UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

MAY 2 6 2006

Mr. Edward Galbraith, Director
Water Pollution Control Program
Water Protection and Soil Conservation Division
Missouri Department of Natural Resources
P.O. Box 176
Jefferson City, Missouri 65102

Dear Mr. Galbraith:

RE: Permit Limits in Lieu of a TMDL for Walnut Creek (WBID 1339)

This letter responds to the submission from the Missouri Department of Natural Resources (MDNR), dated April 10, 2006, regarding Walnut Creek, which was listed as impaired on Missouri's 1998 §303(d) list, for Biochemical Oxygen Demand (BOD) and Volatile Suspended Solids (VSS). MDNR proposes to correct the impairments with National Pollutant Discharge Elimination System (NPDES) permit limits in lieu of a Total Maximum Daily Load (TMDL). The following water body segment was proposed to be corrected through permit limits.

Water Body	WBID	Impairment	Source	Permit #	Year added to list
Walnut Creek	1339	Biochemical Oxygen Demand Volatile Suspended Solids	El Dorado Springs Wastewater Treatment Facility (WWTF)	MO-0040002	1998

Waters require TMDLs when certain pollution control requirements are not stringent enough to implement water quality standards (WQS) for such waters. To exempt an impaired water from the TMDL process, the pollution control requirements cited in the regulation under 130.7(b)(i), (ii), and (iii) must be established and enforced by federal, state, or local laws or regulations, and be stringent enough that, when applied, the receiving water will meet WQS.

In regards to Walnut Creek, Federal regulations at 40 CFR 130.7(b)(ii) provide that where "more stringent effluent limitations (including prohibitions) required by either state or local authority preserved by section 510 of the Act, or Federal authority (law, regulation, or treaty)" are stringent enough to implement WQS, a TMDL is not required. The U.S. Environmental Protection Agency (EPA) has completed its review of this submission, and other previously submitted information supporting this permit in lieu of a TMDL, and concurs that a

TMDL is not required for this impaired water body because the impairment is being addressed through more stringent NPDES permit limits as per 40 CFR 130.7(b)(ii).

The El Dorado Springs WWTF has been identified as the sole source for the VSS and BOD, on Walnut Creek, as a result of surface water monitoring directly above and below the WWTF. The NPDES permit was issued on March 24, 2006, for the El Dorado Springs WWTF as a non-discharging system and includes emergency discharge final limits that will take affect March 24, 2009. By eliminating the discharge to the stream and including emergency discharge final limits, WQS should be achieved.

If you have any questions or concerns in regards to this matter, please do not hesitate to contact Jack Generaux, TMDL Team Leader, at (913)551-7690, or Tabatha Adkins, TMDL Team, at (913)551-7128.

Sincerely,

Betty J. Berry
Acting Director
Water, Wetlands, and Pesticides Division

cc: Ann Crawford, TMDL Chief, MO Dept of Natural Resources

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-0040002
Owner:	City of El Dorado Springs
Address:	127 West Spring Street, El Dorado Springs, MO 64744
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	El Dorado Springs WWTF
Address:	127 West Spring Street, El Dorado Springs, MO 64744
Legal Description:	SE ¼, NE ¼, Sec. 17, T36N, R28W, Cedar County
Receiving Stream:	Walnut Creek (P)
First Classified Stream and ID:	Walnut Creek (P)(01339)
USGS Basin & Sub-watershed No.:	(10290105-030007)

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

FACILITY DESCRIPTION

Outfalls # 001 – POTW - SIC #4952
No-discharge System
Trickling filters/polishing cells/storage basin/wastewater irrigation/aerobic sludge digestion/sludge is land applied.
Design population equivalent is 7,500.
Design flow is 750,000 gallons per day.
Actual flow is 658,700 gallons per day.
Design sludge production is 210 dry tons per year.
Outfall #002 – Stormwater basin, flow is dependent upon precipitation.
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.

September 15, 2003 — Effective Date
June 2, 2006 — Revised Date

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

September 4, 2008
Expiration Date

Edward Galbraith, Director of Staff, Clean Water Commission

MO 780-0041 (10-93)

FACILITY DESCRIPTION (continued)

Outfall #002 – SE ¼, NW ¼, Sec. 29, T36N, R28W, Cedar County
McCord Brand (U)
Clear Creek (P) (1333)
(10290105 - 030006

Outfall #S1 – In-stream monitoring point upstream of discharge at the bridge over Walnut Creek, NW ¼, SW ¼, NW ¼, Sec. 16, T36N, R28W, Cedar County.

Outfall #S2 – In-stream monitoring point downstream of discharge at the bridge over Walnut Creek, SW ¼, NE ¼, SW ¼, Sec. 8, T36N, R28W, St. Clair County.

Outfall #001 (continued)

Receiving Stream Watershed: a gaining stream setting that flows into Walnut Creek. Walnut Creek is on the 303(d) list for Biochemical Oxygen Demand and Total Suspended Solids. The source is this facility.

Facility Type:
No-discharge Storage and Irrigation System for year around flows.

Design Basis:	**Avg Annual**
Design dry weather flows	750,000 gpd
Design with 1-in-10 year flows	763,500 gpd
Design PE 7,500	

Storage Basin/Tank:
Freeboard for basin: 1 foot
Storage volume (minimum to maximum water levels) 13,033,960 gallons

Storage Capacity:	**Days of Storage**
Design for dry weather flows:	18 days
Design with 1-in-10 year flows:	17 days

Land Application:
Irrigation Volume/year: 255.1 million gallons (including 1-in-10 year flows)
Irrigation areas: 90 acres at design loading (110 acres total available)
Application rates/acre: 0.028 inch/hour; 0.6 inch/day; 4.23 inches/week; 110 inches/year
Field slopes: less than 2 percent
Equipment type: Sprinklers
Vegetation: Grass hay/Golf Course
Application rate is based on: hydraulic loading rate

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until September 2, 2008. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001 - Emergency discharge from storage basin or polishing cells (Note 1)						
Flow	MGD	*			once/day**	24 hr. estimate
Flow at S1	MGD	*			once/day/ discharge**	24 hr. estimate
Biochemical Oxygen Demand$_5$***	mg/L		30	20	once/week**	grab
Total Suspended Solids***	mg/L		30	25	once/week**	grab
Temperature	°C	*			once/week**	grab
Dissolved Oxygen	mg/L	*			once/week**	grab
Ammonia Nitrogen as N (May 1 - October 31)	mg/L				once/week**	grab
-When flow at S1 is greater than or equal to 1.2 CFS		3.3		2.4		
-When flow at S1 is greater than or equal to 2.3 CFS		4.9		3.6		
-When flow at S1 is greater than or equal to 3.5 CFS		6.5		4.7		
Ammonia Nitrogen as N (November 1 - April 30)	mg/L				once/week**	grab
-When flow at S1 is greater than or equal to 1.2 CFS		5.1		3.7		
-When flow at S1 is greater than or equal to 2.3 CFS		7.6		5.5		
-When flow at S1 is greater than or equal to 3.5 CFS		10.1		7.4		
pH - Units	SU	****			once/week**	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE July 28, 2006. 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, II & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until September 2, 2008. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001 - Influent Monitoring (Note 6)						
Biochemical Oxygen Demand$_5$	mg/L			*	once/quarter*****	24 hr. composite
Total Suspended Solids	mg/L			*	once/quarter*****	24 hr. composite
pH - Units	SU			*	once/quarter*****	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE July 28, 2006.						
Outfall #001 - Irrigated Wastewater (Notes 2 & 5)						
Total Kjeldahl Nitrogen as N	mg/L	*			once/quarter*****	grab
Nitrate + Nitrite as N	mg/L	*			once/quarter*****	grab
Ammonia as N	mg/L	*			once/quarter*****	grab
Total Phosphorus	mg/L	*			once/quarter*****	grab
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE October 28, 2006.						
Outfall #001 - Land Application Operational Monitoring (Notes 2, 3 & 4)						
Lagoon Freeboard	feet	*			once/month	measured
Irrigation Period	hours	*			daily	total
Volume Irrigated	gallons	*			daily	total
Application Area	acres	*			daily	total
Application Rate	inches/ acre	*			daily	total
Rainfall	inches	*			daily	total
Fecal coliform	#/100mL	200		200	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE July 28, 2006.						
Outfall #S1						
Flow	CFS	*			once/month**	instantaneous estimate
Temperature	°C	*			once/quarter*****	grab
Dissolved Oxygen	mg/L	*			once/quarter*****	grab
Ammonia Nitrogen as N	mg/L	*			once/quarter*****	grab
pH - Units	SU	*			once/quarter*****	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE July 28, 2006.						

B. STANDARD CONDITIONS

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

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until September 2, 2008. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #S2						
Flow	MGD	*			once/month**	instantaneous estimate
Temperature	°C	*			once/quarter*****	grab
Dissolved Oxygen	mg/L	*			once/quarter*****	grab
Ammonia Nitrogen as N	mg/L	*			once/quarter*****	grab
pH - Units	SU	*			once/quarter*****	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE July 28, 2006.						
Outfall #002 - Stormwater (Note 1)						
Flow	MGD	*			once/day**	24 hr. estimate
Biochemical Oxygen Demand$_5$***	mg/L		30	20	once/week**	grab
Total Suspended Solids***	mg/L		30	25	once/week**	grab
Temperature	°C	*			once/week**	grab
Dissolved Oxygen	mg/L	*			once/week**	grab
Ammonia Nitrogen as N	mg/L	*			once/week**	grab
pH - Units	SU	****			once/week**	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE July 28, 2006. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						

PERMIT NUMBER MO-0040002

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective September 3, 2008 and shall remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001 (Note 7)						
Flow	MGD	*		*	once/weekday	24 hr. total
Biochemical Oxygen Demand$_5$ (Note 8)	mg/L		15	10	once/week	24 hr. composite
Total Suspended Solids (Note 8)	mg/L		20	15	once/week	24 hr. composite
pH – Units	SU	****		****	once/week	grab
Oil & Grease	mg/L	15		10	once/month	grab
Ammonia as N	mg/L				once/week	grab
(May 1 – Oct 31)		3.1		1.6		
(Nov 1 – April 30)		5.0		2.5		
Dissolved Oxygen (Note 9)	mg/L	5		5	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE October 28, 2008. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
Outfall 002 (Note 7)						
Flow	MGD	*			once/discharge/day	24 hr. estimate
Biochemical Oxygen Demand$_5$ (Note 8)	mg/L		30	20	once/discharge/day	grab
Total Suspended Solids (Note 8)	mg/L		30	25	once/discharge/day	grab
pH – Units	SU	****			once/discharge/day	grab
MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE October 28, 2008. 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			once/year	24 hr. composite
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE October 28, 2008.						
Instream Monitoring S1 & S2						
Temperature	°C	*			once/quarter*****	grab
Dissolved Oxygen	mg/L	*			once/quarter*****	grab
Ammonia Nitrogen as N	mg/L	*			once/quarter*****	grab
pH - Units	SU	*			once/quarter*****	grab
MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE January 28, 2008.						

MO 780-0010 (8/91)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

** Monitor only when discharge occurs. Report as no-discharge when a discharge does not occur during the report period.

*** This facility is required to meet a removal efficiency of 65% or more.

**** 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.

***** Once per quarter during the months of March, June, September, and December.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Note 1 - **No-discharge facility requirements**. Wastewater shall be stored and land applied during suitable conditions so that there is no-discharge from the lagoon or irrigation site. An emergency discharge may occur when excess wastewater has accumulated above feasible irrigation rates due to precipitation exceeding the 1-in-10-year 365 day rainfall or the 25-year 24-hour storm event.

Note 2 - Records shall be maintained and summarized into an annual operating report, which shall be submitted by January 28th of each year for the previous calendar year period. The report shall include the following:

a. Record of maintenance and repairs performed during the year, average number of times per month the facility is checked to see if it is operating properly, and description of any unusual operating conditions encountered during the year;
b. The number of days the lagoon has discharged during the year, the discharge flow, the reasons discharge occurred and effluent analysis performed; and
c. A summary of the irrigation operations including freeboard at the start and end of the irrigation season, the number of days of irrigation for each month, the total gallons irrigated, the total acres used, crops grown, crop yields per acre, the application rate in inches/acre per day and for the year, the monthly and annual precipitation received at the facility and summary of testing results.

Note 3 - Lagoon freeboard shall be reported as lagoon water level in feet below the overflow level. See Special Conditions for Wastewater Irrigation System requirements.

Note 4 – Fecal coliform limit applies only to land application at the golf course. Fecal coliform samples shall be collected at the irrigation pump or wet well that serves the golf course.

Note 5 - Wastewater that is irrigated shall be sampled at the irrigation pump or wet well.

Note 6 – Composite samples shall be made up from a minimum of four grab samples collected within a 24 hour period with a minimum of two hours between each grab sample.

Note 7 – The Final Effluent Limits apply to a new facility to be constructed, which will replace the existing system. The new system will be a discharging mechanical treatment system (Outfall 001) with a non-continuous discharge (Outfall 002) and partial land application of treated wastewater.

Note 8 – This facility is required to meet a removal efficiency of 85% or more.

Note 9 – The Dissolved Oxygen limit is a minimum, the discharge must have a concentration of at least 5 mg/L.

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

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

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

3. Outfalls must be clearly marked in field.

4. The permittee shall submit a report semi-annually with the Discharge Monitoring Reports (on January 28 and July 28) which addresses measures taken to locate and eliminate sources of inflow and infiltration into the City's collection system

C. SPECIAL CONDITIONS (continued)

5. 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.

6. 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. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

7. Lagoons and earthen basins shall have a liner that is designed, constructed and maintained. If operating records indicate excessive percolation, the department may require corrective action as necessary to eliminate excess leakage.

8. Wastewater Irrigation System.
   (a) Discharge Reporting. Any unauthorized discharge from the lagoon or irrigation system shall be reported to the department as soon as possible but always within 24 hours. Discharge is allowed only as described in the Facility Description and Effluent Limitations sections of this permit.
   (b) Lagoon Operating Levels - No-discharge Systems. The minimum and maximum operating water levels for the storage lagoon shall be clearly marked. Each lagoon shall be operated so that the maximum water elevation does not exceed one foot below the overflow point except due to excedances of the 1-in-10 year or 25-year-24 hour storm events. Wastewater shall be land applied whenever feasible based on soil and weather conditions and permit requirements. Storage lagoon(s) shall be lowered to the minimum operating level prior to each winter by November 30.
   (c) Emergency Spillway. Lagoons and earthen storage basins should have an emergency spillway to protect the structural integrity of earthen structures during operation at near full water levels and in the event of overflow conditions. The spillway shall be at least one foot below top of berm. The department may waive the requirement for overflow structures on small existing basins.
   (d) General Irrigation Requirements. The wastewater irrigation system shall be operated so as to provide uniform distribution of irrigated wastewater over the entire irrigation site. A complete ground cover of vegetation shall be maintained on the irrigation site unless the system is approved for row crop irrigation. Wastewater shall be land applied only during daylight hours. The wastewater irrigation system shall be capable of irrigating the annual design flow during an application period of less than 100 days or 800 hours per year.
   (e) Saturated/Frozen Conditions. There shall be no irrigation during frozen, snow covered, or saturated soil conditions.

C. SPECIAL CONDITIONS (continued)

(f) Buffer Zones. There shall be no irrigation within 300 feet of any down gradient pond, lake, sinkhole, losing stream or water supply withdrawal; 100 feet of gaining streams or tributaries; 150 feet of dwelling; or 50 feet of the property line.

(g) Public Access Restrictions. Public access to the golf course shall be permitted except while irrigation is occurring. Public access shall not be allowed to the other irrigation site(s).

(h) Operation and Maintenance Manual.
The permittee shall develop, maintain and implement an Operation and Maintenance (O&M) Manual that includes all necessary items to ensure the operation and integrity of the waste handling and land application systems. Copies of the O&M Manual and subsequent revisions shall be submitted to the department's Water Pollution Control Program and Regional Office for review and approval. The O&M Manual shall be reviewed and updated at least every five years.

(i) Nitrogen Loading Rates. Wastewater irrigation rates shall not exceed a nitrogen application rate of 150 pounds total nitrogen per acre per year. Hydraulic application rates exceeding 60 inches per acre per year shall calculate nitrogen loading rates and include results in the annual report. The calculation procedures are as follows: (Total N) x (0.226) x (inches per acre irrigated) = pounds total N per acre. Where Total N = [Total Kjeldahl Nitrogen (TKN) as N] + [Nitrate Nitrogen as N]. If the applied wastewater exceeds, 150 pounds total nitrogen per acre/year, the permittee must reduce the application rates or submit a revised permit application to request use of the Plant Available Nitrogen (PAN) method based on crop nitrogen requirements for harvested crops. PAN availability factors for surface application are: [Ammonia N x 0.6] + [Nitrate N x 0.9] + [Organic N x 0.6] = PAN. The annual report shall include testing results for wastewater, soils and crop yields and calculations for nitrogen applied and crop removal of nitrogen.

(j) Equipment Checks during Irrigation. The irrigation system and application site shall be visually inspected at least once/day during wastewater irrigation to check for equipment malfunctions and runoff from the irrigation site.

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

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
001	100%	once/year	24 hr. composite	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 stormwater, samples shall be collected within three hours from when discharge first occurs.

(b) Samples submitted for analysis of stormwater discharges shall be collected as a grab.

(c) For discharges of non-stormwater, samples shall be collected only when precipitation has not occurred for a period of forty-eight hours prior to sample collection. In no event shall sample collection occur simultaneously with the occurrence of precipitation excepting for stormwater samples.

(d) A twenty-four hour composite sample shall be submitted for analysis of non-stormwater discharges.

(e) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.

(f) Samples submitted for analysis of upstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.

(g) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.

C. SPECIAL CONDITIONS (continued)

(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.

(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 LC50 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) 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.
(3) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.
(4) 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.
(5) 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.
(6) 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.
(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.
(8) If upstream control mortality exceeds 10%, the entire test will be rerun using reconstituted water as the dilutant.

D. SCHEDULE OF COMPLIANCE

1. Within 180 days of issuance of this permit, submit a complete application for construction permit, application fee, and one copy each of an engineering report, plans and specifications prepared by a professional engineer registered in the State of Missouri to the Missouri Department of Natural Resources, 2040 West Woodland, Springfield, Missouri, 65807, for upgrading the wastewater treatment facility to comply with the final effluent limitations as list in Part A of this permit, designed in accordance with Missouri Clean Water Law Regulation 10 CSR 20 Chapter 8.

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

3. Within 730 calendar days (2 years) of issuance of the construction permit, construct the permitted wastewater treatment facility improvements.

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

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

E. INSTREAM MONITORING CONDITIONS

1. Downstream samples should be taken immediately (10 yards or less) below the established locations. 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.

7. Please contact the department if you need additional instructions or assistance.

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