

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-0089681

Owner: City of Independence
Address: P.O. Box 1019, Independence, MO 64051

Continuing Authority: Same as above
Address: Same as above

Facility Name: Independence, Rock Creek WWTF
Facility Address: 9600 Norledge, Independence, MO 64053

Legal Description: See page 2
Latitude/Longitude: See page 2

Receiving Stream: Rock Creek (U)
First Classified Stream and ID: Missouri River (P) (0356)
USGS Basin & Sub-watershed No.: (10300101 - 050003)

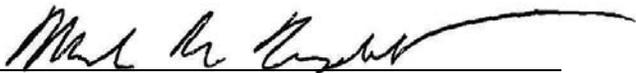
is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

See Page 2

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.

March 31, 2009
Effective Date


Mark N. Templeton, Director, Department of Natural Resources

March 30, 2014
Expiration Date


Robert K. Morrison, P.E., Chief, Water Pollution Control Branch

Outfall #001 POTW – SIC#4952

Primary clarifiers/activated sludge/sludge gravity thickening/dissolved air flotation/wet air oxidation/belt filter press/incineration/ash or dewatered sludge is hauled to a landfill
Design population equivalent is 110,400.
Design flow is 10 MGD.
Actual flow is 8.7 MGD.
Design sludge production is 1,600 dry tons/year.

Legal Description: N ½, NE ¼, Sec. 32, T50N, R32W, Jackson County
Latitude/Longitude: +3907006/-09427463

Outfall #002 Eliminated

Discharges from this outfall are no longer authorized. Further discharges shall be reported as a bypass.

Outfall #003 POTW – SIC#4952

Incinerator scrubber effluent, sampled at the scrubber. No treatment.

Legal Description: N ½, NE ¼, Sec. 32, T50N, R32W, Jackson County
Latitude/Longitude: +3906572/-09427468

Outfall #004

Eliminated, no exposure

Outfall #005

Eliminated, no exposure

Outfall #006

Eliminated. This wastewater is now pumped to the headworks of the treatment facility.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 3 of 10	
					PERMIT NUMBER MO-0089681	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
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	*		*	four/week**	24 hr. total
Biochemical Oxygen Demand ₅	mg/L		45	30	four/week**	24 hr. composite
Total Suspended Solids	mg/L		45	30	four/week**	24 hr. composite
pH – Units	SU	***		***	four/week**	grab
Ammonia as N (May 1 – Oct 31) (Nov 1 – April 30)	mg/L				four/week**	grab
		3.7		1.4		
		7.5		2.9		
Escherichia coli (Notes 1 & 2)	#/100 mL	*		206	four/week**	grab
Temperature	°C	*		*	once/week	grab
Oil & Grease	mg/L	15		10	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>May 28, 2009</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Copper, Total Recoverable	µg/L	36.3		12.7	once/quarter****	24 hr. composite
Arsenic, Total Recoverable	µg/L	*		*	once/quarter****	24 hr. composite
Cadmium, Total Recoverable	µg/L	*		*	once/quarter****	24 hr. composite
Chromium III, , Total Recoverable	µg/L	*		*	once/quarter****	24 hr. composite
Chromium VI, Total Recoverable	µg/L	*		*	once/quarter****	24 hr. composite
Lead, Total Recoverable	µg/L	*		*	once/quarter****	24 hr. composite
Mercury, Total Recoverable	µg/L	*		*	once/quarter****	24 hr. composite
Nickel, Total Recoverable	µg/L	*		*	once/quarter****	24 hr. composite
Silver, Total Recoverable	µg/L	*		*	once/quarter****	24 hr. composite
Zinc, Total Recoverable	µg/L	*		*	once/quarter****	24 hr. composite
Chloride	mg/L	*		*	once/quarter****	24 hr. composite
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>July 28, 2009</u> .						
Whole Effluent Toxicity (WET) test	% Survival	See Special Conditions			once/year	24 hr. composite
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>October 28, 2009</u> .						
B. STANDARD CONDITIONS						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I, II, & 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					PAGE NUMBER 4 of 10	
					PERMIT NUMBER MO-0089681	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #003 Scrubber Effluent Flow	MGD	*		*	once/quarter*****	24 hour estimate
Chemical Oxygen Demand ₅	mg/L	*		*	once/quarter*****	grab
pH – Units	SU	*****		*****	once/quarter*****	grab
Arsenic, Total Recoverable	µg/L	*		*	once/quarter*****	grab
Cadmium, Total Recoverable	µg/L	*		*	once/quarter*****	grab
Chromium III, , Total Recoverable	µg/L	*		*	once/quarter*****	grab
Chromium VI, Total Recoverable	µg/L	*		*	once/quarter*****	grab
Copper, Total Recoverable	µg/L	*		*	once/quarter*****	grab
Lead, Total Recoverable	µg/L	*		*	once/quarter*****	grab
Mercury, Total Recoverable	µg/L	*		*	once/quarter*****	grab
Nickel, Total Recoverable	µg/L	*		*	once/quarter*****	grab
Silver, Total Recoverable	µg/L	*		*	once/quarter*****	grab
Zinc, Total Recoverable	µg/L	*		*	once/quarter*****	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>July 28, 2009</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Ash Monitoring Toxicity Characteristic (Note 3)	See Special Conditions #12			once/year in March	grab	
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>October 28, 2009</u> .						
B. STANDARD CONDITIONS						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I, II, & 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.
- ** Four per week means: four samples collected and analyzed each calendar week; each sample must be collected at least 23 hours apart. No sample must be collected on these nine Federal legal holidays (New Years, Presidents Day, Martin Luther King Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, and Christmas). During the week that one of these nine Federal holidays occurs only three samples must be collected.
- *** 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.
- **** Sample once per quarter in the months of March, June, September, and December.
- ***** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.

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

Note 2 – If Chlorination is the chosen method of disinfection at this facility, the permittee must apply for modification of this permit to include chlorination in the Facility Description. An appropriate effluent limit for Chlorine will be added as part of this modification.

Note 3 – The toxicity characteristic shall be determined using the Toxicity Characteristic Leaching Procedure (TCLP) in accordance with 40 CFR 261.24. If any contaminants exceed the regulatory level contained in Table 1 of 40 CFR 261.24, the ash shall be disposed in accordance with Missouri Hazardous Waste Regulations in 10 CSR 25.

C. INFLUENT MONITORING REQUIREMENTS

The facility is required to meet a removal efficiency of 85%. This requirement is not applicable to outfall 003, which is effluent from the scrubber and not domestic wastewater. The monitoring requirements shall become effective upon issuance and remain in effect until expiration of the permit. To determine removal efficiencies, the influent wastewater shall be monitored by the permittee as specified below:

SAMPLING LOCATION AND PARAMETER(S)	UNITS	MONITORING REQUIREMENTS	
		MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Influent</u>			
Biochemical Oxygen Demand ₅	mg/L	once/month	24 hr. composite
Total Suspended Solids	mg/L	once/month	24 hr. composite

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE May 28, 2009.

MO 780-0010 (8/91)

D. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
 - (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
 - (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - (2) controls any pollutant not limited in the permit.
 - (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
 - (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.
 - (d) Incorporate revised water quality standards based on site specific criteria after such revisions have been finalized into regulation, in accordance with 10 CSR 20-7.013(4)(R).
 - (e) Incorporate new total recoverable Copper effluent limits based on a site specific dissolved metals translator for Copper.

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

D. SPECIAL CONDITIONS (continued)

2. All outfalls must be clearly marked in the field. If outfalls are located at inaccessible locations, such as under water or down a steep bank, they may be marked with signs on level ground indicating their location. Sampling locations for compliance with effluent limits must be clearly marked if these differ from outfall locations.

3. 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.

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

5. 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.

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

7. Permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 40 CFR Part 403. The approved pretreatment program is hereby incorporated by reference.

8. Permittee shall submit to the Department on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year. At a minimum, the report shall include the following:

- (a) An updated list of the Permittee's Industrial Users, including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Permittee shall provide a brief explanation of each deletion. This list shall identify which Industrial Users are subject to categorical pretreatment Standards and specify which Standards are applicable to each Industrial User. The list shall indicate which Industrial Users are subject to local standards that are more stringent than the categorical Pretreatment Standards. The Permittee shall also list the Industrial Users that are subject only to local Requirements;
- (b) A summary of the status of Industrial User compliance over the reporting period;
- (c) A summary of compliance and enforcement activities (including inspections) conducted by the Permittee during the reporting period; and
- (d) Any other relevant information requested by the Department.

This report supercedes the reporting requirements of Standard Conditions Part II

9. As required in 40 CFR 122.21 (j)(4) the permittee shall, as part of its renewal application for this permit, submit to the department a written technical evaluation of the need to revise local limits under 40 CFR 403.5 (c)(1).

10. Good housekeeping practices shall be maintained on the site to keep solid waste from entry into waters of the state.

11. All paint, solvents, petroleum products and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) shall be stored so that these materials are not exposed to storm water. Spill prevention, control, and/or management shall be provided sufficient to prevent any spills of these pollutants from entering a water of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.

D. SPECIAL CONDITIONS (continued)

12. Ash Storage and Disposal

- (a) This permit does not authorize on-site disposal or land application of ash. Ash from the sludge incineration shall be disposed at a solid waste disposal facility in accordance with rules under 10 CSR 80 or 10 CSR 25.
- (b) Ash dewatering and storage areas shall comply with the sealing requirements in 10 CSR 20-8.
- (c) The toxicity characteristic of the ash shall be determined using the Toxicity Characteristic Leaching Procedure (TCLP) in accordance with 40 CFR 261.24. If any contaminants exceed the regulatory level contained in Table 1 of 40 CFR 261.24, the ash shall be disposed in accordance with Missouri Hazardous Waste Regulations in 10 CSR 25.

13. The Permittee shall adhere to the following Best Management Practices for storm water:

- (a) To the extent practicable, prevent the spillage or loss of fluids, solvents, oil, grease, fuel, etc. from vehicle maintenance or equipment cleaning, or other activities to prevent the contamination of storm water from these substances.
- (b) Provide good housekeeping practices on the site to keep trash or other solid waste from entering waters of the state.

14. Whole Effluent Toxicity (WET) tests shall be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
001	100	once/year	24 hr. composite	September

(a) Test Schedule and Follow-Up Requirements

- (1) Perform a SINGLE-dilution test in the months and at the frequency specified above. For tests which are successfully passed, submit test results USING THE DEPARTMENT'S WET TEST REPORT FORM #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.
 - (a) For discharges of stormwater, samples shall be collected within three hours from when discharge first occurs.
 - (b) Samples submitted for analysis of stormwater discharges shall be collected as a grab.
 - (c) For discharges of non-stormwater, samples shall be collected only when precipitation has not occurred for a period of forty-eight hours prior to sample collection. In no event shall sample collection occur simultaneously with the occurrence of precipitation excepting for stormwater samples.
 - (d) A twenty-four hour composite sample shall be submitted for analysis of non-stormwater discharges.
 - (e) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.
 - (f) Samples submitted for analysis of upstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
 - (g) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.
 - (h) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analyses performed upon any other effluent concentration.
 - (i) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.
 - (j) Where flow-weighted composite sample is required for analysis, the samples shall be composited at the laboratory where the test is to be performed.
 - (k) Where in stream testing is required downstream from the discharge, sample collection shall occur immediately below the established Zone of Initial Dilution in conjunction with or immediately following a release or discharge.
 - (l) Samples submitted for analysis of downstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.

D. SPECIAL CONDITIONS (continued)

- (m) All instream samples, including downstream samples, shall be tested for toxicity at the 100% concentration in addition to any other assigned AEC for in-stream samples.
 - (2) All failing test results along with complete copies of the test reports as received from the laboratory, INCLUDING THOSE TESTS CONDUCTED UNDER CONDITION (3) BELOW, shall be reported to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the availability of the results.
 - (3) If the effluent fails the test, a multiple dilution test shall be performed within 30 calendar days and biweekly thereafter, until one of the following conditions are met:
 - (a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
 - (b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.
 - (4) Failure of at least two multiple-dilution tests during any period of accelerated monitoring violates the permit narrative requirement for aquatic life protection.
 - (5) The permittee shall submit a concise summary of all test results for the test series to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
 - (6) Additionally, the following shall apply upon failure of the third MULTIPLE DILUTION test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The permittee shall contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. The permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of DNR's direction to perform either a TIE or TRE. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.
 - (7) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
 - (8) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
 - (9) When WET test sampling is required to run over one DMR period, each DMR report shall contain a copy of the Department's WET test report form that was generated during the reporting period.
 - (10) Submit a concise summary in tabular format of all test results with the annual report.
- (b) PASS/FAIL procedure and effluent limitations:
- (1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS or other Federal guidelines as appropriate or required.
 - (2) To pass a multiple-dilution test:
 - (a) For facilities with a computed percent effluent at the edge of the zone of initial dilution, Allowable Effluent Concentration (AEC), OF 30% OR LESS THE AEC must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms; **OR**,
 - (b) For facilities with an AEC greater than 30% the LC_{50} concentration must be greater than 100%; **AND**,
 - (c) all effluent concentrations equal to or less than the AEC must be nontoxic. Mortality observed in all effluent concentrations equal to or less than the AEC shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS or other federal guidelines as appropriate or required. Failure of one multiple-dilution test may be considered an effluent limit violation.

D. SPECIAL CONDITIONS (continued)

14. Whole Effluent Toxicity tests (continued):

(c) Test Conditions

- (1) Test Type: Acute Static non-renewal.
- (2) All tests, including repeat tests for previous failures, shall include both test species listed below.
- (3) Test species: Ceriodaphnia dubia and Pimephales promelas (fathead minnow). Organisms used in WET testing shall come from cultures reared for the purpose of conducting toxicity tests and cultured in a manner consistent with the most current USEPA guidelines. All test animals shall be cultured as described in the most current edition of METHODS FOR MEASURING THE ACUTE TOXICITY OF EFFLUENTS AND RECEIVING WATERS TO FRESHWATER AND MARINE ORGANISMS.
- (4) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.
- (5) When dilutions are required, upstream receiving stream water shall be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used as dilution water. Procedures for generating reconstituted water will be supplied by the MDNR upon request.
- (6) Single-dilution tests will be run with:
 - (a) Effluent at the AEC concentration;
 - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
 - (c) reconstituted water.
- (7) Multiple-dilution tests will be run with:
 - (a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC;
 - (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
 - (c) reconstituted water.
- (8) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
- (9) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

15. Bypasses at the wastewater treatment facility, including but not limited to outfall 002, shall be sampled for the following parameters. Monitoring shall take place once per day while discharging. This means that if a discharge event continues across 2 days, 2 samples shall be collected. Test results shall be reported on the monthly discharge monitoring reports.

Constituent	Units
Flow	gallons per day
Biochemical Oxygen Demand ₅	mg/L
Total Suspended Solids	mg/l
Total Ammonia Nitrogen	mg/L
pH – Units	Standard Units

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless more stringent methods are specified by the DNR, the procedures shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms.

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 1°C Temperatures shall not deviate by more than 3°C during the test.
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Pass/Fail (Statistically significant Mortality when compared to upstream receiving water control or synthetic control if upstream water was not available at $p \leq 0.05$)
Test Acceptability criterion:	90% or greater survival in controls

Missouri Department of Natural Resources Factsheet – Operating Permit Renewal

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. Permits in Missouri 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). NPDES operating permits are issued for a period of five (5) years unless otherwise specified.

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

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

This Factsheet is for a Major , Minor , Industrial Facility ; Variance ; Master General Permit ; General Permit Covered Facility ; and/or permit with widespread public interest .

Facility Information

NPDES #: MO-0089681
 Facility Name: Independence, Rock Creek WWTF
 Facility Address: 9600 Norledge, Independence, MO 64053
 Owner's Name: City of Independence
 Owner's Address: P.O. Box 1019, Independence, MO 64053

Facility Region: KC
 Facility County: Jackson

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

Facility Description: 001: Primary clarifiers/activated sludge/sludge gravity thickening/dissolved air flotation/wet air oxidation/belt filter press/incineration/ash or dewatered sludge is hauled to a landfill
 10 MGD design flow

 002: Eliminated

 003: Sludge incinerator scrubber effluent.

 004 & 005: Eliminated, no exposure

 006: Eliminated. This water is now pumped to the headworks of the facility.

Application Date: 3-21-01 Expiration Date: 9-30-01
 Last Inspection: 5-7-08

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	15.5	secondary	municipal, domestic	1.01
002	dependent on precipitation	Currently primary*	municipal, domestic	1.6
003	Varies	none	Scrubber effluent	1.05

*This outfall is subject to secondary treatment standards

Outfall #001

Legal Description: N ½, NE ¼, Sec. 32, T50N, R32W

Latitude/Longitude: +3907006/-09427463

Receiving Stream: Rock Creek (U)

First Classified Stream and ID: Missouri River (P) (0356)

USGS Basin & Sub-watershed No.: (10300101 - 050003)

Outfall #003

Legal Description: N ½, NE ¼, Sec. 32, T50N, R32W

Latitude/Longitude: +3906572/-09427468

Receiving Stream: Rock Creek (U)

First Classified Stream and ID: Missouri River (P) (0356)

USGS Basin & Sub-watershed No.: (10300101 - 050003)

Water Quality History: Chronic exceedances of limits for BOD & TSS at outfall 002. These effluent limits were stayed by the Clean Water Commission (CWC) on 3-26-1997, therefore these exceedances have not resulted in enforcement action.

Comments: The permit holder appealed their permit issued on 10-01-96, and the CWC issued a Stay effecting the effluent limits for outfall 002. The Stay applied to the permit that expired on 9-30-01. Stays are normally time-limited actions that last only until the appeal is resolved, this appeal was not resolved. Expired permits cannot be modified, so there is no longer a mechanism to resolve the old appeal.

This draft permit is a new action, as a renewal of the expired permit.

Outfalls 004 & 005 removed from the permit due to no exposure. Department staff verified no exposure during an inspection on 5-7-08.

This facility will be upgrading in accordance with the schedule in a Federal Consent Decree. These upgrades will bring the facility into compliance with Final Effluent limits for Ammonia, Copper and E. coli. Because these upgrades will be constructed over the course of several years, the facility will not be able to meet the effluent limits for Ammonia, Copper or E. coli immediately upon issuance of this permit. The enforcement schedule for the effluent limits is documented in the Consent Decree, which will be placed on public notice.

This facility must comply with all other effluent limits and conditions of this permit upon issuance of this permit.

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 list 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.

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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Lake or Reservoir [10 CSR 20-7.015(3)]:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Losing [10 CSR 20-7.015(4)]:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Metropolitan No-Discharge [10 CSR 20-7.015(5)]:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Special Stream [10 CSR 20-7.015(6)]:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Subsurface Water [10 CSR 20-7.015(7)]:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
All Other Waters [10 CSR 20-7.015(8)]:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

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**
Rock Creek	U	----	General Criteria	10300101	Central Plains\Blackwater\Lamine
Missouri River	P	0356	LWW, AQL, IRR, IND, WBC(B), DWS		

* - 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 not conducted, use retained

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Rock Creek	0.0	0.0	0.0
Missouri River	N.A.	N.A.	N.A.

MIXING CONSIDERATIONS:

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

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

RECEIVING STREAM MONITORING REQUIREMENTS:

No receiving water monitoring requirements recommended at this time.

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 ;

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); CFR §122.44(I)] that requires a reissued permit to be as stringent as the previous permit with some exceptions. (Staff may also add or remove any language needed)

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

- Backsliding proposed in this Factsheet for the reissuance of this permit conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 § CFR 122.44.

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.

- Renewal no degradation proposed and no further review necessary.

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

- General Permit's Antidegradation Review is conducted during template development.

APPLICABLE PERMIT PARAMETERS:

Effluent parameters contained in Factsheets and Missouri State Operating Permits are obtained from Technology Based Effluent Limit (TBEL), Missouri's Effluent Regulations [10 CSR 20-7.015], Missouri's Water Quality Standards [10 CSR 20-7.031], previous Missouri State Operating Permits, and from Operating Permit Applications.

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.

Applicable ;

This facility has been approved to land apply as per Permit Standard Conditions III and a department approved bio-solids management plan.

Applicable ;

The permittee has proposed that sludge and bio-solids are not to be removed by a contract hauler for this facility. The permittee has proposed to land apply the sludge and bio-solids as per the Permit Standard Conditions Part III. The department has reviewed and approved the permittee's bio-solids management plan and therefore is approved to land apply said sludge and bio-solids as a means of treatment or disposal.

Not Applicable ;

This condition is not applicable to the permittee for this specific facility.

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.

Applicable ;

Not Applicable ;

The permittee/facility is not under enforcement action with the Missouri DNR. This facility is under enforcement by the U.S. EPA.

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)].

Applicable ;

Permittee shall implement and enforce its approved pretreatment program in accordance with the requirements of 40 CFR Part 403. The approved pretreatment program is hereby incorporated by reference. Permittee shall submit to the department on or before March 31st of each year a report briefly describing its pretreatment activities during the previous calendar year.

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.

Applicable ;

A RPA was conducted for this facility for several parameters. Please see **APPENDIX – RPA RESULTS**.

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 (BOD₅) 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

Applicable ;

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

Applicable ;

Equivalent to Secondary Treatment is 65% removal [40 CFR 105(a)(3) & (b)(3)].

Applicable ;

This wastewater treatment facility is not a POTW; however, influent monitoring is being required to determine percent removal.

Not Applicable ;

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

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.

Applicable ;

The permittee is required to develop and implement a program for maintenance and repair of the collection 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)].

Not Applicable ;

This permit does not contain a SOC. A schedule for upgrading this facility to bring it into compliance with the Final Effluent Limits will appear in a Federal Consent Decree.

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.

Applicable ;

A SWPPP shall be developed and implemented for each site and shall incorporate required practices identified by the department with jurisdiction, incorporate erosion control practices specific to site conditions, and provide for maintenance and adherence to the plan.

Not Applicable ;

At this time, the permittee is not required to develop and implement a SWPPP.

VARIANCE:

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

Applicable ;

Not Applicable ;

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

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:

As per [10 CSR 20-2.010(78)], the amount of pollutant each discharger is allowed by the department to release into a given stream after the department has determined 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).

Not Applicable ;

Wasteload allocations were not calculated.

WLA MODELING:

Applicable ;

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.

Applicable ;

Effective July 15, 2005, upon revision, renewal, modification, or issuance, all Missouri State Operating Permits under the NPDES will incorporate use of the following guidelines for determining the applicability and requirements for WET testing. WET testing requirements are established by the WET Test Policy, 120 § 308 of the Federal Water Pollution Control Act, and 40 CFR § 136.

Please check WET tests applicability for this facility:

- All major discharge facilities ;
- Facilities that are exceeding or routinely exceed their design flow ;
- Most municipals, domestic sewage dischargers ;
- Industrial dischargers or other dischargers that may alter their production processes throughout the year ;
- Facilities that may handle large quantities of toxic substances, or substances that are toxic in large amounts ; and
- Facilities that have been granted seasonal relief of numeric limitations .

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

Applicable ;

The Missouri River is on the 2002 303(d) List for Chlordane and PCBs from nonpoint sources.

– This facility is not considered to be a source of the above listed pollutant(s) or considered to contributed to the impairment of the Missouri River.

– This facility is considered to be a source of or has the potential to contribute to the above listed pollutant(s).

Not Applicable ;

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

Outfalls 001

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	
BOD ₅	MG/L	1		45	30	NO	
TSS	MG/L	1		45	30	NO	
pH (S.U.)	SU	1	6 – 9		6 – 9	NO	
TEMPERATURE (°C)	°C	1/8	*		*	YES	***
AMMONIA AS N (MAY 1 – OCT 31)	MG/L	2/3/5	3.7		1.4	YES	***
AMMONIA AS N (NOV 1 – APR 30)	MG/L	2/3/5	7.5		2.9	YES	***
E. COLI	**	1/2			208	YES	***
OIL & GREASE	MG/L	2/3	15		10	YES	20/15
COPPER, TOTAL RECOVERABLE	µg/L	2/3	36.3		12.7	YES	67/--
CADMIUM, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	52/--
CHROMIUM (III), TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	90/--
CHROMIUM (VI), TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	***
ARSENIC, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	40/--
LEAD, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	130/--
MERCURY, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	2.4/--
NICKEL, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	450/---
SILVER, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	8.2/--
ZINC, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	450/---
CHLORIDE	MG/L	2/3	*		*	NO	*
WHOLE EFFLUENT TOXICITY (WET) TEST	Please see WET Test in the Derivation and Discussion Section below.						

Outfall 003

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	
COD	MG/L	1	*		*	YES	BOD 45/30
pH (S.U.)	SU	1	6.5 – 9		6.5 – 9	YES	6.0-9.0
COPPER, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	***
CADMIUM, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	***
CHROMIUM (III), TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	***
CHROMIUM (VI), TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	***
ARSENIC, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	***
LEAD, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	***
MERCURY, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	***
NICKEL, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	***
SILVER, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	***
ZINC, TOTAL RECOVERABLE	µg/L	2/3	*		*	YES	***

* - Monitoring requirement only

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

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

Basis for Limitations Codes:

- | | |
|--|-----------------------------------|
| 1. State or Federal Regulation/Law | 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)** 10 CSR 20-7.015(8)(B)1. Effluent limitations have been retained from previous state operating permit.
- **Total Suspended Solids (TSS)** 10 CSR 20-7.015(8)(B)1. Effluent limitations have been retained from previous state operating permit.
- **pH** 10 CSR 20-7.015(8)(B)2. Effluent limits retained from previous state operating permit.
- **Temperature** Monitoring requirement due to the toxicity of Ammonia varies by temperature.

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

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

Summer: May 1 – October 31, Winter: November 1 – April 30

Summer

Chronic WLA: $C_e = ((15.5 + 0.0)1.5 - (0.0 * 0.01))/15.5$
 $C_e = 1.5 \text{ mg/L}$

Acute WLA: $C_e = ((10.08 + 0.0)12.1 - (0.0 * 0.01))/10.08$
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 1.5 \text{ mg/L} (0.780) = \mathbf{1.2 \text{ mg/L}}$ [CV = 0.6, 99th Percentile, 30 day avg.]
 $LTA_a = 12.1 \text{ mg/L} (0.321) = 3.9 \text{ mg/L}$ [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

MDL = $1.2 \text{ mg/L} (3.11) = 3.7 \text{ mg/L}$ [CV = 0.6, 99th Percentile]
 AML = $1.2 \text{ mg/L} (1.19) = 1.4 \text{ mg/L}$ [CV = 0.6, 95th Percentile, n=30]

Winter

Chronic WLA: $C_e = ((15.5 + 0.0)3.1 - (0.0 * 0.01))/15.5$
 $C_e = 3.1 \text{ mg/L}$

Acute WLA: $C_e = ((15.5 + 0.0)12.1 - (0.0 * 0.01))/15.5$
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 3.1 \text{ mg/L} (0.780) = \mathbf{2.4 \text{ mg/L}}$ [CV = 0.6, 99th Percentile, 30 day avg.]
 $LTA_a = 12.1 \text{ mg/L} (0.321) = 3.9 \text{ mg/L}$ [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

MDL = $2.4 \text{ mg/L} (3.11) = 7.5 \text{ mg/L}$ [CV = 0.6, 99th Percentile]
 AML = $2.4 \text{ mg/L} (1.19) = 2.9 \text{ mg/L}$ [CV = 0.6, 95th Percentile, n=30]

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

- **Escherichia coli (E. coli)**. 206 colonies per 100 mL (WBC-B) criteria. No daily maximum effluent limitation (monitoring only).
- **Oil & Grease**. Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Chloride, Arsenic, Cadmium, Chromium III, Chromium VI, Lead, Mercury, Nickel, Silver and Zinc** Monitoring only. Reasonable Potential Analysis indicates no potential exists for this facility to cause exceedence of water quality standards in the receiving stream for these parameters. Monitoring shall continue to verify these results, and to verify efficacy of the facility's pretreatment program.

Metals

Effluent limitations for total recoverable metals were developed using methods and procedures outlined in EPA/505/2-90-001 and “The Metals Translator: Guidance For Calculating A Total Recoverable Permit Limit From A Dissolved Criterion” (EPA 823-B-96-007). General warm-water fishery criteria apply and water hardness = 300 mg/L.

Due to the absence of contemporaneous effluent and instream data for total recoverable metals, dissolved metals, hardness, and total suspended solids with which to calculate metals translators, partitioning between the dissolved and absorbed phases was assumed to be minimal (Section 5.7.3, EPA/505/2-90-001). Freshwater criteria conversion factors for dissolved metals were used as the metals translator as recommended in guidance (Section 1.3, 1.5.3, and Table 1, EPA 823-B-96-007). If concurrent site-specific data for total recoverable metals, dissolved metals, hardness, and total suspended solids are provided to the department, partitioning evaluations may be considered and site-specific translators developed.

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Copper	0.960	0.960

*Conversion factors for Cd and Pb are hardness dependent. Values calculated using equation found in Section 1.3 of EPA 823-B-96-007 and hardness = 297 mg/L.

- **Copper, Total Recoverable** Reasonable Potential Analysis indicates an effluent limit is necessary. Protection of Aquatic Life Chronic Criteria = 19 µg/L, Acute Criteria = 37 µg/L.

Chronic = 19.0/0.960 = 19.8 µg/L

Acute = 37.0/0.960 = 38.5 µg/L

Chronic

$$C_c = ((15.5 + 0.0)19.8 - (0.0 * 0.0))/15.5$$

$$C_c = 19.8 \mu\text{g/L}$$

$$WLA_c = 19.8 \mu\text{g/L}$$

Acute

$$C_c = ((15.5 + 0.0)38.5 - (0.0 * 0.0))/15.5$$

$$C_c = 38.5 \mu\text{g/L}$$

$$WLA_a = 38.5 \mu\text{g/L}$$

$$LTA_c = 19.8(0.273) = 5.4 \mu\text{g/L}$$

[CV = 1.4, 99th Percentile]

$$LTA_a = 38.5(0.149) = 5.7 \mu\text{g/L}$$

[CV = 1.4, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

$$MDL = 5.4(6.72) = 36.3 \mu\text{g/L}$$

[CV = 1.4, 99th Percentile]

$$AML = 5.4(2.35) = 12.7 \mu\text{g/L}$$

[CV = 1.4, 95th Percentile, n = 4]

- **WET Test.** Whole Effluent Toxicity test shall be conducted as follows:

Summary of Wet Testing for This Permit				
Outfall	A.E.C. %	Frequency	Sample Type	Month
001	100	Once/year	24 hr. composite	September

- **Chemical Oxygen Demand** Monitoring only.
- **pH** 10 CSR 20-7.031(4)(E) Effluent limits established consistent with State Regulations for protection of water quality standards, and to be protective of General Criteria in Rock Creek.
- **Arsenic, Cadmium, Chromium III, Chromium VI, Lead, Mercury, Nickel, Silver and Zinc** Monitoring required to determine if any of these parameters have the potential to cause an exceedance of water quality standards. Application indicates that effluent from the incinerator scrubber is discharged through this outfall, indicating that monitoring for metals is necessary. Reasonable Potential Analysis will be conducted at renewal to determine if effluent limits 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.

PUBLIC NOTICE:

As per the Missouri Clean Water Law, the Missouri Clean Water Commission, and the federal Clean Water Act, persons wishing to comment on Missouri State Operating Permits are directed to do so by a department approved Public Notice coversheet. This Public Notice coversheet is attached to a Missouri State Operating Permit during the Public Notice period.

The Public Notice period for this operating permit was from October 24, 2008 through November 27, 2008. As a result of comments received during the public notice, the following revisions have been made to the permit:

- Authorization to discharge from outfall 002 has been removed from this permit.
- The Schedule of Compliance has been modified to conform to the proposed Consent Decree between the permittee and the U.S. EPA.
- A Special Condition has been added requiring sampling of any bypasses.
- More detail has been added to the Facility Description.
- The compliance date for bacterial effluent limits is revised.

Date of Factsheet: 1-22-09

Curt B. Gateley, Chief
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Water Protection Program
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APPENDIX – RPA RESULTS:

CONSTITUENT	CMC*	RWC ACUTE*	CCC*	RWC CHRONIC*	REASONABLE POTENTIAL	# OF SAMPLES**	CV***
ARSENIC, TOTAL RECOVERABLE	N.A.	N.A.	20	2.5	NO	22	0.0
CADMIUM, TOTAL RECOVERABLE	13.7	0.5	0.5	0.5	NO	22	0.0
CHROMIUM, TOTAL RECOVERABLE	1390	2.5	181	2.5	NO	22	0.0
COPPER, TOTAL RECOVERABLE	37	219	19	219	YES	23	1.444
LEAD, TOTAL RECOVERABLE	206	2.5	8	2.5	NO	22	0.0
MERCURY	2.4	0.1	0.5	0.1	NO	22	0.0
NICKEL, TOTAL RECOVERABLE	1177	13.5	131	13.5	NO	22	0.479
SILVER, TOTAL RECOVERABLE	21.0	2.5	N.A.	N.A.	NO	22	0.0
ZINC, TOAL RECOVERABLE	295	67.4	269	67.4	NO	22	0.354
CHLORIDE	860	121	230	121	NO	19	0.124

N/A – Not Applicable

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

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

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

CV values of 0.0 indicate non-detect values for the entire data set, therefore no variation among samples.

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.

As per the TSD, multipliers for calculating effluent limits for Copper were developed using site specific effluent variability:

Microsoft Excel - TSD_Multipliers.xls

File Edit View Insert Format Tools Data Window Help

Type a question for help

10 Arial B I U \$ % , +0% -0%

B5 1.44400730345865

Multiplier Calculations for Toxics

3	STDEV	12.682	
4	MEAN	8.782609	
5	CV	1.444007	

9 **Acute LTA:** 0.149 $e^{[0.5\sigma^2 - Z\sigma]}$ where $\sigma^2 = \ln(CV^2 + 1)$, $z = 2.326$ for 99th percentile

11	σ^2	1.127	
12	σ	1.061	

15 **Chronic LTA:** 0.273 $e^{[0.5\sigma_4^2 - Z\sigma_4]}$ where $\sigma_4^2 = \ln(CV^2/4 + 1)$, $z = 2.326$ for 99th percentile

17	σ_4^2	0.420	
18	σ_4	0.648	

23 **MDL:** 6.72 $e^{[z\sigma - 0.5\sigma^2]}$ where $\sigma^2 = \ln(CV^2 + 1)$, $z = 2.326$ for 99th percentile

25	σ^2	1.127	
26	σ	1.061	

29 **AML:** 2.35 $e^{[z\sigma_4 - 0.5\sigma_4^2]}$ where $\sigma_4^2 = \ln(CV^2/4 + 1)$, $z = 1.645$ for 95th percentile

31	σ_4^2	0.420	
32	σ_4	0.648	

Ammonia Toxics /

Ready

Start | Curtis ... | 1: WQ... | MD00... | RPA.xls | Micros... | TSD... | Windo... | GATELEY_CURT >> | New Library >> | 10:36 AM