

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, 92<sup>nd</sup> Congress) as amended,

Permit No. MO-0047341

Owner: City of Piedmont  
Address: PO Box 25, Piedmont, MO 63957

Continuing Authority: Same as above  
Address: Same as above

Facility Name: Piedmont WWTF  
Facility Address: Hwy HH, Piedmont, MO 63957

Legal Description: SE ¼ SE ¼ Sec. 34, T29N, R3E  
Latitude/Longitude: +3708181/-9042161

Receiving Stream: McKenzie Creek (P)  
First Classified Stream and ID: McKenzie Creek (P)(2786) 303(d) List  
USGS Basin & Sub-watershed No.: (11010007-060001)

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

**FACILITY DESCRIPTION**

**Outfall #001 - POTW – SIC #4952 - Class “C” operator needed**

Four cell lagoon/three aerated cells/final polishing cell/sludge is retained in lagoon or land applied  
Design population equivalent is 7069  
Design flow is 350,000 gallons per day.  
Actual flow is 250,000 gallons per day.  
Design sludge production is 26.4 dry tons/year.

Continued next page

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

July 3, 2008

Effective Date

July 2, 2013

Expiration Date  
MO 780-0041 (10-93)

Handwritten signature of Doyle Childers in black ink.

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

Handwritten signature of Edward Galbraith in blue ink.  
Edward Galbraith, Director of Staff, Clean Water Commission

FACILITY DESCRIPTION (continued)

Outfall 002 - Process Wastewater

Discharge from Windsor Foods pretreatment system. Discharge is directly to the Piedmont WWTF and not to waters of the state.

Legal Description: SE ¼ SW ¼, Sec. 3, T28N, R3E

Lat/Long: +3707223 / -09042478

Receiving Stream: McKenzie Creek (P)

First Classified Stream and ID: McKenzie Creek (P)(2786) 303(d) List

USGS Basin & Sub-watershed No.: (11010007-060001)

Outfall S1

Instream monitoring

At Highway HH bridge over McKenzie Creek downstream from outfall 001

Legal Description: Sec. 3, T28N, R3E, Wayne County

Lat/Long: +3707597/-09042291

Receiving Stream: McKenzie Creek (P)

First Classified Stream and ID: McKenzie Creek (P)(2786) 303(d) List

USGS Basin & Sub-watershed No.: (11010007-060001)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 3 of 12	
					PERMIT NUMBER MO-0047341	
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 three (3) years from the date of issuance of this permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u>						
Flow	MGD	*		*	once/weekday **	24 hr. total
Biochemical Oxygen Demand <sub>5</sub>	mg/L		65	45	twice/month	grab
Total Suspended Solids	mg/L		110	70	twice/month	grab
pH – Units	SU	***		***	twice/month	grab
Ammonia as N	mg/L	*		*	twice/month	grab
Temperature	°C	*		*	twice/month	grab
Oil & Grease	mg/L	*		*	twice/month	grab
Chloride	mg/L	*		*	twice/month	grab
Fecal Coliform	#/100 ml	*		*	twice/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>August 28, 2008</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
<u>Outfall #001</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> .						
<u>Outfall #002</u>						
Flow	MGD	0.1			once/weekday**	24 hr. total
Biochemical Oxygen Demand <sub>5</sub>	mg/L lbs/day	360 300			twice/month	24 hr. comp.
Total Suspended Solids	mg/L lbs/day	150 125			twice/month	24 hr. comp.
Oil & Grease	mg/L lbs/day	54 45			twice/month	grab
pH	SU	****		****	twice/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>August 28, 2008</u> .						
<b>B. STANDARD CONDITIONS</b>						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I, II, &amp; III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

**C. INFLUENT MONITORING REQUIREMENTS**

The facility is required to meet a removal efficiency of 65% or more. The monitoring requirements shall become effective upon issuance and remain in effect until three (3) years from the date of issuance of this 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 <sub>5</sub>	mg/L	once/month	grab
Total Suspended Solids	mg/L	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE August 28, 2008.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 5 of 12	
					PERMIT NUMBER MO-0047341	
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 three (3) years from the date of issuance of this permit and remain in effect until expiration of this permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001</u>						
Flow	MGD	*		*	once/weekday**	24 hr. total
Biochemical Oxygen Demand <sub>5</sub>	mg/L	20		10	twice/month	24 hr./comp.
Total Suspended Solids	mg/L		45	30	twice/month	24 hr./comp.
pH – Units	SU	****		****	twice/month	grab
Ammonia as N (May 1 – Oct 31)	mg/L	6.1		2.3	twice/month	grab
(Nov 1 – April 30)		9.6		3.7	twice/month	grab
Temperature	°C	*		*	twice/month	grab
Oil & Grease	mg/L	15		10	twice/month	grab
Fecal Coliform (Note 1)	#/100 ml	1000		400	twice/month	grab
Total Residual Chlorine (Note 2)	mg/L	0.016		0.008	twice/month	grab
Chloride	mg/L	383		191	twice/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>August 28, 2011</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
<u>Outfall #001</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, 2011</u> .						
<u>Outfall #002</u>						
Flow	MGD	0.1			once/weekday**	24 hr. total
Biochemical Oxygen Demand <sub>5</sub>	mg/L lbs/day	360 300			twice/month	24 hr. comp.
Total Suspended Solids	mg/L lbs/day	150 125			twice/month	24 hr. comp.
Oil & Grease	mg/L lbs/day	54 45			twice/month	grab
pH	SU	****		****	twice/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>August 28, 2011</u> .						
<b>B. STANDARD CONDITIONS</b>						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I, II, &amp; III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

<b>A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS</b>					PAGE NUMBER 6 of 12	
					PERMIT NUMBER MO-0047341	
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>Outfall #S1</u> Dissolved Oxygen	mg/L	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>August 28, 2008</u> .						
<b>C. INFLUENT MONITORING REQUIREMENTS</b>						
The facility is required to meet a removal efficiency of 85% or more. The monitoring requirements shall become effective three years after the date of issuance and remain in effect until expiration of this 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 <sub>5</sub>	mg/L	once/month		grab		
Total Suspended Solids	mg/L	once/month		grab		
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>August 28, 2011</u> .						

MO 780-0010 (8/91)

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

\* Monitoring requirement only.

\*\* Once/weekday means Monday, Tuesday, Wednesday, Thursday and Friday.

\*\*\* pH is measured in pH units and is not to be averaged. The pH is to be maintained at or above 6.0 pH units.

\*\*\*\* 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.

Note 1 - Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31. The Monthly Average Limit for Fecal coliform is expressed as a geometric mean.

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

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

Note 2 (continued)

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

D. SPECIAL CONDITIONS

1. If any lagoons are to be taken out of service, a lagoon closure plan must accompany the construction permit application.
2. Submit an annual report detailing steps taken during the preceeding year to eventually bring the facility into compliance with the Final Effluent Limitations found on Page 5 of this permit. Report shall be submitted in October of each year that the Interim Effluent Limitations are in effect.
3. 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.
4. All outfalls must be clearly marked in the field.
5. Permittee will cease discharge by connection to area-wide wastewater treatment system within 90 days of notice of its availability.
6. 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.
7. Report as no-discharge when a discharge does not occur during the report period.
  8. 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;

D. SPECIAL CONDITIONS (continued)

8. Water Quality Standards (continued)

- (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.

9. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities

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

10. 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.

11. The permittee shall develop and implement a program for maintenance and repair of the collection system. The recommended guidance is the US EPA's Guide For Evaluating Capacity, Management, Operation, And Maintenance (CMOM) Programs At Sanitary Sewer Collection Systems (Document number EPA 305-B-05-002). The permittee shall submit a report semi-annually in April and October with the Discharge and Monitoring reports which address measures taken to locate and eliminate sources of infiltration and inflow into the collection system serving the facility.

12. 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	Single dilution	August

(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 storm water, samples shall be collected within three hours from when discharge first occurs.
  - (b) Samples submitted for analysis of storm water discharges shall be collected as a grab.
  - (c) For discharges of non-storm water, 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 storm water samples.
  - (d) A twenty-four hour composite sample shall be submitted for analysis of non-storm water discharges.

D. SPECIAL CONDITIONS (continued)

12. Whole Effluent Toxicity (WET) tests (continued)

- (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.
  - (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.

12. Whole Effluent Toxicity (WET) tests (continued)

(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.

## 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

E. RECEIVING WATER MONITORING CONDITIONS

1. In-stream samples should be taken at the location specified on page 2 of this permit. 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.
2. 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 lake depth from where the sample was collected. These observations shall be submitted with the sample results.
3. 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
4. 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.
5. 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.
6. Dissolved oxygen measurements are to be taken during the period from one hour prior to sunrise to one and one-half hour after sunrise.

**Missouri Department of Natural Resources**  
**FACT SHEET**  
**FOR THE PURPOSE OF RENEWAL**  
**OF**  
**MO-0047341**  
**PIEDMONT WWTF**

The Federal Water Pollution Control Act ("Clean Water Act" Section 402 Public Law 92-500 as amended) established the National Pollution Discharge Elimination System (NPDES) permit program. This program regulates the discharge of pollutants from point sources into the waters of the United States, and the release of storm water from certain point sources. All such discharges are unlawful without a permit (Section 301 of the "Clean Water Act"). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (MSOPs) are issued by the Director of the Missouri Department of Natural Resources (department) under an approved program, operating in accordance with federal and state laws (Federal "Clean Water Act" and "Missouri Clean Water Law" Section 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified.

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

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-0047341  
 Facility Name: Piedmont WWTF  
 Facility Address: Hwy HH, Piedmont, MO 63957  
 Owner's Name: City of Piedmont  
 Owner's Address: PO Box 25, Piedmont, MO 63957

Facility Region: SERO  
 Facility County: Wayne

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

Facility Description: Municipal Wastewater / 4 cell lagoon/ New design to be determined

Application Date: March 13, 2007  
 Expiration Date: September 5, 2007  
 Last Inspection: 03/27/06      In Compliance ;      Non-Compliance

**OUTFALL(S) TABLE:**

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.5425	secondary	Municipal wastewater	0

Outfall #001  
 Legal Description: SE ¼ SE ¼ Sec. 34, T29N, R3E  
 Latitude/Longitude: +3708181/-9042161  
 Receiving Stream: McKenzie Creek (P)  
 First Classified Stream and ID: McKenzie Creek (P) (2786)  
 USGS Basin & Sub-watershed No.: (11010007-060001)

**Outfall 002 - Process Wastewater**

Discharge from Windsor Foods pretreatment system. Discharge is directly to the Piedmont WWTF and not to waters of the state.

Legal Description: SE ¼ SW ¼, Sec. 3, T28N, R3E

Lat/Long: +3707223 / -09042478

Receiving Stream: McKenzie Creek (P)

First Classified Stream and ID: McKenzie Creek (P)(2786) 303(d) List

USGS Basin & Sub-watershed No.: (11010007-060001)

Water Quality History: This facility is the sole source of pollution that puts McKenzie Creek on the 303d list for BOD<sub>5</sub>

Comments: \_\_\_\_\_  
\_\_\_\_\_

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

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

10 CSR 20-7.031 Missouri Water Quality Standards, the department defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and/or 1<sup>st</sup> 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**
McKenzie Creek	P	2786	LWW, AQL, WBC***	11010007	Ozark/Current/Black Drainages

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

\*\* - Ecological Drainage Unit

\*\*\* - UAA has not been conducted.

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

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
McKenzie Creek (P)	0.1	0.1	1.0

**MIXING CONSIDERATIONS TABLE:**

MIXING ZONE (CFS) [10 CSR 20-7.031(4)(A)4.B.(II)(a)]			ZONE OF INITIAL DILUTION (CFS) [10 CSR 20-7.031(4)(A)4.B.(II)(b)]		
1Q10	7Q10	30Q10	1Q10	7Q10	30Q10
0.025	0.025	0.25	0.0025	0.0025	N/A

**Mixing Zone (MZ):** One-quarter (1/4) of stream volume of flow; length of one-quarter (1/4) mile [10 CSR 20-7.031(4)(A)4.B.(III)(a)].

**Zone of Initial Dilution (ZID):** One-tenth (0.1) of the mixing zone volume of flow [10 CSR 20-7.031(4)(A)4.B.(III)(b)].

**RECEIVING STREAM MONITORING REQUIREMENTS:**

**Site S1.** (Downstream)

PARAMETER(S)	SAMPLING FREQUENCY	SAMPLE TYPE	LOCATION
Dissolved Oxygen	Monthly	grab	At Highway HH bridge over McKenzie Creek downstream from outfall 001

Comments: It is recommended to monitor upstream dissolved oxygen to determine the extent of the facility's impact on downstream dissolved oxygen.

**Rationale and Derivation of Effluent Limitations & Permit Conditions**

**ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:**

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

Not Applicable ;

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

**ANTI-BACKSLIDING:**

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

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

**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.

**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.

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.

Not Applicable ;

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

**PRETREATMENT PROGRAM:**

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

Not Applicable ;

At this time, the permittee is not required to implement and enforce a Pretreatment Program.

**REASONABLE POTENTIAL ANALYSIS (RPA):**

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

Not Applicable ;

A RPA was not conducted for this facility.

**REMOVAL EFFICIENCY:**

Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD<sub>5</sub>) 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](http://www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm)

Applicable ;

Equivalent to Secondary Treatment is 65% removal [40 CFR Part 133.105(a)(3) & (b)(3)].

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

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

Not Applicable ;

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

**SCHEDULE OF COMPLIANCE (SOC):**

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

Applicable ;

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

**STORM WATER POLLUTION PREVENTION PLAN (SWPPP):**

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

Not Applicable ;

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

**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.

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).

**WLA MODELING:**

Applicable ;

A WLA study including model was submitted to the department by EPA. The WLA study was used to determine wasteload allocations for BOD<sub>5</sub>.

**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 Part 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, Section 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 .

**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 ;

McKenzie Creek is listed on the 2002 Missouri 303(d) List for BOD<sub>5</sub>.

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

**Outfall #001 – Main Facility Outfall**

**EFFLUENT LIMITATIONS TABLE:**

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	MGD	1	*		*	NO	S
BOD <sub>5</sub>	MG/L	3	20		10	YES	65/45
TSS	MG/L	1		45	30	YES	110/70
pH (S.U.)	SU	1	6 – 9		6 – 9	YES	≥6
TEMPERATURE (°C)	°C	1/8	*		*	YES	****
AMMONIA AS N (MAY 1 – OCT 31)	MG/L	2/3/5	5.6		2.1	YES	*
AMMONIA AS N (NOV 1 – APR 30)	MG/L	2/3/5	13.1		5	YES	*
FECAL COLIFORM	***	1/2	1000		400	YES	****
CHLORINE, TOTAL RESIDUAL (MG/L)	MG/L	1/2	0.016		0.008	YES	****
OIL & GREASE (MG/L)	MG/L	1	15		10	NO	*
WHOLE EFFLUENT TOXICITY (WET) TEST	Please see WET Test in the Derivation and Discussion Section below.						
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

\* - Monitoring requirement only

\*\*\* - # of colonies/100mL; the Monthly Average for Fecal Coliform is a geometric mean.

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

N/A – Not applicable

S – Same as previous operating permit

**Basis for Limitations Codes:**

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

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

- Biochemical Oxygen Demand** A wasteload allocation study has been conducted for the Piedmont wastewater treatment facility. A steady-state water quality model (QUAL2K) was constructed and calibrated from this data and used to determine a BOD wasteload allocation (WLA) protective of water quality in McKenzie Creek.

WLA= 20 mg/L

MDL= 20 mg/L, AML= 10 mg/L

- **Total Suspended Solids.** 10 CSR 20-7.015(8)(B)1.
- **pH.** pH shall be maintained in the range from six to nine (6 – 9) standard units [10 CSR 20-7.015(8)(B)2.].
- **Ammonia as Nitrogen.** WLAs for Ammonia as Nitrogen were developed in the model for BOD<sub>5</sub>. These WLAs are applied as chronic WLAs.

**Summer**

$$WLA_c = 2.5 \text{ mg/L}$$

$$LTA_c = 2.5(0.780) = 1.95 \text{ mg/L} \quad [CV = 0.6, 99^{\text{th}} \text{ Percentile, 30 day avg.}]$$

$$MDL = 1.95(3.11) = 6.1 \text{ mg/L} \quad [CV = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$AML = 1.95(1.19) = 2.3 \text{ mg/L} \quad [CV = 0.6, 95^{\text{th}} \text{ Percentile, n = 30}]$$

**Winter**

$$WLA_c = 4 \text{ mg/L}$$

$$LTA_c = 4(0.780) = 3.1 \text{ mg/L} \quad [CV = 0.6, 99^{\text{th}} \text{ Percentile, 30 day avg.}]$$

$$MDL = 3.1(3.11) = 9.6 \text{ mg/L} \quad [CV = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$AML = 3.1(1.19) = 3.7 \text{ mg/L} \quad [CV = 0.6, 95^{\text{th}} \text{ Percentile, n = 30}]$$

- **Temperature** – Toxicity of ammonia varies with temperature.
- **Fecal Coliform** – All classified waters in Missouri shall be designated for Whole Body Contact Recreation. Fecal coliform effluent limits of 400 colonies/100 ml monthly average, 1000 colonies/100 ml daily maximum apply during the recreational season (April 1-October 31) [10 CSR 20-7.015(8)(B)4.A.] please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**. Future renewals of the facility operating permit will contain effluent limitations for E. coli, which will replace fecal coliform as the applicable bacteria criteria in Missouri's water quality standards.
- **Total Residual Chlorine.** Warm water acute criteria = 19 □g/L, warm water chronic criteria = 10 □g/L [10 CSR 20-7.031, Table A]. Background = 0.0 mg/L.

Chronic

$$C_c = ((0.5425 + 0.025) \cdot 0.01 - (0.025 * 0.0)) / 0.5425$$

$$C_c = 0.010 \text{ mg/L}$$

$$WLA_c = 0.010 \text{ mg/L}$$

Acute

$$C_c = ((0.5425 + 0.0025) \cdot 0.019 - (0.0025 * 0.0)) / 0.5425$$

$$C_c = 0.019 \text{ mg/L}$$

$$WLA_a = 0.019 \text{ mg/L}$$

$$LTA_c = 0.010(0.527) = 0.005 \text{ mg/L} \quad [CV = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$LTA_a = 0.019(0.321) = 0.006 \text{ mg/L} \quad [CV = 0.6, 99^{\text{th}} \text{ Percentile}]$$

Use most protective number of LTA<sub>c</sub> or LTA<sub>a</sub>. = 0.005 mg/L

$$MDL = 0.005(3.11) = 0.016 \text{ mg/L} \quad [CV = 0.6, 99^{\text{th}} \text{ Percentile}]$$

$$AML = 0.005(1.55) = 0.008 \text{ mg/L} \quad [CV = 0.6, 95^{\text{th}} \text{ Percentile, n = 4}]$$

- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

- **Chloride.** Effluent limit for Chloride required because of industrial contribution. Protection of aquatic life acute criteria =860 mg/L, chronic criteria =230 mg/l. [10 CSR 20-7.031, Table A]. Background = 0.0 mg/L.

Chronic

$$C_c = ((0.5425 + 0.025)230 - (0.025 * 0.0)) / 0.5425$$

$$C_c = 234 \text{ mg/L}$$

$$WLA_c = 234 \text{ mg/L}$$

Acute

$$C_c = ((0.5425 + 0.0025)860 - (0.0025 * 0.0)) / 0.5425$$

$$C_c = 861 \text{ mg/L}$$

$$WLA_a = 861 \text{ mg/L}$$

$$LTA_c = 234(0.527) = 123 \text{ mg/L}$$

[CV = 0.6, 99<sup>th</sup> Percentile]

$$LTA_a = 861(0.321) = 267 \text{ mg/L}$$

[CV = 0.6, 99<sup>th</sup> Percentile]

Use most protective number of LTA<sub>c</sub> or LTA<sub>a</sub>. = 0.005 mg/L

$$MDL = 123(3.11) = 383 \text{ mg/L}$$

[CV = 0.6, 99<sup>th</sup> Percentile]

$$AML = 123(1.55) = 191 \text{ mg/L}$$

[CV = 0.6, 95<sup>th</sup> 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	August

- **Minimum Sampling and Reporting Frequency Requirements.**

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
FLOW	ONCE/DAY	MONTHLY
BOD <sub>5</sub>	TWICE/MONTH	MONTHLY
TSS	TWICE/MONTH	MONTHLY
PH (S.U.)	TWICE/MONTH	MONTHLY
AMMONIA AS N (MAY 1 – OCT 31)	TWICE/MONTH	MONTHLY
AMMONIA AS N (NOV 1 – APR 30)	TWICE/MONTH	MONTHLY
TEMPERATURE (°C)	TWICE/MONTH	MONTHLY
FECAL COLIFORM (NOTE 1)	TWICE/MONTH	MONTHLY
CHLORINE, TOTAL RESIDUAL (MG/L)	TWICE/MONTH	MONTHLY
OIL & GREASE (MG/L)	TWICE/MONTH	MONTHLY

**Outfall #002 – Windsor Foods process wastewater**

**EFFLUENT LIMITATIONS TABLE:**

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE
FLOW	MGD	1	0.1		
BOD <sub>5</sub>	MG/L	1	360		
	LBS/DAY	1	300		
TSS	MG/L	1	150		
	LBS/DAY	1	125		
pH (S.U.)	SU	1	6 – 9		6 – 9
OIL & GREASE (MG/L)	MG/L	1	54		
	LBS/DAY	1	45		
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.				

Basis for Limitations Codes:

1. City ordinance

**OUTFALL #002 – DERIVATION AND DISCUSSION OF LIMITS:**

**Biochemical Oxygen Demand (BOD<sub>5</sub>)** – Local limits of 300 pounds/day established in industrial user permit. Maximum flow rate allowed is 100,000 gallons/day.

$$\begin{aligned} \text{Concentration (mg/L)} &= \text{lbs./day} \div (\text{MGD} \times 8.34 \text{ lbs/gal.}) \\ &= 300 \text{ lbs/day} \div (0.1 \text{ MGD} \times 8.34 \text{ lbs/gal}) \\ &= \mathbf{360 \text{ mg/L}} \end{aligned}$$

**Total Suspended Solids (TSS)** – Local limits of 125 pounds/day established in industrial user permit. Maximum flow rate allowed is 100,000 gallons/day.

$$\begin{aligned} \text{Concentration (mg/L)} &= \text{lbs./day} \div (\text{MGD} \times 8.34 \text{ lbs/gal.}) \\ &= 125 \text{ lbs/day} \div (0.1 \text{ MGD} \times 8.34 \text{ lbs/gal}) \\ &= \mathbf{150 \text{ mg/L}} \end{aligned}$$

**Fats, Oil & Grease** – Local limits of 45 pounds/day established in industrial user permit. Maximum flow rate allowed is 100,000 gallons/day.

$$\begin{aligned} \text{Concentration (mg/L)} &= \text{lbs./day} \div (\text{MGD} \times 8.34 \text{ lbs/gal.}) \\ &= 45 \text{ lbs/day} \div (0.1 \text{ MGD} \times 8.34 \text{ lbs/gal}) \\ &= \mathbf{54 \text{ mg/L}} \end{aligned}$$

**pH** – Local limits of 6 – 9 Standard units established in industrial user permit.

• **Minimum Sampling and Reporting Frequency Requirements.**

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
FLOW	ONCE/DAY	MONTHLY
BOD <sub>5</sub>	TWICE/MONTH	MONTHLY
TSS	TWICE/MONTH	MONTHLY
pH (S.U.)	TWICE/MONTH	MONTHLY
OIL & GREASE (MG/L)	TWICE/MONTH	MONTHLY

## **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 is tentatively schedule to begin February 2008

**Date of Factsheet:** June 26, 2008

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