

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-0084450

Owner: Crest Park, L.P.
Address: 5005 Old Cedar Lane Road, Minneapolis, Mn 55416

Continuing Authority: Same as above
Address: Same as above

Facility Name: Crest Manor Mobile Home Park
Facility Address: House Springs, MO 63051

Legal Description: SE $\frac{1}{4}$, SW $\frac{1}{4}$, NW $\frac{1}{4}$, Sec. 26, T43N, R4E; Jefferson County
Latitude/Longitude: +3826099/ -09032481

Receiving Stream: Tributary to Bear Creek (U) (**Losing**)
First Classified Stream and ID: Bear Creek (P) (03421) (**Losing**)
USGS Basin & Sub-watershed No.: (07140104 – 080008)

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 – Mobile Home Park – SIC #6515

Extended aeration/ chlorination/ aerated sludge holding tank/ sludge disposal is by contract hauler.

Design population equivalent is 645.

Design flow is 48,375 gallons per day.

Actual flow is 29,000 gallons per day.

Design sludge production is 11.61 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.

June 13, 2008

Effective Date

Handwritten signature of Doyle Childers in black ink.

Doyle Childers, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

June 12, 2013

Expiration Date
MO 780-0041 (10-93)

Mike Struckhoff, Director, St. Louis Regional Office

| A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS | | | | | PAGE NUMBER 2 of 5 | |
|--|----------|------------------------------|----------------|-----------------|--------------------------|-----------------|
| | | | | | PERMIT NUMBER MO-0084450 | |
| 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 March 31, 2011 . 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 |
| <u>Outfall #001</u> | | | | | | |
| Flow | MGD | * | | * | once/ week | 24 hr. estimate |
| Biochemical Oxygen Demand ₅ **** | mg/L | | 15 | 10 | once/ month | 24 hr.** |
| Total Suspended Solids**** | mg/L | | 20 | 15 | once/ month | 24 hr.** |
| pH – Units | SU | *** | | *** | once/ month | grab |
| Ammonia as N | mg/L | * | | * | once/ month | grab |
| Temperature | °C | * | | * | once/ month | grab |
| Fecal Coliform | #/100mls | 1000 | | 400 | once/ month | grab |
| Total Residual Chlorine (Note 1) | mg/L | 1.0 | | 1.0 | once/ month | grab |
| MONITORING REPORTS SHALL BE SUBMITTED MONTHLY ; THE FIRST REPORT IS DUE July 28, 2008 . 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. | | | | | | |

MO 780-0010 (8/91)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- * - Monitoring requirement only.
- ** - A composite sample made up from a minimum of four grab samples collected within a 24 hour period with a minimum of 2 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 6.0-9.0 pH units.
- **** - This facility must meet a removal efficiency of 85 % or more.

Note 1 - This permit contains a Total Residual Chlorine (TRC) limit.

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

| A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS | | | | | PAGE NUMBER 3 of 5 | |
|---|----------|----------------------------|----------------|-------------------|--------------------------|----------------|
| | | | | | PERMIT NUMBER MO-0084450 | |
| 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 April 1, 2011 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 |
| <u>Outfall #001</u> | | | | | | |
| Flow | MGD | * | | * | once/ week | 24 hr estimate |
| Biochemical Oxygen Demand ₅ **** | mg/L | | 15 | 10 | once/ month | 24 hr.** |
| Total Suspended Solids**** | mg/L | | 20 | 15 | once/ month | 24 hr.** |
| pH – Units | SU | *** | | *** | once/ month | grab |
| Ammonia as N | mg/L | * | | * | once/ month | grab |
| Temperature | °C | * | | * | once/ month | grab |
| Fecal Coliform | #/100mls | 1000 | | 400 | once/ month | grab |
| Total Residual Chlorine (Note 1) | mg/L | 0.017 (0.13ML) | | 0.008 (0.13ML) | once/ month | grab |
| MONITORING REPORTS SHALL BE SUBMITTED MONTHLY ; THE FIRST REPORT IS DUE May 28, 2011 . 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. | | | | | | |

MO 780-0010 (8/91)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- * - Monitoring requirement only.
- ** - A composite sample made up from a minimum of four grab samples collected within a 24 hour period with a minimum of 2 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 6.0-9.0 pH units.
- **** - This facility must meet a removal efficiency of 85 % or more.

Note 1 - 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 Fecal Coliform are applicable only during the recreational season from April 1 through October 31.” If your permit does not require disinfection during the non-recreational months, do not chlorinate in those months.
- (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 area-wide wastewater treatment system 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;
 - (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.

C. SPECIAL CONDITIONS (continued)

7. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
 - (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
 - (b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids. Permit Standard Conditions, Part III shall apply to the land application of biosolids. Permittee shall notify the department at least 180 days prior to the planned removal of biosolids. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

D. SCHEDULE of COMPLIANCE

The final effluent limitations for Total Residual Chlorine shall become effective **April 1, 2011** in accordance with the conditions below:

1. By **February 15, 2009** submit a completed application for construction permit, 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, 7545 S. Lindbergh Ave. Suite 210, St. Louis, MO 63125, for providing wastewater treatment facility 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.
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.
3. Within 180 calendar days of issuance of the construction permit, construct the permitted wastewater treatment facility improvements.
4. Within fifteen (15) calendar days of completion of construction of wastewater treatment facility 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, 7545 South Lindbergh Ave., Suite 210, St. Louis, MO. 63125.

Missouri Department of Natural Resources
Statement of Basis
Crest Manor Mobile Home Park
NPDES #: MO-0084450
Jefferson 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.

Facility Information

Facility Type: Mobile Home Park
 Facility SIC Code(s): 6515

Facility Description: Extended aeration/ chlorination/ aerated sludge holding tank/ sludge removal is by contract hauler

Outfall(s) Table:

| OUTFALL | DESIGN FLOW (CFS) | TREATMENT LEVEL | EFFLUENT TYPE | DISTANCE TO CLASSIFIED SEGMENT (MI) |
|---------|-------------------|-----------------|---------------|-------------------------------------|
| 001 | 0.075 | secondary | domestic | 1.6 |

Water Quality History: Three consecutive months of non-reporting all parameters (2004).
 One violation for BOD₅ - September 2004.

Comments: This facility discharges to a tributary to Bear Creek and confluences with a losing tributary to Bear Creek. The tributaries confluence with Bear Creek, which also is shown as "losing" in the upper reaches, 1.6 miles below the discharge. Observations in 1992, 1994, 1997 and 2006 indicate sludge deposits are having an impact on this stream. A stream survey is warranted.,

Receiving Stream Information

Please mark the correct designated waters of the state categories of the receiving stream.

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

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** |
|-------------------------|-------|-------|------------------|-------------|---|
| Tributary to Bear Creek | U | | General criteria | 07140104 | Ozark/ Upper St. Francis/ Castor |
| Bear Creek | P | 03421 | LWW, AQL, WBC*** | | |

* - 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

*** - UAA has not been conducted.

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

| RECEIVING STREAM (U, C, P) | LOW-FLOW VALUES (CFS) | | |
|-----------------------------|-----------------------|------|-------|
| | 1Q10 | 7Q10 | 30Q10 |
| Tributary to Bear Creek (U) | 0 | 0 | 0 |
| Bear Creek (P) | 0.1 | 0.1 | 1.0 |

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)].

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.

Applicable ;

If applicable, then please explain: This is an existing facility that discharges to a Losing Stream, as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)], a regional facility for waste treatment is not available.

Anti-backsliding:

A provision in the Federal Regulations [CWA §303(d)(4); CWA §402©; CFR §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.

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.

Applicable, but deferred ;

As per [10 CSR 20-7.031(2)(D)], the three (3) levels of protection provided by the antidegradation policy in subsections (A), (B), and (C) of this section shall be implemented according to procedures developed by the department. On April 20, 2007, the Missouri Clean Water Commission approved *Missouri Antidegradation Rule and Implementation Procedure* (Antidegradation Rule), which is applicable to new or upgraded/expanded facilities. The implementation of the Antidegradation Rule will be implemented upon promulgation, which is tentatively scheduled for August 2008.

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, water quality based effluent limits, and from appropriate sections of the renewal application.

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 §403.3(q)].

Not Applicable ;

At this time, the permittee is not required to implement and enforce a 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 one 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 domestic wastewater sources.

Applicable ;

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

SANITARY SEWER OVERFLOWS (SSOs), AND INFLOW & INFILTRATION (I&I):

Collection systems are a critical element in the successful performance of the wastewater treatment process. Under certain conditions, poorly designed, built, managed, operated, and/or maintained systems can pose risks to public health, the environment, or both. Causes of SSOs include, but are not limited to, the following: high levels of I&I during wet weather; blockages; structural, mechanical, or electrical failures; collapsed or broken sewer pipes; insufficient conveyance capacity; and vandalism. Effective and continuous management, operation, and maintenance, as well as ensuring adequate capacity and rehabilitation when necessary are critical to maintaining collection system capacity and performance while extending the life of the system.

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):

A plan to schedule activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state. The plan may include, but is not limited to, treatment requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

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:

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

Where C = downstream concentration

Cs = upstream concentration

Qs = upstream flow

Ce = effluent concentration

Qe = effluent flow

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

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

WLA MODELING:

Not Applicable ;

A WLA study was either not submitted or determined not applicable by department staff.

WHOLE EFFLUENT TOXICITY (WET) TEST:

As per [10 CSR 20-7.031(1)(CC)], a toxicity test conducted under specified laboratory conditions on specific indicator organism; and as per [40 CFR §122.2], the aggregate toxic effect of an effluent measured directly by a toxicity test.

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. 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.

Outfall #001 – Main Facility Outfall

Effluent Limitations Table:

| PARAMETER | UNIT | BASIS FOR LIMITS | DAILY MAXIMUM | WEEKLY AVERAGE | MONTHLY AVERAGE | MODIFIED | PREVIOUS PERMIT LIMITATIONS |
|---------------------------------|--|------------------|---------------|----------------|-----------------|----------|-----------------------------|
| FLOW | GPD | 1 | * | | * | NO | S |
| BOD ₅ | MG/L | 1 | | 15 | 10 | NO | S |
| TSS | MG/L | 1 | | 20 | 15 | NO | S |
| pH (S.U.) | SU | 1 | 6.0 – 9 | | 6.0 – 9 | NO | S |
| TEMPERATURE (°C) | °C | 1/8 | * | | * | YES | **** |
| AMMONIA AS N | MG/L | 2/3/5 | * | | * | YES | **** |
| FECAL COLIFORM | *** | 1/2 | 1000 | | 400 | NO | S |
| CHLORINE, TOTAL RESIDUAL (MG/L) | MG/L | 1/2 | 0.017 | | 0.008 | YES | 1.0/1.0 |
| MONITORING FREQUENCY | Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below. | | | | | | |

* - Monitoring requirement only

*** - # of colonies/100mL; the Monthly Average for Fecal Coliform 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 | 6. Antidegradation Policy |
| 2. Water Quality Standard (includes RPA) | 7. Water Quality Model |
| 3. Water Quality Based Effluent Limits | 8. Best Professional Judgement |
| 4. Lagoon Policy | 9. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy | 10. WET test Policy |

Outfall #001 – Derivation and Discussion of Limits:

- **Biochemical Oxygen Demand (BOD₅).** Effluent limitations have been retained from previous state operating permit, [10 CSR 20-7.015(4)(B)1.]. Or they have been changed with correct regulation citation.
- **Total Suspended Solids (TSS).** Effluent limitations have been retained from previous state operating permit, [10 CSR 20-7.015(4)(B)2.]. Or they have been changed with correct regulation citation.
- **pH.** Effluent limitations have been retained from previous state operating permit, [10 CSR 20-7.015(4)(B)3.]. Or they have been changed with correct regulation citation.
- **Total Ammonia Nitrogen, Temperature.** Monitoring requirement only. Monitoring for temperature and ammonia are included to determine whether “reasonable potential” to exceed water quality standards exists after the discharge begins.
- **Fecal Coliform.** Discharge shall not contain more than a monthly geometric mean of 400 colonies/100 mL and a daily maximum of 1000 colonies/100 mL, [10 CSR 20-7.015(4)(B)4.]. Future renewals of the facility operating permit will contain effluent limitations for E. coli, which will replace fecal coliform as the applicable bacteria criteria in Missouri’s water quality standards

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

Chronic WLA: $C_e = ((0.075 + 0.0)10 - (0.0 * 0.0))/0.075$
 $C_e = 10 \mu\text{g/L}$

Acute WLA: $C_e = ((0.075 + 0.0)19 - (0.0 * 0.0))/0.075$
 $C_e = 19 \mu\text{g/L}$

$LTA_c = 10 (0.527) = 5.3 \mu\text{g/L}$ [CV = 0.6, 99th Percentile]

$LTA_a = 19 (0.321) = 6.1 \mu\text{g/L}$ [CV = 0.6, 99th Percentile]

$MDL = 5.3 (3.11) = 16.5 \mu\text{g/L}$ [CV = 0.6, 99th Percentile]

$AML = 5.3 (1.55) = 8.2 \mu\text{g/L}$ [CV = 0.6, 95th Percentile, n = 4]

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

- Minimum Sampling and Reporting Frequency Requirements.

| PARAMETER | SAMPLING FREQUENCY | REPORTING FREQUENCY |
|---------------------------------|--------------------|---------------------|
| FLOW | ONCE/WEEK | ONCE/MONTH |
| BOD ₅ | ONCE/MONTH | ONCE/MONTH |
| TSS | ONCE/MONTH | ONCE/MONTH |
| PH (S.U.) | ONCE/MONTH | ONCE/MONTH |
| TEMPERATURE (°C) | ONCE/MONTH | ONCE/MONTH |
| AMMONIA AS N | ONCE/MONTH | ONCE/MONTH |
| FECAL COLIFORM (NOTE 1) | ONCE/MONTH | ONCE/MONTH |
| CHLORINE, TOTAL RESIDUAL (MG/L) | ONCE/MONTH | ONCE/MONTH |

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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Ed Pate

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Region VII

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