

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-0124320

Owner: Missouri American Water Company
Address: 727 Craig Rd, St. Louis, MO 63141

Continuing Authority: Same as above
Address: Same as above

Facility Name: Calley Trail Subdivision
Facility Address: Highway AE, New Bloomfield, MO 65063

Legal Description: NW¼, SE¼, SW¼, Sec. 07, T45N, R10W, Callaway County
UTM Coordinates: X= 578431 Y= 4282374

Receiving Stream: Unnamed tributary to Cason Branch (U)
First Classified Stream and ID: Cason Branch (C) (0729)
USGS Basin & Sub-watershed No.: 103001021403

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 - Non-POTW, Subdivision – SIC #4952 - **No certified operator required.**

Septic tank / recirculating sand filter / sludge disposal by owner.

Design population equivalent is 41.

Design flow is 3,053 gallons per day.

Actual flow is 2,267 gallons per day.

Design sludge production is 0.285 dry tons/year.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

July 6, 2012
Effective Date

Sara Parker Pauley, Director, Department of Natural Resources

July 5, 2017
Expiration Date

John Madros, Director, Water Protection Program

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 2 of 5	
					PERMIT NUMBER MO-0124320	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until July 5, 2015 . Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/quarter****	24 hr. estimate
Biochemical Oxygen Demand ₅	mg/L		45	30	once/quarter****	composite**
Total Suspended Solids	mg/L		45	30	once/quarter****	composite**
pH – Units	SU	***		***	once/quarter****	grab
Ammonia as N	mg/L	*		*	once/quarter****	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>OCTOBER 28, 2012</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
B. STANDARD CONDITIONS						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I & III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

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

*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.

**** See table below for quarterly sampling.

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

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	PAGE NUMBER 3 of 5
	PERMIT NUMBER MO-0124320

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 July 6, 2015**. Such discharges shall be controlled, limited and monitored by the permittee as specified below and remain in effect until expiration of the permit.

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/quarter****	24 hr. estimate
Biochemical Oxygen Demand ₅	mg/L		45	30	once/quarter****	composite**
Total Suspended Solids	mg/L		45	30	once/quarter****	composite**
pH – Units	SU	***		***	once/quarter****	grab
Ammonia as N (April 1 – Sept 30)	mg/L	12.1		3.8	once/quarter****	grab
(Oct 1 – March 31)		10.6		4.4		

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE OCTOBER 28, 2015. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

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

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

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

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July, August, September (3rd Quarter)	October 28
October, November, December (4th Quarter)	January 28

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:

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

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

C. SPECIAL CONDITIONS (continued)

2. All outfalls must be clearly marked in the field.
3. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(3)(B) within 90 days of notice of its availability.
4. Water Quality Standards
 - (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
 - (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
 - (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
 - (5) There shall be no significant human health hazard from incidental contact with the water;
 - (6) There shall be no acute toxicity to livestock or wildlife watering;
 - (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
 - (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.
5. Changes in Discharges of Toxic Substances

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

 - (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
 - (1) One hundred micrograms per liter (100 µg/L);
 - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
 - (4) The level established in Part A of the permit by the Director.
 - (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.
6. Report as no-discharge when a discharge does not occur during the report period.
7. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
8. 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.
9. At least one sign shall appear on the fence on each side of each facility. Minimum wording shall be "SEWAGE TREATMENT FACILITY – KEEP OUT", in letters at least 2 inches high.
10. 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 this type of facility.
11. An all-weather access road shall be provided from a public right-of-way to the treatment facility.

D. SCHEDULE OF COMPLIANCE

1. The permittee must attain compliance with the final effluent limits as soon as possible, but no later than three years after issuance of this permit.
2. Within one year of issuance of this permit, the permittee shall submit a report detailing progress made in attaining compliance with the final effluent limits.
3. Within two years of issuance of this permit, the permittee shall submit a report detailing progress made in attaining compliance with the final effluent limits.

Missouri Department of Natural Resources
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0124320
CALLEY TRAIL SUBDIVISION

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.

This Factsheet is for a Minor wastewater treatment facility (WWTF). A Factsheet is not an enforceable part of an operating permit.

Part I – Facility Information

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

Facility Description:

This facility consists of individual septic tanks at each residence with effluent piped to a recirculating sand filter. The facility owner removes sludge and hauls it to the Jefferson City WWTF. The design flow is 3,053 gallons per day with an actual flow of 2,267 gallons per day.

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

- Yes; The previous permit included bacterial limits normally intended for losing streams. The Department's Environmental Geology Section conducted a geohydrologic evaluation on the receiving stream and determined that it is not a losing stream.

Application Date: 12/27/2010
Expiration Date: 06/15/2011
Last Inspection: 10/12/2011 In Compliance ; Non-Compliance

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.005	Secondary	Sanitary (domestic)	3.6

Outfall #001

Legal Description: NW ¼, SE ¼, SW ¼, Sec. 7, T45N, R10W
UTM Coordinates: X = 578,431, Y = 4,282,374
Receiving Stream: Unnamed tributary of Cason Brach (U)
First Classified Stream and ID: Cason Branch (C) (0729)
USGS Basin & Sub-watershed No.: 103001021403

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

Upon receipt of the operating permit (MO-0124320) renewal application, the Northeast Regional Office (NERO) performed a file review and discovered that the previous permit limits were designed for a losing stream. The applicant requested a Geohydrologic Evaluation from the Department's Environmental Geology Section. This evaluation determined that the unnamed tributary of Cason Branch is not a losing stream. The renewed permit BOD, TSS and bacterial limits reflect this new information.

Comments:

On September 22, 2011, NERO received an environmental concern regarding the Calley Trails Subdivision, in Callaway County, Missouri. The concern regarded wastewater from the Calley Trails Subdivision being discharged onto the concerned party's property. The report is referenced as Environmental Concern ACE #10223. A review of monitoring reports found that the facility failed to comply with the effluent BOD limit on June 9, 2011. NERO issued a letter of warning requiring the facility to submit a written statement explaining what actions were taken to correct the BOD limit exceedance, NERO also inspected the facility and found that the facility appeared to be adequately maintained. The owner's response letter explained that the violation was most likely due to a dead frog caught in the discharge pipe during sample collection on June 9, 2011. The situation was corrected by removing the frog.

The permittee completed a time of travel study to assess ammonia decay for this situation. The time of travel for effluent from this facility to the receiving water body is 20.4 days. This information was used in calculating ammonia effluent limits.

Part II – Operator Certification Requirements

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], permittees shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions and regulations. Operators or supervisors of operations at regulated wastewater treatment facilities shall be certified in accordance with [10 CSR 20-9.020(2)] and any other applicable state law or regulation. As per [10 CSR 20-9.020(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if they have a Design Population Equivalent greater than two hundred (200) and/or fifty (50) or more service connections.

Not Applicable; This facility is not required to have a certified operator because of its small Design Population Equivalent. Modifications made to the wastewater treatment facility may cause the classification to be modified.

However, at the time of application, the facility is operated by a Certified Level A operator.

Operator's Name: Aaron Lachowicz
Certification Number: 4885
Certification Level: A

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

Part III – Receiving Stream Information

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

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

- Missouri or Mississippi River [10 CSR 20-7.015(2)]:
- Lake or Reservoir [10 CSR 20-7.015(3)]:
- Losing [10 CSR 20-7.015(4)]:
- Metropolitan No-Discharge [10 CSR 20-7.015(5)]:
- Special Stream [10 CSR 20-7.015(6)]:
- Subsurface Water [10 CSR 20-7.015(7)]:
- Waters of the State [10 CSR 20-7.015(8)]:

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

RECEIVING STREAM(S) TABLE:

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	EDU**
Unnamed Trib to Cason Branch	U	--	General Criteria	103001021403	Ozark/Moreau/ Loutre
Cason Branch	C	0729	AQL, LWW		

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

** - Ecological Drainage Unit

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Unnamed Trib to Cason Branch (U)	0.0	0.0	0.0

MIXING CONSIDERATIONS :

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

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

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

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.

- Limitations in this operating permit for the reissuance of this permit conform to the anti-backsliding provisions of Section 402(o)(i) of the Clean Water Act. Information is available now which was not available at the time of the previous permit issuance. Field investigations determined that the receiving water body is not a losing stream. This justifies the modification of BOD and TSS limits, as well as the removal of bacterial limits.

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.

- This permit is a renewal, no degradation is proposed and no further review necessary.

AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:

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

BIOSOLIDS & SEWAGE SLUDGE:

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

<http://dnr.mo.gov/env/wpp/pub/index.html>, items WQ422 through WQ449.

- Sludge/biosolids are hauled to the Jefferson City WWTF by the facility owner.

BYPASSES –[40 CFR 122.41(M)] :

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

Not Applicable, this facility does not bypass.

COMPLIANCE AND ENFORCEMENT:

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

Not Applicable; The permittee/facility recently received a letter of warning, but the issue was quickly resolved

OPERATIONS AND MAINTENANCE MANUAL:

This permittee owns numerous small wastewater treatment facilities of various types. The permittee has chosen to develop one master operations and maintenance (O&M) manual with separate appendices pertaining to each specific type of wastewater treatment facility. The master O&M manual will cover operational specifics for each type of facility in appendices. The master manual must be available to the operator at all times. The operator is responsible for recording and understanding the specific requirements of each facility.

REASONABLE POTENTIAL ANALYSIS (RPA):

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

In accordance with [40 CFR Part 122.44(d)(iii)] if the permit writer determines that any give pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

Applicable; A RPA was conducted on Ammonia. Please see **APPENDIX A – RPA RESULTS.**

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

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

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

SCHEDULE OF COMPLIANCE (SOC):

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

Applicable; The time given for effluent limitations of this permit listed under Interim Effluent Limitation and Final Effluent Limitations were established in accordance with [10 CSR 20-7.031(10)].

The three year schedule of compliance determined for this facility allows time for the owner to obtain an engineering evaluation and plan for upgrading the facility, complete antidegradation review, obtain a construction permit, and upgrade the existing facility or construct a new facility, if necessary.

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:

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

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

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

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

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

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:

As 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 include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria, in each NPDES permit.

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.

Not Applicable; At this time, the permittee is not required to conduct WET test for this facility.

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

Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs. A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

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

Part V – Effluent Limits Determination

Outfall #001 – Main Facility Outfall

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	MGD		*		*	NO	*
BOD ₅	MG/L	1		45	30	YES	15/10
TSS	MG/L	1		45	30	YES	20/15
pH	SU	1	6.5-9.0			YES	6.0-9.0
AMMONIA AS N (APRIL 1 – SEPT 30)	MG/L	1, 2, 5	12.1		3.8	YES	*/*
AMMONIA AS N (OCT 1 – MARCH 31)	MG/L	1, 2, 5	10.6		4.4	YES	*/*
FECAL COLIFORM	CFU/ 100ML	1	**		**	YES	1000
CHLORINE, TOTAL RESIDUAL	MG/L	1	**		**	YES	0.019/0.010

* Monitoring requirement only.

** Parameter limits removed.

Basis for Limitations Codes:

- | | |
|--|------------------------------------|
| 1. State or Federal Regulation/Law | 7. Antidegradation Policy |
| 2. Water Quality Standard (includes RPA) | 8. Water Quality Model |
| 3. Water Quality Based Effluent Limits | 9. Best Professional Judgment |
| 4. Lagoon Policy | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy | 11. WET Test Policy |
| 6. Antidegradation Review | |

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

- **Flow** - In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- **Biochemical Oxygen Demand (BOD₅)** - Effluent limitations from the previous state operating permit have been reassessed and the permit writer determined that the circumstances upon which the previous permit was based have materially and substantially changed since the time the permit was issued. Therefore, effluent limitations have been modified from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.

- **Total Suspended Solids (TSS)** - Effluent limitations from the previous state operating permit have been reassessed and the permit writer determined that the circumstances upon which the previous permit was based have materially and substantially changed since the time the permit was issued. Therefore, effluent limitations have been modified from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.
- **pH** - Effluent limitations were modified from last permit. In accordance with 10CSR 20-7.015(8)(A), a pH shall be maintained between 6.5 – 9.0. Please see **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.
- **Total Ammonia Nitrogen** - Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3] default pH 7.8 SU No mixing considerations allowed; therefore the WLA= the appropriate criteria for Acute Criteria. The facility submitted stream data to conduct a time of travel study, which found the time of travel for the effluent to reach the first classified water is 20.4 days, therefore the WLA for Chronic Criteria is adjusted for ammonia decay. Using $[NH_3N]_t = [NH_3N]_{t=0} \times e^{-kt}$ where $[NH_3N]_t$ = ammonia concentration at the confluence with the classified segment; $[NH_3N]_{t=0}$ = ammonia concentration at pipe = C_e ; k =NH₃ oxidation per day ($k_{1,20}$) $\theta_1^{(Temp-20)}$; $k_{1,20}$ = 0.3 per day; θ_1 = temperature correction factor = 1.083 ammonia nitrogen = 0.01 mg/L.

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

Summer: April 1 – September 30

Chronic WLA: $C_e = ((0.005 + 0.0)1.5 - (0.0 * 0.01))/0.005$
 $C_e = 1.5 / 0.1334 = 11.2 \text{ mg/L}$

Acute WLA: $C_e = ((0.005 + 0.0)12.1 - (0.0 * 0.01))/0.005$
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 11.2 \text{ mg/L} (0.722) = 8.1 \text{ mg/L}$
 $LTA_a = 12.1 \text{ mg/L} (0.251) = \mathbf{3.0 \text{ mg/L}}$

[CV = 0.796, 99th Percentile, 30 day avg.]
 [CV = 0.796, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

MDL = 3.0 mg/L (3.99) = 12.1 mg/L
 AML = 3.0 mg/L (1.26) = 3.8 mg/L

[CV = 0.796, 99th Percentile]
 [CV = 0.796, 95th Percentile, n =30]

Winter: October 1 – March 31

Chronic WLA: $C_e = ((0.005 + 0.0)3.1 - (0.0 * 0.01))/0.005$
 $C_e = 3.1 / 0.6644 = 4.7 \text{ mg/L}$

Acute WLA: $C_e = ((0.005 + 0.0)12.1 - (0.0 * 0.01))/0.005$
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 4.7 \text{ mg/L} (0.799) = \mathbf{3.7 \text{ mg/L}}$
 $LTA_a = 12.1 \text{ mg/L} (0.350) = 4.25 \text{ mg/L}$

[CV = 0.54, 99th Percentile, 30 day avg.]
 [CV = 0.54, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

MDL = 3.7 mg/L (2.85) = 10.6 mg/L
 AML = 3.7 mg/L (1.17) = 4.4 mg/L

[CV = 0.54, 99th Percentile]
 [CV = 0.54, 95th Percentile, n =30]

Part VI - 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.

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

Part VII – Administrative Requirements

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

PUBLIC NOTICE:

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

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

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

- The Public Notice period for this operating permit is tentatively scheduled to begin in April 2012.

DATE OF FACT SHEET: MARCH 08, 2012

COMPLETED BY:

**AMANDA SAPPINGTON
NPDES PERMITS UNIT
PERMITTING AND ENGINEERING SECTION
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Appendices

APPENDIX # A– RPA RESULTS:

Parameter	CMC*	RWC Acute*	CCC*	RWC Chronic*	n**	Range max/min	CV***	MF	RP Yes/No
Total Ammonia as Nitrogen (Summer) mg/L	12.10	40.20	1.50	40.20	30	10.8/2.1	0.796	3.991	Yes
Total Ammonia as Nitrogen (Winter) mg/L	12.10	20.47	3.10	20.47	31	16.8/0.92	0.54	2.854	Yes

N/A – Not Applicable

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

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

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

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

n – Is the number of samples.

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

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

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