

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 - 0028711

Owner: City of Mountain Grove
Address: P.O. Box 351, Mountain Grove, MO 65711

Continuing Authority: Same as above
Address: Same as above

Facility Name: Mountain Grove East WWTF **Class C Operator Required**
Facility Address: 1800 N. Oakland, Mountain Grove, MO 65711

Legal Description: See Page 2
Lat/Long: See Page 2

Receiving Stream: See Page 2
First Classified Stream and ID: See Page 2
USGS Basin & Sub-watershed No.: See Page 2

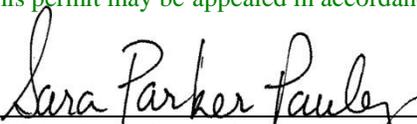
is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

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 25, 2010 April 29, 2013
Effective Date Revised


Sara Parker Pauley, Director, Department of Natural Resources

March 24, 2015
Expiration Date


John Madras, Director, Water Protection Program

Facility Description:

Outfall #001 - POTW – SIC #4952

Two cell Lemna lagoon system / Lemna Polishing Reactor / two cell peak flow lagoon / post aeration / sludge is retained in lagoons.
Design population equivalent is 9,420.
Design flow is 0.8 million gallons per day (MGD).
Design sludge production is 141 dry tons/year.

Legal Description: NE¼, NE¼, Sec. 05, T28N, R12W, Wright County
UTM Coordinates: X = 564860, Y = 4111377
Receiving Stream: Unnamed Tributary to East Whetstone Creek (U)
First Classified Stream and ID: East Whetstone Creek (C) (1505) 303(d)
USGS Basin & Sub-watershed No.: (10290201-0106)

Outfall #002 – Discharges from these outfalls are no longer authorized, and shall be subject to 40 CFR 122.41(m) and reported according to 40 CFR 122.41(m)(3)(i) & (ii).

Outfall S1

East Whetstone Creek upstream of Outfall #001. Adjacent to lagoon.

Legal Description: NE¼, NE¼, Sec. 05, T28N, R12W, Wright County
UTM Coordinates: X = 564876, Y = 4111343
Receiving Stream: Unnamed Tributary to East Whetstone Creek (U)
First Classified Stream and ID: East Whetstone Creek (C) (1505) 303(d)
USGS Basin & Sub-watershed No.: (10290201-0106)

Outfall S2

East Whetstone Creek downstream of the Mountain Grove East and West facilities' outfalls.

Legal Description: SE¼, SW¼, Sec. 32, T29N, R12W, Wright County
UTM Coordinates: X = 564231, Y = 4111479
Receiving Stream: Unnamed Tributary to East Whetstone Creek (U)
First Classified Stream and ID: East Whetstone Creek (C) (1505) 303(d)
USGS Basin & Sub-watershed No.: (10290201-0106)

Outfall S3 & S4

Monitoring no longer required.

Outfall S5

Groundwater discharged from beneath lagoon. Approximately northwest corner of lagoon near drain.

Legal Description: NE¼, NE¼, Sec. 05, T28N, R12W, Wright County
UTM Coordinates: X = 565046, Y = 4111170
Receiving Stream: Unnamed Tributary to East Whetstone Creek (U)
First Classified Stream and ID: East Whetstone Creek (C) (1505) 303(d)
USGS Basin & Sub-watershed No.: (10290201-0106)

A. INTERM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS				PAGE NUMBER 3 of 13		
				PERMIT NUMBER MO-0028711		
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, 2013 . 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	GPD	*		*	once/weekday	24 hr. total
Carbonaceous Biochemical Oxygen Demand ₅ (May 1 – October 31) (November 1 – April 30)	mg/L	15 37		11 27	once/month	24 hr. composite**
Total Suspended Solids	mg/L		45	30	once/month	24 hr. composite**
pH – Units	SU	***		***	once/month	grab
Ammonia as N (May 1 – October 31) (November 1 – April 30)	mg/L	2.1 6.0		1.5 4.5	once/month	grab
E. Coli (Note 1)	#/100 ml	*		*	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab
Zinc, Total Recoverable	µg/L	*		*	once/month	24 hr. composite**
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	DAILY MINIMUM	WEEKLY AVERAGE MINIMUM	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Dissolved Oxygen (April 1 – Sept 30) (Oct 1 – March 31)	mg/L	8.0 5.0		8.0 5.0	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY ; THE FIRST REPORT IS DUE MAY 28, 2010 . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Whole Effluent Toxicity (WET) Test	% Survival	See Special Conditions #11			twice / permit cycle	24 hour composite**
MONITORING REPORTS SHALL BE SUBMITTED TWICE PER PERMIT CYCLE ; THE FIRST REPORT IS DUE JANUARY 28, 2013 .						
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</u> and <u>August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

* Monitoring requirement only.

** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

*** pH is measured in pH units and is not to be averaged. The pH is to be maintained at or above 6.5 pH units.

Note 1 - Effluent limitations and monitoring requirements for *E. coli* are applicable only during the recreational season from April 1 through October 31. The Monthly Average Limit for *E. coli* is expressed as a geometric mean. The Weekly Average for *E. coli* will be expressed as a geometric mean if more than one (1) sample is collected during a calendar week (Sunday through Saturday).

A. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS				PAGE NUMBER 4 of 12		
				PERMIT NUMBER MO-0028711		
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, 2013 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	EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001 Flow	GPD	*		*	once/weekday	24 hr. total
Carbonaceous Biochemical Oxygen Demand ₅ (May 1 – October 31) (November 1 – April 30)	mg/L	15 37	45	11 27	once/month	24 hr. composite**
Total Suspended Solids	mg/L			30	once/month	24 hr. composite**
pH – Units	SU	***		***	once/month	grab
Ammonia as N (May 1 – October 31) (November 1 – April 30)	mg/L	2.1 6.0		1.5 4.5	once/month	grab
E. Coli (Note 1)	#/100 ml		1030	206	once/week	grab
Oil & Grease	mg/L	15		10	once/month	grab
Zinc, Total Recoverable	µg/L	168.7		53.5	once/month	24 hr. composite**
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	DAILY MINIMUM	WEEKLY AVERAGE MINIMUM	MONTHLY AVERAGE MINIMUM	MEASUREMENT FREQUENCY	SAMPLE TYPE
Dissolved Oxygen (April 1 – Sept 30) (Oct 1 – March 31)	mg/L	8.0 5.0		8.0 5.0	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY ; THE FIRST REPORT IS DUE MAY 28, 2013 . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Whole Effluent Toxicity (WET) Test	% Survival	See Special Conditions #11			twice / permit cycle	24 hour composite**
MONITORING REPORTS SHALL BE SUBMITTED TWICE PER PERMIT CYCLE ; THE FIRST REPORT IS DUE JANUARY 28, 2015 .						
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.						

* Monitoring requirement only.

** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

*** pH is measured in pH units and is not to be averaged. The pH is to be maintained at or above 6.5 pH units.

Note 1 - Effluent limitations and monitoring requirements for *E. coli* are applicable only during the recreational season from April 1 through October 31. The Monthly Average Limit for *E. coli* is expressed as a geometric mean. The Weekly Average for *E. coli* will be expressed as a geometric mean if more than one (1) sample is collected during a calendar week (Sunday through Saturday).

A. EFFLUENT LIMITATIONS AND MONITORING	PAGE NUMBER 5 of 12
	PERMIT NUMBER MO - 0028711

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
Monitoring Points S1 and S2- Upstream & Downstream of Outfall						
Carbonaceous Biochemical Oxygen Demand ₅	mg/L	*		*	once/quarter****	grab
Total Suspended Solids	mg/L	*		*	once/quarter****	grab
pH – Units	SU	*		*	once/quarter****	grab
Ammonia as N	mg/L	*		*	once/quarter****	grab
Dissolved Oxygen	mg/L	*		*	once/quarter****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE **JULY 28, 2010**. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

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

* Monitoring requirement only.

**** See table below for quarterly sampling

Minimum Sampling Requirements

Quarter	Months	Effluent Parameters	Report is Due
First	January, February, March	Sample at least once during any month of the quarter	April 28 th
Second	April, May, June	Sample at least once during any month of the quarter	July 28 th
Third	July, August, September	Sample at least once during any month of the quarter	October 28 th
Fourth	October, November, December	Sample at least once during any month of the quarter	January 28 th

A. EFFLUENT LIMITATIONS AND MONITORING	PAGE NUMBER 6 of 12
	PERMIT NUMBER MO - 0028711

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
<u>Monitoring Points S5</u> – Groundwater from Beneath Lagoon						
Carbonaceous Biochemical Oxygen Demand ₅	mg/L	*		*	once/month	grab
Conductivity	µS	*		*	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE MAY 28, 2010. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

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

* Monitoring requirement only.

C. INFLUENT MONITORING REQUIREMENTS

The facility is required to meet a removal efficiency of **85%** or more. 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 for Outfall #001</u>			
Carbonaceous 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, 2010.

** A 24-hour composite sample is composed of 48 aliquots (subsamples) collected at 30 minute intervals by an automatic sampling device.

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.

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.
3. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(3)(B) within 90 days of notice of its availability.
4. Changes in Discharges of Toxic Substances
The permittee shall notify the Director as soon as it knows or has reason to believe:
 - (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
 - (1) One hundred micrograms per liter (100 µg/L);
 - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - (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.
7. The permittee shall develop and implement a program for maintenance and repair of the collection system. The permittee shall submit a report on **November 28** each year to the Southwest Regional Office which address measures taken to locate and eliminate sources of infiltration and inflow into the collection system serving the facility.
8. 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.

D. SPECIAL CONDITIONS (continued)

9. In-stream Monitoring

- (a) Instream samples should be taken immediately (within 10 yards) below the established mixing zone. If such a point has not been determined, for most unclassified and class C waters, samples taken 10 yards below the outfall. In no instance for an unclassified stream should initial in-stream monitoring be performed farther downstream than 1/10 mi. In the event that a safe, accessible location is not present at this location, a suitable location can be negotiated with the department. Samples should be taken at least four feet from the bank or from the middle of the stream (whichever is less) and 6-inches below the surface. The upstream receiving water sample should be collected at a point upstream from any influence of the effluent, where the water is visibly flowing down stream.
- (b) When conducting in-stream monitoring, the permittee shall record observations that include: the time of day, weather conditions, unusual stream/lake characteristics (e.g., septic conditions, algae growth, etc.), the stream segment (e.g., riffle, pool or run) or the depth from where the sample was collected. These observations shall be submitted with the sample results.
- (c) Samples shall not be collected from areas with especially turbulent flow, still water or from the stream bank, unless these conditions are representative of the stream reach or no other areas are available for sample collection. Sampling should not be made when significant precipitation has occurred recently. The sampling event should be terminated and rescheduled if any of the following conditions occur:
 - If turbidity in the stream increases notably; or
 - If rainfall over the past two weeks exceeds 2.5 inches or exceeds 1 inch in the last 24 hours
- (d) Always use the correct sampling technique and handling procedure specified for the parameter of interest. Please refer to the latest edition of Standard Methods for the Examination of Water and Wastewater for further discussion of proper sampling techniques. All analyses must be conducted in accordance with an approved EPA method. Meters shall be calibrated immediately (within 1 hour) prior to the sampling event.
- (e) To obtain accurate measurements, D.O., temperature and pH analyses should be performed on-site in the receiving stream where possible. However, due to high flow conditions, access, etc., it may be necessary to collect a sample in a bucket or other container. When this is necessary, care must be taken not to aerate the sample upon collection. If for any reason samples must be collected from an alternate site from the one listed in the permit, the permittee shall report the location with the sample results.
- (f) Dissolved oxygen measurements are to be taken during the period from one hour prior to sunrise to one and one-half hour after sunrise.
- (g) Flow for the upstream and downstream monitoring locations must include a depth profile of the stream water column with depth measurements taken at no less than two (2) foot intervals, a calculated stream water column cross sectional area in square feet based on the depth profile (with calculations provided), a calculated stream water column wetted perimeter in feet based on the depth profile (with calculations provided), a velocity profile of the stream water column with horizontal measurements taken at no less than two (2) foot intervals and vertical measurements taken at no less than one-half (0.5) foot intervals, a calculated bulk velocity in feet per second based on the velocity profile (with calculations provided), a calculated bulk flow in cubic feet per second based on stream water column cross sectional area and the stream water column bulk velocity (with calculations provided), a description of the stream substrate (concrete, gravel, mud, etc.), and water surface elevation in feet above mean sea level for each rain event. To simplify this data collection, the permittee may establish stream gauging stations at each of the stream measurement sites.
- (g) Please contact the department if you need additional instructions or assistance.

10. Lagoon Liner Compliance: Cell #1 shall be visually inspected each weekday. Any air pockets or uplift in the lagoon liner or apparent leaks must be reported on to the Department within 24 hours of observation. This notification shall be followed-up with a written report as the cause and remedy within five (5) days of observation.

11. 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%	Twice / Permit Cycle	24 hour composite	Any in 2012 and 2014, but report in January 2013, 2015 respectively

* Sample only once either in the months of July, August, or September in **2012 and 2014**.

D. SPECIAL CONDITIONS (continued)

(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.
 - (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.
- (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 three 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.

D. SPECIAL CONDITIONS (continued)

- (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.
 - (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.
12. Non-standard Technology: Please note that the engineering design includes technology not addressed in Missouri Clean Water Commission Regulations 10 CSR 20-Chapter 8 design standards. To assess the effectiveness of the new technology at this facility, the following special conditions must be followed.
- (a) Upon submission of the renewal application the permittee shall submit an engineering report prepared by a professional engineer to the Southwest Regional Office evaluating the new technology using the 95th percentile performance standard described in the statement of basis. At a minimum the new technology must be evaluated and found to meet the 95th percentile performance standard at a minimum of 60% of the design organic or hydraulic loading to remove this special condition. If 60% organic or hydraulic engineered design loading has not occurred during this permit cycle the special condition cannot be removed during the renewal process; however, an engineering report evaluating the performance standard is still required to be submitted. Appendix B in the Statement of Basis indicates how to perform this evaluation.

D. SPECIAL CONDITIONS (continued)

- (b) The permittee acting under the supervision of a professional engineer registered in Missouri shall at a minimum, collect and test samples of wastewater treatment facility effluent as outlined in this permit, measure flow as outlined in this permit, and shall record all maintenance and operational problems experienced with the wastewater treatment facility during the first 60 months of operation. Other sample collection and testing including influent samples, and samples before and after each unit operation or group of unit operations, and other record keeping shall be done at the discretion of the professional engineer as needed to assess the new technology.
- (c) The new technology will be deemed successful if the performance standard for 95th percentile probability is less than or equal to the permit maximum monthly average limit for each parameter.
- (d) If the new technology fails to meet the 95th percentile probability performance standard for any parameter, or if the engineer assesses the operation and maintenance problems to be sufficiently serious to require replacement of the new technology, the permittee shall submit engineering report, plans, specifications prepared by a professional engineer registered in Missouri along with construction permit application forms, filing fee to Southwest Regional Office within one hundred twenty (120) calendar days of the date of submittal of the engineering report evaluation that identified the failure. These documents shall outline replacement of the failed new technology with standard technology listed in Missouri Clean Water Commission Regulation 10 CSR 20-Chapter 8. Within one hundred eighty (180) calendar days of receiving the construction permit, the permittee shall construct the replacement facilities and submit the Statement of Work Complete prepared by the professional engineer to Southwest Regional Office.
- (e) An annual report due each year on **January 28** shall be submitted summarizing any operational problems at the facility, all construction that has been completed with flow tributary to the facility, the percent of organic or hydraulic loading going to the facility, and the general overall performance of the facility (any violation of the effluent limits established in Table A at a minimum).

E. SCHEDULE OF COMPLIANCE

For *E. coli*

The final shall become effective within three years in accordance with the conditions below, or on December 31, 2013, whichever comes first.

1. Within one year from the issuance of the permit, the permittee shall submit a construction permit application, application fee, and one copy each of an engineering report, plans and specifications prepared by a professional engineer registered in the State of Missouri to the Missouri Department of Natural Resources and an activity schedule toward meeting disinfection requirement.
2. The facility shall submit an interim progress report within twelve months if the construction completion and operation of the disinfection equipment will be more than 1 year.
3. If the permittee will fail to meet any of the interim dates above, the permittee shall notify the Department in writing of the reason for non compliance no later than 14 days following each interim date.
4. Upon completion of construction, the permittee submit a Statement of Work complete and signed by the owner and licensed professional engineer in the state of Missouri, an application to modify the permit, and the modification fee.

Submit all reports or construction applications to Missouri Department of Natural Resources, 2040 West Woodland, Springfield, Missouri. If you have questions you may contact the Missouri Department of Natural Resources, Southwest Regional Office by calling 417-891-4300.

For Zinc, Total Recoverable

1. Please note that you may be able to meet the Zinc, Total Recoverable final effluent limits without a construction permit. If the final effluent limits can be achieved without a construction permit please submit in writing by **March 1, 2011** how you are planning to meet the new effluent limits.
2. If a Construction Permit is needed please 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, 2040 West Woodland, Springfield, Missouri, 65807, for providing wastewater treatment dechlorination improvements to comply with the final effluent limitations as listed in Part A of this permit, designed in accordance with Missouri Clean Water Law Regulation 10 CSR 20 Chapter 8.
3. The entire project shall be completed by **April 1, 2013**.

D. SPECIAL CONDITIONS (continued)

SUMMARY OF TEST METHODOLOGY FOR ACUTE 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
Statement of Basis
MSOP #: MO-0028711

This Statement of Basis (Statement) gives pertinent information regarding minor/simple modification(s) to the above listed operating permit without the need for a public comment process.

A Statement is not an enforceable part of a Missouri State Operating Permit.

FACILITY DESCRIPTION

Facility Type: POTW

Two cell Lemna lagoon system / Lemna Polishing Reactor / two cell peak flow lagoon / post aeration / sludge is retained in lagoons.

MODIFICATION RATIONALE

This operating permit is hereby modified to correct the coordinates associated with facility outfalls and monitoring locations. Previous permit locations were incorrect making data difficult to interpret. This modification also reduces the monitoring burden for this community **See Appendix - Map**. The previous permit required two more downstream locations that were heavily influenced by runoff from surrounding land uses. The previous permit also required several parameters that are no longer deemed necessary for the facility. Previously the receiving stream has demonstrated low dissolved oxygen and high ammonia levels. The requirements contained in this modification will reduce monitoring costs while still monitoring for pollutants of concern.

The S5 monitoring point corresponds to a pipe that drains groundwater from under the landfill liner. The purpose of this location is to monitor for leaks in the liner. It was determined that CBOD₅ and conductivity are sufficient to indicate the presence of wastewater in this discharge.

PUBLIC NOTICE

A comment was received from the city of Mountain Grove, requesting removal of the monitoring for Zinc. This request cannot be accommodated at this time, as additional data must be gathered in order to support a new Reasonable Potential Analysis.

Appendix - Map

Modified Sampling Locations for Mountain Grove



Although the data in this data set have been compiled by the Missouri Department of Natural Resources, no warranty, expressed or implied, is made by the Department as to the accuracy of the data and related materials. The act of distribution shall not constitute any such warranty, and no responsibility is assumed by the Department in the use of these data or related materials.

0 0.05 0.1 0.2 Miles