow. For discharges that leave the permitted facility and flow under a road or highway, or along the right-of-way, the downstream property owner is the landowner that the discharge flows to after leaving the right-of-way.
11. – 11.3 Self – explanatory.

PART B – ADDITIONAL APPLICATION INFORMATION

20. – 20.3 Self – explanatory.
- 20.4 Global Positioning System, or GPS, is a satellite-based navigation system. The department prefers that a GPS receiver is used at the outfall pipe and the displayed coordinates submitted. If access to a GPS receiver is not available, use a mapping system to approximate the coordinates; the department's mapping system is available at www.dnr.mo.gov/internetmapviewer/.
- 20.5 – 20.7 Self – explanatory.

PART C – CERTIFICATION

30. Signature – All applications must be signed as follows and the signatures must be original:
- a. For a corporation, by an officer having responsibility for the overall operation of the regulated facility or activity or for environmental matters.
 - b. For a partnership or sole proprietorship, by a general partner or the proprietor.
 - c. For a municipal, state, federal or other public facility, by either a principal executive officer or by an individual having overall responsibility for environmental matters at the facility.

PART D – EXPANDED EFFLUENT TESTING DATA

- 40.1 Self – explanatory. ML/MDL means minimum limit or minimum detection limit.

PART E – TOXICITY TESTING DATA

- 50.1 – 50.3 Self – explanatory.

PART F – INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES

60. Federal regulations are available through the U.S. Government Printing Office at www.gpoaccess.gov/cfr/index.html.
- 60.1 Self – explanatory
- 60.2 A non-categorical significant industrial user is an industrial user that is not a CIU and 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.
- 60.3 – 60.13 Self – explanatory.

PART G – COMBINED SEWER SYSTEMS

70. – 70.10 Self – explanatory.

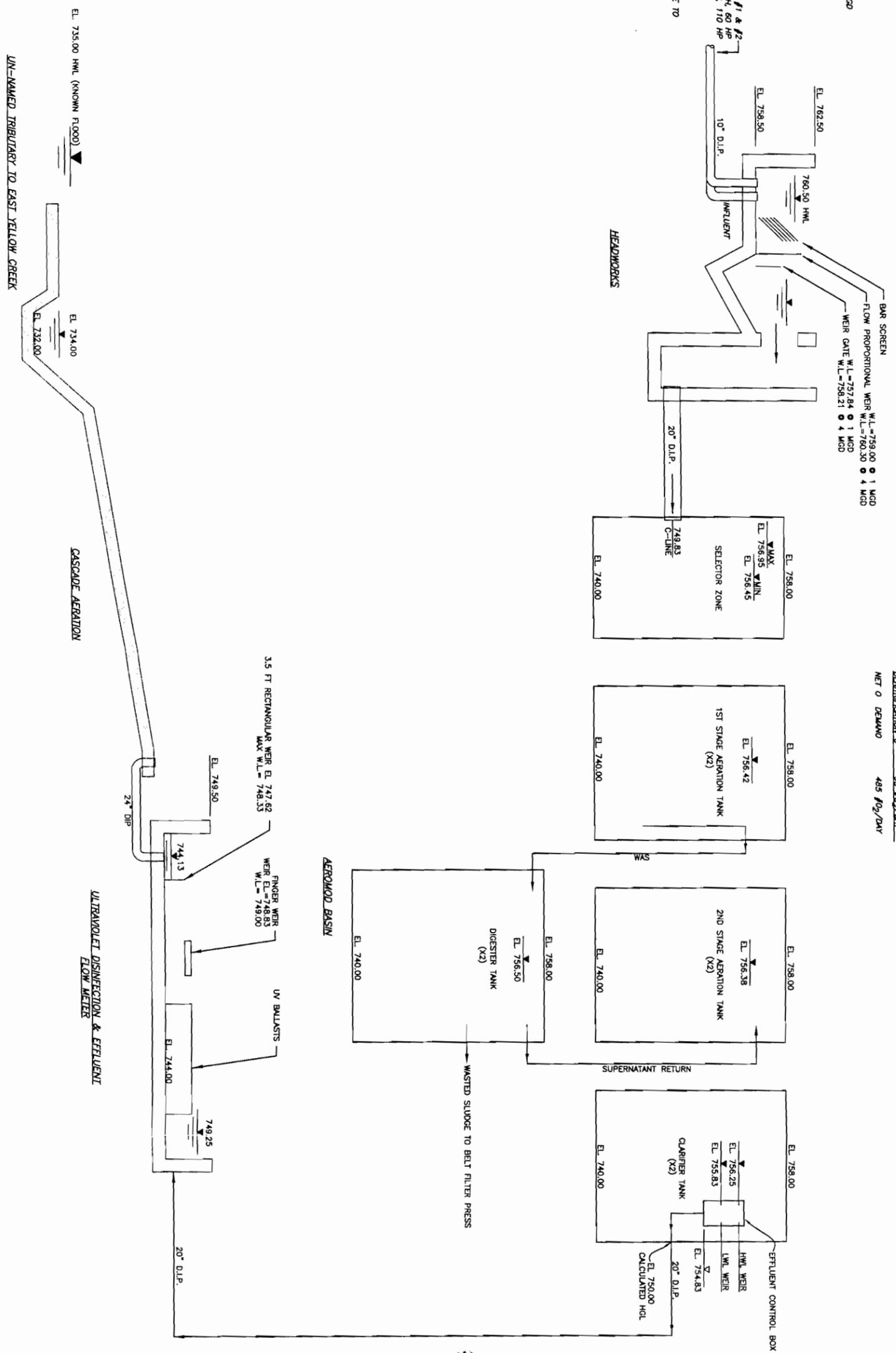
This completed form, along with the applicable permit fees, should be submitted to the appropriate Department of Natural Resources Office (See end of Part C). Submittal of an incomplete application may result in the application being returned. Map of regional offices with addresses and phone numbers are available on the Web at www.dnr.mo.gov/regions/ro-map.pdf. If there are any questions concerning this form, please contact the appropriate Regional Office or the Department of Natural Resources, Water Protection Program, Water Pollution Branch, NPDES Permits and Engineering Section at 573-751-6825.

INFLUENT MAXIMUM PUMP RATE APPROXIMATELY 4 MGD
 DESIGN POPULATION EQUIVALENT (PE) =
 AVERAGE DAILY DESIGN FLOW = 1 MGD
 PEAK AVERAGE DAILY DESIGN FLOW = 4 MGD
 PEAK FACTOR = 4)

ASSUMED INFLUENT
 BOD 5 250 MG/L
 TSS 175 MG/L
 NH 5 25 MG/L
 TN 67 MG/L
 TP 3 8 MG/L

FROM PUMP STATIONS #1 & #2
 PRESS - 1877 GPM @ 89 FT TDH, 60 HP
 SIPS - 900 GPM @ 167 FT TDH, 110 HP

NOTES:
 1. ANOXIC TANK MAY BE USED IN FUTURE TO INCREASE TREATMENT CAPABILITIES

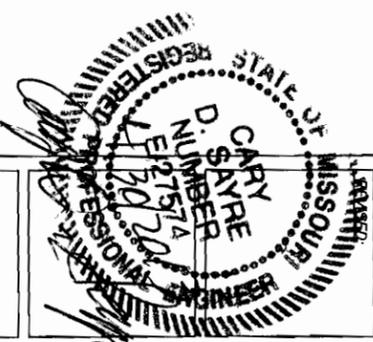


NET OXYGEN DEMAND

BOD 5	385 lb _o /DAY
NH 3	187 lb _o /DAY
DETERIORATION	53 lb _o /DAY
NET O DEMAND	485 lb _o /DAY

HYDRAULIC PROFILE

CITY OF BROOKFIELD, MISSOURI
 WASTE WATER TREATMENT FACILITY
 HYDRAULIC PROFILE
 AUGUST, 2011



ALLSTATE CONSULTANTS
 10001 HIGHWAY 5
 MARCELINE, MO. 64658
 (660) 376-2941

ENGINEERING • PLANNING • SURVEYING • GEOTECHNICAL • INVESTIGATIVE

DATE: August, 2011
 JOB NUMBER: 09015.02
 SCALE: NOTED
 SHEET: A-1

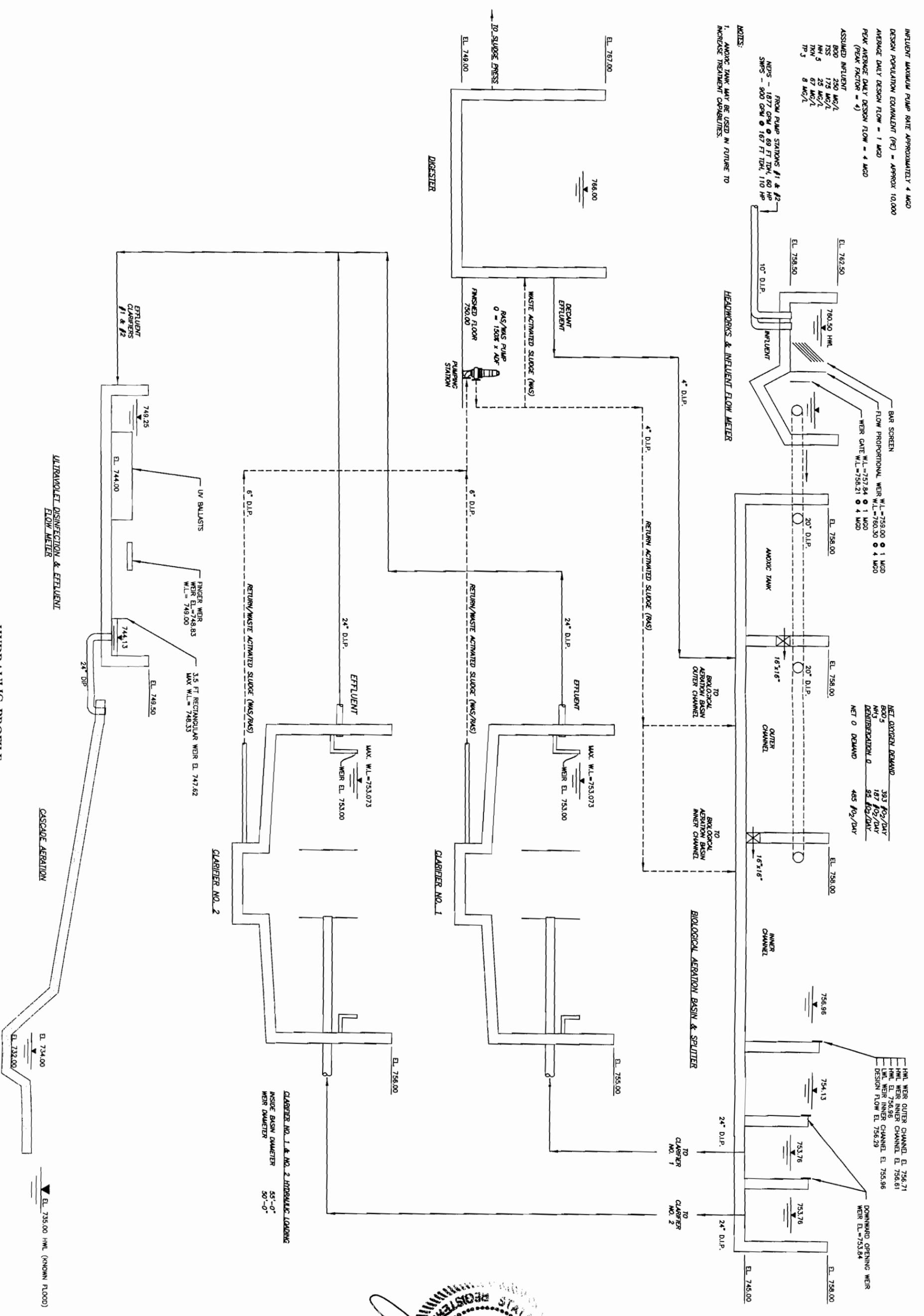
INFLUENT MAXIMUM PUMP RATE APPROXIMATELY 4 MGD
 DESIGN POPULATION EQUIVALENT (PE) = APPROX 10,000
 AVERAGE DAILY DESIGN FLOW = 1 MGD
 PEAK AVERAGE DAILY DESIGN FLOW = 4 MGD
 (PEAK FACTOR = 4)

ASSUMED INFLUENT

BOD	250 MG/L
TSS	175 MG/L
NH ₃	25 MG/L
TN	67 MG/L
TP	8 MG/L

FROM PUMP STATIONS #1 & #2
 NPS - 1877 GPM @ 89 FT TDH, 60 HP
 SMS - 900 GPM @ 167 FT TDH, 110 HP

NOTES:
 1. ANAEROBIC TANK MAY BE USED IN FUTURE TO INCREASE TREATMENT CAPABILITIES



NET OXYGEN DEMAND

BOD ₅	393 #/DAY
NH ₃	187 #/DAY
DENITRIFICATION O ₂	95 #/DAY
NET O ₂ DEMAND	465 #/DAY

H.M.L. WEIR OUTER CHANNEL EL. 756.71
 H.M.L. WEIR INNER CHANNEL EL. 756.61
 L.W.L. WEIR INNER CHANNEL EL. 755.96
 DESIGN FLOW EL. 756.29
 DOWNWARD OPENING WEIR EL. 753.84

CLARIFIER NO. 1 & NO. 2 HYDRAULIC LOADING
 INSIDE BASIN DIAMETER 55'-0"
 WEIR DIAMETER 50'-0"

HYDRAULIC PROFILE

SHEET **OD-1**

DATE: JANUARY, 2012
 JOB NUMBER: 09015102
 SCALE: N.T.S.

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ENGINEERING • PLANNING • SURVEYING • GEOTECHNICAL • INVESTIGATIVE

REGISTERED PROFESSIONAL ENGINEER
 STATE OF MISSOURI
 CARY SAYER
 NUMBER 497674
 EXPIRES 12/31/2012

CITY OF BROOKFIELD, MISSOURI
 WASTE WATER TREATMENT FACILITY
 1 MGD OXIDATION DITCH
 AUGUST, 2011