STATE OF MISSOURI
Jeremiah W. (Jay) Nixon, Governor  Sara Parker Pauley, Director
DEPARTMENT OF NATURAL RESOURCES
dnr.mo.gov

Ravenwood Estates Owners Association, Inc.
16 Ravenwood Drive
Camdenton, MO 65020

Dear Permittee:

Pursuant to the Federal Water Pollution Control Act, under the authority granted to the State of Missouri and in compliance with the Missouri Clean Water Law, we have issued and are enclosing your State Operating Permit to discharge from Ravenwood Subdivision, Camden County, Missouri.

Please read your permit and enclosed Standard Conditions. They contain important information on monitoring requirements, effluent limitations, sampling frequencies and reporting requirements.

Monitoring reports required by the special conditions must be submitted on a periodic basis. The required forms are enclosed. Please make copies for your use. Completed forms should be mailed to this office.

Please note that the new effluent limits will take effect on **October 1, 2014**. These new effluent limitations may require an upgrade to the current treatment process. Please refer to **Part D** of the enclosed permit, which outlines the specific schedule you must follow.

The project to upgrade your facility will require careful planning, time and expenditure of capital. State regulations require that you involve a Missouri licensed professional engineer to design your project. The completed design is required to be submitted to this office for review and approval. Once approved, a construction permit is issued and you may begin your construction project to improve your facility.

This permit is both your Federal NPDES Permit and your new Missouri State Operating Permit and replaces all previous State Operating Permits issued for this facility under this permit number. In all future correspondence regarding this facility, please refer to your State Operating Permit number and facility name as shown on page one of the permit.

**Please be aware that nothing in this permit relieves the permittee of any other legal obligations or restrictions, such as other federal or state laws, court orders, or county or other local ordinances or restrictions.**

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If you were adversely affected by this decision, you may be entitled to an appeal before the administrative hearing commission pursuant to 10 CSR 20-1.020 and Section 621.250, RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission. Any appeal shall be directed to: Administrative Hearing Commission, Truman Building, Room 640, 301 W. High Street, P.O. Box 1557, Jefferson City, MO 65102, Phone: 573-751-2422, Fax: 573-751-5018, website: www.oa.mo.gov/ahc.

If you have questions concerning this permit please contact Mr. Chris Ray of my staff by calling 417-891-4300 or via mail at Southwest Regional Office, 2040 W. Woodland, Springfield, MO 65807-5912.

Sincerely,

SOUTHWEST REGIONAL OFFICE

Cynthia S. Davies
Regional Director

CSD/crk

Enclosures

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-0117749 |
| Owner: | Ravenwood Estates Owners Association, Inc. |
| Address: | 16 Ravenwood Drive, Camdenton, MO 65020 |
| Continuing Authority: | Same as Above |
| Address: | Same as Above |
| Facility Name: | Ravenwood Subdivision WWTF |
| Facility Address: | Highway 5 North, Camdenton MO 65020 |
| Legal Description: | SE¼, NW¼, Sec. 04, T38N, R17W, Camden County |
| UTM (X/Y): | 517553 / 4213058 |
| Receiving Stream: | Unnamed Tributary to Lake of the Ozarks (U) (Losing) |
| First Classified Stream and ID: | Lake of the Ozarks (L2) (07205) |
| USGS Basin & Sub-watershed No.: | (10290110-0403) |

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 - Subdivision / Sewerage Works - SIC #8641
The use or operation of this facility does not require a CERTIFIED OPERATOR.
Septic tanks / recirculating sand filter / chlorination / dechlorination / post-aeration / sludge disposal by contract hauler.

Design organic population equivalent is 85
Design flow is 0.006400 MGD
Design sludge production is 0.6dry 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.

October 21, 2011
Effective Date

Sara Parker Pauley, Director, Department of Natural Resources

October 20, 2016
Expiration Date

Cynthia S. Davies, Regional Director, Southwest Regional Office

## A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until **September 30, 2014**. 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 | | 15 | 10 | once/quarter** | grab |
| Total Suspended Solids | mg/L | | 20 | 15 | once/quarter** | grab |
| pH – Units | SU | *** | | *** | once/quarter** | grab |
| *E. coli* **(Note 1)** | #/100 ml | 126 | | 126 | once/quarter** | grab |
| Total Residual Chlorine as $Cl_2$ | mg/L | 0.016 (**Note 2**) (0.13 ML) | | 0.0082 (**Note 2**) (0.13ML) | once/quarter** | grab |
| Ammonia as N | mg/L | * | | * | once/quarter** | grab |
| Nitrate as $NO_3$ | mg/L | * | | * | once/quarter** | grab |

| OUTFALL NUMBER AND EFFLUENT PARAMETER(S) | UNITS | DAILY MINIMUM | WEEKLY AVERAGE MINIMUM | MONTHLY AVERAGE MINIMUM | MEASUREMENT FREQUENCY | SAMPLE TYPE |
|---|---|---|---|---|---|---|
| Outfall #001 | | | | | | |
| Dissolved Oxygen | mg/L | * | | * | once/quarter** | grab |

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

**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS** (continued)

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective **October 1, 2014** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

| OUTFALL NUMBER AND EFFLUENT PARAMETER(S) | UNITS | FINAL EFFLUENT LIMITATIONS | | | MONITORING REQUIREMENTS | |
|---|---|---|---|---|---|---|
| | | DAILY MAXIMUM | WEEKLY AVERAGE | MONTHLY AVERAGE | MEASUREMENT FREQUENCY | SAMPLE TYPE |
| Outfall #001 | | | | | | |
| Flow | MGD | * | | * | once/quarter** | 24 hr. estimate |
| Biochemical Oxygen Demand$_5$ | mg/L | | 15 | 10 | once/quarter** | grab |
| Total Suspended Solids | mg/L | | 20 | 15 | once/quarter** | grab |
| pH – Units | SU | *** | | *** | once/quarter** | grab |
| *E. coli* **(Note 1)** | #/100 ml | 126 | | 126 | once/quarter** | grab |
| Total Residual Chlorine as $Cl_2$ | mg/L | 0.016 (**Note 2**) (0.13 ML) | | 0.0082 (**Note 2**) (0.13ML) | once/quarter** | grab |
| Ammonia | mg/L | | | | once/quarter** | grab |
| Winter (Oct 1-March 31) | | 7.5 | | 2.9 | | |
| Summer ( April 1-Sept 30) | | 3.4 | | 1.3 | | |
| Nitrate as $NO_3$ | mg/L | * | | * | once/quarter** | grab |

| OUTFALL NUMBER AND EFFLUENT PARAMETER(S) | UNITS | DAILY MINIMUM | WEEKLY AVERAGE MINIMUM | MONTHLY AVERAGE MINIMUM | MEASUREMENT FREQUENCY | SAMPLE TYPE |
|---|---|---|---|---|---|---|
| Outfall #001 | | | | | | |
| Dissolved Oxygen | mg/L | * | | * | once/quarter** | grab |

MONITORING REPORTS SHALL BE SUBMITTED **QUARTERLY**; THE FIRST REPORT IS DUE **January 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.

** Sampling shall occur once per quarter in the periods of January through March, April through June, July through September, and October through December, please note that monitoring reports shall be submitted no later than the 28th day of the month following the monitoring period (April 28th, July 28th, October 28th, and January 28th, respectively).

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

Note 1 – Final effluent limits of 126 cfu per 100 ml daily maximum and monthly average applicable year round due to losing stream designation.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

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

(a) This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved CLTRC methods. The Department has determined the current acceptable ML for total residual chlorine to be 0.13 mg/L when using the DPD Colorimetric Method #4500 – CL G. from Standard Methods for the Examination of Waters and Wastewater. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values. Measured values greater than or equal to the minimum quantification level of 0.13 mg/L will be considered violations of the permit and values less than the minimum quantification level of 0.13 mg/L will be considered to be in compliance with the permit limitation. The minimum quantification level does not authorize the discharge of chlorine in excess of the effluent limits stated in the permit.

(b) Disinfection is required year-round unless the permit specifically states that "Final limitations and monitoring requirements for *E. coli* are applicable only during the recreational season from April 1 through October 31." If your permit does not require disinfection during the non-recreational months, do not chlorinate in those months.

(c) Do not chemically dechlorinate **if it is not needed to meet the limits in your permit.**

(d) If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as "0 mg/L" TRC.

C. SPECIAL CONDITIONS

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

(a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:

(1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

(2) controls any pollutant not limited in the permit.

(b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.

(c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

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

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

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

4. Changes in Discharges of Toxic Substances

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

(a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"

(1) One hundred micrograms per liter (100 µg/L);

(2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;

C. SPECIAL CONDITIONS (continued)

(3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;

(4) The level established in Part A of the permit by the Director.

(b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

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

6. Water Quality Standards

(a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.

(b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:

(1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;

(2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;

(3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;

(4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;

(5) There shall be no significant human health hazard from incidental contact with the water;

(6) There shall be no acute toxicity to livestock or wildlife watering;

(7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;

(8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

D. SCHEDULE OF COMPLIANCE

1. By **April 19, 2012** submit a completed application for construction permit, application fee, and one copy each of an engineering report, plans and specifications prepared by a professional engineer registered in the State of Missouri to the Missouri Department of Natural Resources, 2040 West Woodland, Springfield, Missouri, 65807, for providing wastewater treatment system improvements to comply with the final effluent limitations as list in Part A of this permit, designed in accordance with Missouri Clean Water Law Regulation 10 CSR 20 Chapter 8.

Please note that you may be able to meet the Ammonia final effluent limits without a construction permit. If the final effluent limits can be achieved without a construction permit please submit in writing by **April 19, 2012** how you are planning to meet the new effluent limits.

2. Within fifteen (15) calendar days of receipt of any request for additional information or changes in the engineering report, plans or specifications, respond and if necessary submit engineering modifications to the Department.

D. SCHEDULE OF COMPLIANCE

3. Within 365 calendar days of issuance of the construction permit, construct the permitted wastewater treatment system improvements.

4. Within fifteen (15) calendar days of completion of construction of wastewater treatment system improvements, submit a Statement of Work Completed form, signed, sealed, and dated by a professional engineer registered in the State of Missouri certifying that the project has been completed substantially in accordance with the approved plans and specifications. In addition to the Statement of Work Completed, submit an application for a Missouri State Operating Permit modification complete with the appropriate modification fee to the Missouri Department of Natural Resources, 2040 West Woodland, Springfield, Missouri, 65807.

5. Annual progress reports shall be submitted on January 28th of each year until the construction completed. The report shall include what step of the process the facility is at, how much construction has been completed, approximately time of completion, etc. The first report is due **January 28, 2013.**

If you have questions you may contact the Missouri Department of Natural Resources, Southwest Regional Office by calling 417-891-4300 or by mail at 2040 West Woodland, Springfield, Missouri, 65807.

**Missouri Department of Natural Resources**
**Statement of Basis**
**Ravenwood Subdivision WWTF**
**MSOP #: MO-0117749**
**Camden County**

A Statement of Basis (Statement) gives pertinent information regarding the applicable regulations and rationale for the development of the NPDES Missouri State Operating Permit (operating permit). This Statement includes Wasteload Allocations, Water Quality Based Effluent Limitations, and Reasonable Potential Analysis calculations as well as any other calculations that effect the effluent limitations of this operating permit. This Statement does not pertain to operating permits that include sewage sludge land application plans and variance procedures, and does not include the public comment process for this operating permit.

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

## Part I – Facility Information

Facility Type: (NON-POTW)
Subdivision - SIC #8641

Facility Description: Septic tanks / recirculating sand filter / chlorination / dechlorination / post-aeration / sludge disposal by contract hauler.

**OUTFALL(S) TABLE:**

| OUTFALL | DESIGN FLOW (CFS) | TREATMENT LEVEL | EFFLUENT TYPE | DISTANCE TO CLASSIFIED SEGMENT (MI) |
|---|---|---|---|---|
| 001 | 0.01 | Secondary | Domestic | 0.81 |

Receiving Water Body's Water Quality & Facility Performance History:
None

This is for a renewal.

Comments: The facility was last inspected on May 18, 2010. The inspection showed the following unsatisfactory features at the facility: the permittee failed to submit a 2009 annual sludge report, the facility did not have flow measurement, and the facility was not fenced.

## Part II – Operator Certification Requirements

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], permittees shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions and regulations. Operators or supervisors of operations at regulated wastewater treatment facilities shall be certified in accordance with [10 CSR 20-9.020(2)] and any other applicable state law or regulation. As per [10 CSR 20-9.010(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

Not Applicable ☒; This facility is not required to have a certified operator.

## Part III – Receiving Stream Information

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

Missouri or Mississippi River [10 CSR 20-7.015(2)]: ☐

Lake or Reservoir [10 CSR 20-7.015(3)]: ☒
Losing [10 CSR 20-7.015(4)]: ☐
Metropolitan No-Discharge [10 CSR 20-7.015(5)]: ☐
Special Stream [10 CSR 20-7.015(6)]: ☐
Subsurface Water [10 CSR 20-7.015(7)]: ☐
All Other Waters [10 CSR 20-7.015(8)]: ☐

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

**RECEIVING STREAM(S) TABLE:**

| WATERBODY NAME | CLASS | WBID | DESIGNATED USES* | 8-DIGIT HUC | EDU** |
|---|---|---|---|---|---|
| Unnamed Tributary to Lake of the Ozarks (Losing) | U | N/A | General Criteria | 10290110 | Ozark / Osage |
| Lake of the Ozarks | L2 | 07205 | General Criteria, LWW, AQL, SCR, WBC-A | | |

* - 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).
** - Ecological Drainage Unit

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

| RECEIVING STREAM (U, C, P) | LOW-FLOW VALUES (CFS) | | |
|---|---|---|---|
| | 1Q10 | 7Q10 | 30Q10 |
| Unnamed Tributary to Lake of the Ozarks | 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

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

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

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

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

**AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:**
As per [10 CSR 20-6.010(8)(A)10.], when a Continuing Authority under paragraph 10 CSR 20-6.010(3)(B)1. or 2. is expected to be available for connection within the next five (5) years, any operating permit issued to a permittee under this paragraph, located within the service area of the paragraph (3)(B)1. or 2. facility, shall contain the following special condition… This language is contained in Special Condition #3 of this operating permit.

**ANTIDEGRADATION:**
Policies which ensure protection of water quality for a particular water body where the water quality exceeds levels necessary to protect fish and wildlife propagation and recreation on and in the water. This also includes special protection of waters designated as outstanding natural resource waters. Antidegradation requirements are consistent with 40 CFR 131.12 that outlines methods used to assess activities that may impact the integrity of a water and protect existing uses. This policy may compel the state to maintain a level of water quality above those mandated by criteria.

Not Applicable ☒;
Renewal no degradation proposed and no further review necessary.

**APPLICABLE PERMIT PARAMETERS:**
Effluent parameters for conventional, non-conventional, and toxic pollutants have been obtained from the previous NPDES operating permit for this facility, technology based effluent limits, and from appropriate sections of the renewal application.

**Bio-solids, Sludge, & Sewage Sludge:**
Bio-solids are solid materials resulting from wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sludge is any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect. Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works. Additional information regarding biosolids and sludge is located at the following web address: http://dnr.mo.gov/env/wpp/pub/index.html, items WQ422 through WQ449.

☒ - Sludge/biosolids are removed by contract hauler or are stored in the lagoon.

**COMPLIANCE AND ENFORCEMENT:**
Action taken by the Department to resolve violations of the Missouri Clean Water Law, its implementing regulations, and/or any terms and condition of an operating permit.

Not Applicable ☒;
The permittee/facility is not under enforcement action and is considered to be in compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and condition of an operating permit.

**PRETREATMENT PROGRAM:**
The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a Publicly Owned Treatment Works [40 CFR Part 403.3(q)].

Pretreatment programs are required at any POTW (or combination of POTW operated by the same authority) and/or municipality with a total design flow greater than 5.0 MGD and receiving industrial wastes that interfere with or

pass through the treatment works or are otherwise subject to the pretreatment standards. Pretreatment programs can also be required at POTWs/municipals with a design flow less than 5.0 MGD if needed to prevent interference with operations or pass through.

Several special conditions pertaining to the permittee's pretreatment program may be included in the permit, and are as follows:

- Implementation and enforcement of the program,
- Annual pretreatment report submittal,
- Submittal of list of industrial users,
- Technical evaluation of need to establish local limitations, and
- Submittal of the results of the evaluation

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

**REASONABLE POTENTIAL ANALYSIS (RPA):**
Limitations must control all pollutants or pollutant parameters that are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above the Missouri Water Quality Standards.

Not Applicable ☒;
A RPA was not conducted for this facility.

**REMOVAL EFFICIENCY:**
Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day ($BOD_5$) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs). Please see the United States Environmental Protection Agency's (EPA) website for interpretation of percent removal requirements for National Pollutant Discharge Elimination System Permit Application Requirements for Publicly Owned Treatment Works and Other Treatment Works Treating Domestic Sewage @ www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm

Not Applicable ☒;
This wastewater treatment facility is not a POTW. Influent monitoring is not being required to determine percent removal.

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

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

☒ - 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 where established in accordance with [10 CSR 20-7.031(10)].

**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 *Storm Water Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices* [EPA 832-R-92-006] (Storm Water Management), 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.

**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 to 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:

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

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) 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:**
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.

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

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

☒ - Not Applicable, this facility does not bypass.

**303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):**
Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic

life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

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

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

**Adjusted Design Flow:**
10 CSR 20-6.011(1)(B)1. provides for an Adjusted Design Flow when calculating permit fees on human sewage treatment facilities. If the average flow is sixty percent (60%) or less than the system's design flow, the average flow may be substituted for the design flow when calculating the permit fee on human sewage treatment facilities. If the facility's actual average flow is consistently 60% or less than the permitted design flow, the facility may qualify for a reduction in your fee when:

- The facility has a valid permit, or has applied for re-issuance, is in compliance with the terms, conditions and effluent limitations of the permit, and the facility has a good compliance history; and
- Flow is not expected to exceed 60% of design flow for the remaining term of the existing operating permit.

Not Applicable ☒;
At this time, the permittee has not requested an Adjusted Design Flow modification.

***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 | 1 | * | | * | NO | S |
| $BOD_5$ | MG/L | 1 | | 30 | 20 | YES | S |
| TSS | MG/L | 1 | | 30 | 20 | YES | S |
| pH (S.U.) | SU | 1 | 6.5-9.0 | | 6.5-9.0 | YES | 6.0-9.0 |
| AMMONIA AS N (OCTOBER - MARCH) | MG/L | 5 | 7.5 | | 2.9 | YES | NONE |
| AMMONIA AS N (APRIL - SEPTEMBER) | MG/L | 5 | 3.4 | | 1.3 | YES | NONE |
| NITRATE AS $NO_3$ | MG/L | 8 | * | | * | NO | NONE |
| ESCHERICHIA COLI | *** | 1,2,3 | 630 | | 126 | NO | NONE |
| CHLORINE, TOTAL RESIDUAL | MG/L | 3 | 0.016 | | 0.0082 | YES | 0.1 |
| DISSOLVED OXYGEN | MG/L | 11 | * | | * | NO | NONE |
| MONITORING FREQUENCY | Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below. | | | | | | |

**<u>* - Monitoring requirement only</u>**
*** - # of colonies/100mL; the Monthly Average for E. coli is a geometric mean.
**** - Parameter not previously established in previous state operating permit.
N/A – Not applicable

S – Same as previous operating permit

Basis for Limitations Codes:

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

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

**Flow**. In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.

**Biochemical Oxygen Demand ($BOD_5$).**

☒ – Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**

**Total Suspended Solids (TSS).**

☒ – Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**

**pH.**

☒ – pH is limited to the range of 6.5 – 9.0 pH units, as per [10 CSR 20-7.031(4)(E)]. pH is measured in pH units and is not to be averaged.

**Temperature.** Temperature has been removed because it is no longer pertinent in determining ammonia limitations.

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

| Season | Temp ($^oC$) | pH (SU) | Total Ammonia Nitrogen CCC (mg N/L) | Total Ammonia Nitrogen CMC (mg N/L) |
|---|---|---|---|---|
| Oct. 1 – March 31 | 6 | 7.8 | 3.1 | 12.1 |
| April 1 – Sept. 30 | 27 | 7.8 | 1.4 | 12.1 |

Winter: Oct 1 – March 31, Summer: April 1 – Sept. 30

Summer – Chronic WLA = 1.4 mg N/L, Acute WLA = 12.1 mg N/L. No mixing zone is allowed. Discharges to Unclassified Stream.

$LTA_c$ = 1.4 mg/L (0.780) = 1.09 mg N/L [CV = 0.6, 99th Percentile, 30 day average]
$LTA_a$ = 12.1 mg/L (0.321) = 3.88 mg N/L [CV = 0.6, 99th Percentile]

MDL = 1.09 mg/L * 3.114 = 3.4 mg N/L [CV = 0.6, 99th Percentile]
AML = 1.09 mg/L * 1.19 = 1.3 mg N/L [CV = 0.6, 95th Percentile, n = 30]

Winter – Chronic WLA = 3.1 mg N/L, Acute WLA = 12.1 mg N/L. No mixing zone is allowed. Discharges to Unclassified Stream.

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

MDL = 2.4 mg/L * 3.114 = 7.5 mg N/L [CV = 0.6, 99th Percentile]
AML = 2.2 mg/L * 1.19 = 2.9 mg N/L [CV = 0.6, 95th Percentile, n = 30]

| Season | Maximum Daily Limit (mg N/L) | Average Monthly Limit (mg N/L) |
|---|---|---|
| Oct 1 – March 31 | 7.5 | 2.9 |
| April 1 – Sept 30 | 3.4 | 1.3 |

**Fecal Coliform.** *E. coli* has replaced fecal coliform at the applicable bacteria criteria in Missouri's water quality standards.

***Escherichia coli (E. coli)***. Monthly average of 126 per 100 ml as a geometric mean and Daily Maximum of 630 during the recreational season (April 1 – October 31), to protect Whole Body Contact Recreation (A) designated use of the receiving stream, as per 10 CSR 20-7.031(4)(C). Daily Maximum effluent variability will be evaluated in development of a future effluent limit. An effluent limit for both monthly average and daily maximum is required by 40 CFR 122.45(d).

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

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

Acute: $C_e$ = ((0.01+0)*0.019-(0*0)) / 0.01 = 0.019
$WLA_a$ = 0.019 mg/L

Chronic: $C_e$ = ((0.01 +0)*0.01-(0*0)) / 0.01 = 0.01
$WLA_c$ = 0.01 mg/L

$LTA_a$ = 0.019 (0.321)= 0.0061 mg/L [CV = 0.6, 99th Percentile]
$LTA_c$ =0.01 (0.5274)= **0.005274** mg/L [CV = 0.6, 99th Percentile]

MDL = 0.005274(3.114)= 0.016 mg/L [CV = 0.6, 99th Percentile]
AML = 0.005274(1.55)= 0.0082 mg/L [CV = 0.6, 95th Percentile, n = 4]

**Nitrate.** Because this facility discharges to a losing stream, Nitrate monitoring is required. Losing streams can recharge groundwater. Nitrate can cause serious health risks to animals and humans, therefore it is important to include this parameter.

**Dissolved Oxygen.** Monitoring requirement only. Monitoring for dissolved oxygen are included to determine whether "reasonable potential" to exceed water quality standards exists after the discharge begins.

**Minimum Sampling and Reporting Frequency Requirements**.

| PARAMETER | SAMPLING FREQUENCY | REPORTING FREQUENCY |
|---|---|---|
| FLOW | ONCE QUARTER | QUARTERLY |
| $BOD_5$ | ONCE QUARTER | QUARTERLY |
| TSS | ONCE QUARTER | QUARTERLY |
| pH | ONCE QUARTER | QUARTERLY |

| | | |
|---|---|---|
| AMMONIA AS N | ONCE QUARTER | QUARTERLY |
| NITRATE AS $NO_3$ | ONCE QUARTER | QUARTERLY |
| *E. COLI* | ONCE QUARTER | QUARTERLY |
| TOTAL RESIDUAL CHLORINE | ONCE QUARTER | QUARTERLY |
| DISSOLVED OXYGEN | ONCE QUARTER | QUARTERLY |

**Sampling Frequency Justification:**
Quarterly sampling is appropriate to obtain adequate data to determine if reasonable potential exists to exceed water quality standards for dissolved oxygen.

The Clean Water Commission has directed the Department to proceed with amending 10 CSR 20-7.015 to reduce the sampling frequency required for E.coli to a lesser frequency, still protective of water quality standards, for smaller facilities, including those with discharges of 100,000 gallons per day or less.

**Sampling Type Justification**
Sand filters are not defined in the regulations, they are not technically mechanical plants and based on the small flow grab samples are appropriate.

**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.

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