

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-0103659

Owner: Cedar Fair, LP
Address: P.O. Box 5006, Sandusky, OH 44871

Continuing Authority: Same as above
Address: Same as above

Facility Name: Worlds of Fun
Facility Address: 4545 Worlds of Fun Avenue, Kansas City, MO 64161

Legal Description: See Pages 2 and 3
Latitude/Longitude: See Pages 2 and 3

Receiving Stream: See Pages 2 and 3
First Classified Stream and ID: See Pages 2 and 3
USGS Basin & Sub-watershed No.: See Pages 2 and 3

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

FACILITY DESCRIPTION

See Pages 2 and 3

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.

November 14, 2008
Effective Date


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

November 13, 2013
Expiration Date
MO 780-0041 (10-93)


Karl Fett, Director, Kansas City Regional Office

Facility Description (continued)

Outfall #001 – Amusement Park – SIC #7996

Seasonal discharge/ stormwater run-off/ lawn watering run-off.
Legal Description: SE ¼, NW ¼, Sec.3, T50N, R32W; Clay County
Lat./Lon. - +3910251/-09429048
Receiving stream: Tributary to Shoal Creek (U)
First Classified Stream and ID: Shoal Creek (P) (00396)
USGS Basin and Sub-watershed No.: 10300101-040001
Design flow is 26,000 gallons per day.
Actual flow is dependant upon precipitation.

Outfalls #002, #003 and #004 – Amusement Park – SIC #7996

#002 – Drainage pipe from Bounce-A-Roo ride.
Legal Description: : SE ¼, NW ¼, Sec.3, T50N, R32W; Clay County
Lat./Lon. - +3910289/-09429206
Receiving stream: Tributary to Shoal Creek (U)
First Classified Stream and ID: Shoal Creek (P) (00396)
USGS Basin and Sub-watershed No.: 10300101-040001
Actual flow is dependant upon precipitation

#003 – Drainage pipe from Zulu ride.
Legal Description: SW ¼, NE ¼, Sec.3, T50N, R32W; Clay County
Lat./Lon. - +3910267/-09429037
Receiving stream: Tributary to Shoal Creek (U)
First Classified Stream and ID: Shoal Creek (P) (00396)
USGS Basin and Sub-watershed No.: 10300101-040001
Actual flow is dependant upon precipitation

#004 – Drainage pipe from Orient Express Roller Coaster (removed)
Legal Description: SE ¼, NW ¼, Sec.3, T50N, R32W; Clay County
Lat./Lon. - +3910324/-09429150
Receiving stream: Tributary to Shoal Creek (U)
First Classified Stream and ID: Shoal Creek (P) (00396)
USGS Basin and Sub-watershed No.: 10300101-040001
Actual flow is dependant upon precipitation

Outfall #005 - Amusement Park – SIC #7996

Bicentennial Lake drainage pipe – seasonal discharge.
Legal Description: NE ¼, SW ¼, Sec.3, T50N, R32W; Clay County
Lat./Lon. - +3910180/-09429198
Receiving stream: Tributary to Missouri River (U)
First Classified Stream and ID: Missouri River (P) (00396) 303(d)
USGS Basin and Sub-watershed No. 10300101-040002
Design flow is 187,000 gallons per year
Actual flow is dependant upon precipitation

Outfall #006 – Amusement Park – SIC #7996

Drainage pipe from Lakes Henrietta, Cotton, Blossom and Oriental - seasonal discharge.
Legal Description: SE ¼, NW ¼, Sec.3, T50N, R32W; Clay County
Lat./Lon. - +3910298/-09429144
Receiving stream: Tributary to Shoal Creek (U)
First Classified Stream and ID: Shoal Creek (P) (00396)
USGS Basin and Sub-watershed No.: 10300101-040001
Design flow is 834,000 gallons per year.
Actual flow is dependant upon precipitation.

Outfall #007 – Amusement Park – SIC #7996

Drainage pipe from Lakes Voyager and Victrix – seasonal discharge.
Legal Description: SE ¼, NW ¼, Sec.3, T50N, R32W; Clay County
Lat./Lon. - +3910279/-09429097
Receiving stream: Tributary to Shoal Creek (U)
First Classified Stream and ID: Shoal Creek (P) (00396)
USGS Basin and Sub-watershed No.: 10300101-040001
Design flow is 524,000 gallons per year.
Actual flow is dependant upon precipitation.

Outfall #008 – Amusement Park – SIC #7996 (formerly Oceans of Fun Outfalls #001 & #007)

Boat lake overflow/ stormwater run-off.
Legal Description: NW ¼, SE ¼, Sec.3, T50N, R32W; Clay County
Lat./Lon. - +3910203/-09429008
Receiving stream: Tributary to Shoal Creek (U)
First Classified Stream and ID: Shoal Creek (P) (00396)
USGS Basin and Sub-watershed No.: 10300101-040001
Design flow is 800,000 gallons per day.
Actual flow is dependant upon precipitation

Outfall #009 – Amusement Park – SIC #7996 (formerly Oceans of Fun Outfalls #002- #006 – permit # MO-0103721)

Seasonal discharge/ stormwater sewer/ lawn watering run-off
Legal Description: NW ¼, SE ¼, Sec.3, T50N, R32W; Clay County
Lat./Lon. - +3910214/-09428584
Receiving stream: Tributary to Shoal Creek (U)
First Classified Stream and ID: Shoal Creek (P) (00396)
USGS Basin and Sub-watershed No.: 10300101-040001
Design flow is 53,000 gallons per day + additional 1,822,500 gallons per year seasonal discharge from wave pool
drainage/ speed slide/ swimming lake drainage
Actual flow is dependant upon precipitation.

Outfall#010 – Amusement Park – SIC #7996 - Instream compliance point – just below low water crossing, East of the confluence with “Oceans of Fun” Creek

Legal Description: NW ¼, SE ¼, Sec.3, T50N, R32W; Clay County
Lat./Lon. - +3910222/-09428501
Receiving stream: Tributary to Shoal Creek (U)
First Classified Stream and ID: Shoal Creek (P) (00396)
USGS Basin and Sub-watershed No.: 10300101-040001

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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PERMIT NUMBER MO-0103659

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 for three (3) years. 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>Outfalls #001, #008 & #009</u>						
Flow	MGD	*		*	once/month	24 hr. total
Rainfall	inches	*		*	once/month	grab
Biochemical Oxygen Demand ₅	mg/L		45	30	once/month	grab
Total Suspended Solids	mg/L		45	30	once/month	grab.
pH – Units	SU	**		**	once/month	grab
Total Residual Chlorine (Note 1)	mg/L	0.019		0.019	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab
Copper, Total	µg/L	45.9		22.9	once/month	grab
Aqua Blue Lake Dye***	mg/L	*		*	once/month	grab
<u>Outfalls #002, #003 & #004 (Note 2)</u>						
Flow	MGD	*		*	once/month	24 hr. total
Rainfall	inches	*		*	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE December 28, 2008. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Part I STANDARD CONDITIONS DATED October 1, 1980 AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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PERMIT NUMBER MO-0103659

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 after the permit is issued 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>Outfalls #001, #008 & #009</u>						
Flow	MGD	*		*	once/month	24 hr. total
Rainfall	inches	*		*	once/month	grab
Biochemical Oxygen Demand ₅	mg/L		45	30	once/month	grab
Total Suspended Solids	mg/L		45	30	once/month	grab.
pH – Units	SU	**		**	once/month	grab
Total Residual Chlorine (Note 1)	mg/L	0.017		0.008	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab
Copper, Total Recoverable	µg/L	17.1		8.5	once/month	grab
Aqua Blue Lake Dye***	mg/L	*		*	once/month	grab
<u>Outfalls #002, #003 & #004</u> (Note 2)						
Flow	MGD	*		*	once/month	24 hr. total
Rainfall	inches	*		*	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE December 28, 2011. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

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A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

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 PERMIT NUMBER MO-0103659

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OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfalls #005, #006 & #007</u> (Note 3)						
Flow	MGD	*		*	once/month	24 hr. total
Rainfall	inches	*		*	once/month	grab
Biochemical Oxygen Demand ₅	mg/L		45	30	once/month	grab.
Total Suspended Solids	mg/L		45	30	once/month	grab
pH – Units	SU	**		**	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab
Total Residual Chlorine (Note 1)	mg/L	0.019		0.019	once/month	grab
Copper, Total Recoverable	µg/L	45.9		22.9	once/month	grab
<u>Outfall #010</u> (Note 4)						
Flow	MGD	*		*	once/month	24 hr. total
Biochemical Oxygen Demand ₅	mg/L		45	30	once/month	grab
Total Suspended solids	mg/L		45	30	once/month	grab.
pH – Units	SU	**		**	once/month	grab
Chlorine, Total Residual (Note 1)	mg/L	0.019		0.019	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab
Copper, Total Recoverable	mg/L	*		*	once/month	grab
Dissolved Oxygen	mg/L	*		*	once/month	grab
Aqua Blue Lake Dye***	mg/L	*		*	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE December 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/permit cycle 2009	grab
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MONITORING REPORTS SHALL BE SUBMITTED ONCE/PERMIT CYCLE; THE FIRST REPORT IS DUE within 30 days of successful completion or as described under Special Conditions.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Part I STANDARD CONDITIONS DATED October 1, 1980 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 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>Outfalls #005, #006 & #007</u> (Note 3)						
Flow	MGD	*		*	once/month	24 hr. total
Rainfall	inches	*		*	once/month	grab
Biochemical Oxygen Demand ₅	mg/L		45	30	once/month	grab.
Total Suspended Solids	mg/L		45	30	once/month	grab
pH – Units	SU	**		**	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab
Total Residual Chlorine (Note 1)	mg/L	0.017		0.008	once/month	grab
Copper, Total Recoverable	µg/L	17.1		8.5	once/month	grab
<u>Outfall #010</u> (Note 4)						
Flow	MGD	*		*	once/month	24 hr. total
Biochemical Oxygen Demand ₅	mg/L		45	30	once/month	grab
Total Suspended solids	mg/L		45	30	once/month	grab.
pH – Units	SU	**		**	once/month	grab
Oil & Grease	mg/L	15		10	once/month	grab
Chlorine, Total Residual (Note 1)	mg/L	0.017		0.008	once/month	grab
Copper, Total Recoverable	µg/L	17.1		8.5	once/month	grab
Dissolved Oxygen	mg/L	*		*	once/month	grab
Aqua Blue Lake Dye***	mg/L	*		*	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE December 28, 2011. 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/permit cycle 2009	grab
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MONITORING REPORTS SHALL BE SUBMITTED ONCE/PERMIT CYCLE; THE FIRST REPORT IS DUE within 30 days of successful completion. or as described under Special Conditions.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Part I STANDARD CONDITIONS DATED October 1, 1980 AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

- * - Monitoring requirement only.
- ** - pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5 to 9.0 pH units.
- *** - Neptune Blue is the name of a dye which has been used to color water at the facilities. Monitoring should be conducted for the dye in use at the time of monitoring.

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

- (a) This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved CLTRC methods. The department has determined the current acceptable ML for total residual chlorine to be 0.13 mg/L when using the DPD Colorimetric Method #4500 – CL G. from Standard Methods for the Examination of Waters and Wastewater. The permittee will conduct analyses in accordance with this method, or equivalent, and report actual analytical values. Measured values greater than or equal to the minimum quantification level of 0.13 mg/L will be considered violations of the permit and values less than the minimum quantification level of 0.13 mg/L will be considered to be in compliance with the permit limitation. The minimum quantification level does not authorize the discharge of chlorine in excess of the effluent limits stated in the permit.
- (b) Disinfection is required year-round unless the permit specifically states that “Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31.” If your permit does not require disinfection during the non-recreational months, do not chlorinate in those months.
- (c) Do not chemically dechlorinate **if it is not needed to meet the limits in your permit**.
- (d) If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as “0 mg/L” TRC.

Note 2 – A copy of the Oil Spill Contingency Plan should be appropriately located for quick access and adherence to, in the event of an oil spill. Water that has accumulated in secondary containment areas must be examined for contamination and tested for confirmation or absence of oil or grease when contamination is suspected, prior to release to the outfall. A test result of 15 mg/L of oil or grease will constitute failure and be unacceptable for release.

Note 3 – Prior to the release of water from these outfalls, water quality which meets the requirements of this permit shall be ascertained by collecting a grab sample upstream of the outfall for analyses. Samples must be collected no more than two (2) weeks prior to discharge.

Note 4 – Outfall #010 will be located, within the stream, just below the low water crossing East of the confluence with “Oceans of Fun” Creek.

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.

C. SPECIAL CONDITIONS (continued)

2. All outfalls must be clearly marked in the field.
3. Permittee will cease discharge by connection to area-wide wastewater treatment system within 90 days of notice of its availability.
4. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it is known or there is reason to believe:

- (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
 - (1) One hundred micrograms per liter (100 µg/L);
 - (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
 - (4) The level established in Part A of the permit by the Director.
 - (b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.
5. Report as no-discharge when a discharge does not occur during the report period.
 6. Water Quality Standards
 - (a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.
 - (b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
 - (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
 - (5) There shall be no significant human health hazard from incidental contact with the water;
 - (6) There shall be no acute toxicity to livestock or wildlife watering;
 - (7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
 - (8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.
 7. A Storm Water Pollution Prevention Plan (SWPPP) shall be developed and implemented which must address the entire facility. The SWPPP must be prepared within 30 days and implemented within 60 days of the permit issuance. The SWPPP must be kept on-site and should not be sent to DNR unless specifically requested. The Permittee shall select, install, use, operate, and maintain the Best Management Practices prescribed in the SWPPP in accordance with the concepts and methods described in the following document:

Storm Water Management For Industrial Activities, Developing Pollution Prevention Plans and Best Management Activities, (Document number EPA 832-R-92-006) published by the United States Environmental Protection Agency (USEPA) in September 1992.

The SWPPP must include the following:

- (a) An assessment of all storm water discharges associated with the facility. This must include a list of potential contaminants and an annual estimate of amounts that will be used in the described activities.

C. SPECIAL CONDITIONS (continued)

- (b) A listing of Best Management Practices (BMPs) and a narrative explaining how BMPs will be implemented to control and minimize the amount of potential contaminants that may enter storm water.
 - (c) A schedule for implementing the BMPs.
 - (d) The SWPPP must include a schedule for a monthly site inspection and a brief written report. The inspections must include observation and evaluation of BMP effectiveness, deficiencies, and corrective measures that will be taken. Deficiencies must be corrected within seven days and the department must be notified by letter. Any corrective measure that necessitates major construction may also need a construction permit.
 - (e) Inspection reports must be kept on site with the SWPPP. These must be made available to DNR personnel upon request.
 - (f) A provision of designating an individual to be responsible for environmental matters.
 - (g) A provision for providing training to all personnel involved in material handling and storage, and housekeeping of areas having materials exposed to stormwater. Proof of training shall be submitted on request of DNR.
8. All paint, solvents, petroleum products and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) shall be stored so that these materials are not exposed to storm water. Spill prevention, control, and/or management shall be provided sufficient to prevent any spills of these pollutants from entering a water of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.
 9. Collection facilities shall be provided on-site, and arrangement made for proper disposal of waste products, including but not limited to petroleum waste products and solvents.
 10. Good housekeeping practices shall be maintained on the site to keep solid waste from entry into waters of the state.
 11. All fueling facilities present on the site shall adhere to applicable federal and state regulations concerning underground storage, above ground storage, and dispensers, including spill prevention, control and counter measures.
 12. An individual shall be designated by the Permittee as responsible for environmental matters. Staff of the permitted facility shall inspect, on each workday, any structures that function to prevent pollution of storm water or to remove pollutants from storm water and of the facility in general to ensure that any Best Management Practices are continually implemented and effective.
 13. All involved personnel shall be trained in material handling and storage, and housekeeping of areas having materials exposed to stormwater. Upon request, proof of training shall be submitted to the Department.
 14. Substances, regulated by federal law under the Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), that are transported, stored, or used for maintenance, cleaning or repair, shall be managed according to RCRA and CERCLA.
 15. Spill prevention, control and/or management shall be provided sufficient to prevent any spills of pollutants from entering a water of the state. Any spills of chemicals in any secondary containment area or operational containment area should be removed in such a manner to prevent any release of chemicals to waters of the state in violation of any applicable law or the effluent limits specified herein. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.
 16. 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
# 010	100	Once/ permit cycle	grab	Any month in 2009 during a discharge from outfall #009 which includes discharge from wave pool, speed slide or swimming pool.

C. SPECIAL CONDITIONS (continued)

(a) Test Schedule and Follow-Up Requirements

- (1) Perform a SINGLE-dilution test in the months and at the frequency specified above. For tests which are successfully passed, submit test results USING THE DEPARTMENT'S WET TEST REPORT FORM #MO-780-1899 along with complete copies of the test reports as received from the laboratory, including copies of chain-of-custody forms within 30 calendar days of availability to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102. If the effluent passes the test, do not repeat the test until the next test period.
 - (a) For discharges of stormwater, samples shall be collected within three hours from when discharge first occurs.
 - (b) Samples submitted for analysis of stormwater discharges shall be collected as a grab.
 - (c) For discharges of non-stormwater, samples shall be collected only when precipitation has not occurred for a period of forty-eight hours prior to sample collection. In no event shall sample collection occur simultaneously with the occurrence of precipitation.
 - (d) A twenty-four hour composite sample shall be submitted for analysis of non-stormwater discharges.
 - (e) Upstream receiving water samples, where required, shall be collected upstream from any influence of the effluent where downstream flow is clearly evident.
 - (f) Samples submitted for analysis of upstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
 - (g) Chemical and physical analysis of the upstream control and effluent sample shall occur immediately upon being received by the laboratory, prior to any manipulation of the effluent sample beyond preservation methods consistent with federal guidelines for WET testing that are required to stabilize the sample during shipping.
 - (h) Any and all chemical or physical analysis of the effluent sample performed in conjunction with the WET test shall be performed at the 100% Effluent concentration in addition to analyses performed upon any other effluent concentration.
 - (i) All chemical analyses included in the Missouri Department of Natural Resources WET test report form #MO-780-1899 shall be performed and results shall be recorded in the appropriate field of the report form.
 - (j) Where flow-weighted composite sample is required for analysis, the samples shall be composited at the laboratory where the test is to be performed.
 - (k) Where in stream testing is required downstream from the discharge, sample collection shall occur immediately below the established Zone of Initial Dilution in conjunction with or immediately following a release or discharge.
 - (l) Samples submitted for analysis of downstream receiving water may be collected as either a grab or twenty-four-hour composite as appropriate to the nature of the discharge.
 - (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 three multiple-dilution tests during any period of accelerated monitoring violates the permit narrative requirement for aquatic life protection.
- (5) The Permittee shall submit a concise summary of all test results for the test series to the WATER PROTECTION PROGRAM, P.O. Box 176, Jefferson City, MO 65102 within 14 calendar days of the third failed test.
- (6) Additionally, the following shall apply upon failure of the third MULTIPLE DILUTION test: A toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE) is automatically triggered. The Permittee shall contact THE WATER PROTECTION PROGRAM within 14 calendar days from availability of the test results to ascertain as to whether a TIE or TRE is appropriate. The Permittee shall submit a plan for conducting a TIE or TRE to the WATER PROTECTION PROGRAM within 60 calendar days of the date of DNR's direction to perform

C. SPECIAL CONDITIONS (continued)

- (7) 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.
- (8) 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.
- (9) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the Permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in the permit, without the follow-up requirements, will be required during this period.
- (9) When WET test sampling is required to run over one DMR period, each DMR report shall contain A COPY OF THE DEPARTMENT'S WET TEST REPORT FORM THAT WAS generated during the reporting period.
- (10) Submit a concise summary in tabular format of all test results with the annual report.

(b) PASS/FAIL procedure and effluent limitations:

- (1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms or other federal guidelines as appropriate or required.
- (2) To pass a multiple-dilution test:
 - (a) FOR FACILITIES WITH A computed percent effluent at the edge of the zone of initial dilution, Allowable Effluent Concentration (AEC), OF 30% OR LESS THE AEC must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms; OR,
 - (b) FOR FACILITIES WITH AN AEC GREATER THAN 30% THE LC_{50} CONCENTRATION MUST BE GREATER THAN 100%; AND,
 - (c) all EFFLUENT CONCENTRATIONS equal to or LESS THAN the AEC must be nontoxic. Mortality observed in all effluent concentrations equal to or less than the AEC shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control sample. Where upstream receiving water is not available mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the laboratory control. The appropriate statistical tests of significance shall be consistent with the most current edition of Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms or other federal guidelines as appropriate or required. Failure of one multiple-dilution test may be considered an effluent limit violation.

(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.

D. SPECIAL CONDITIONS (continued)

- (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.

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< 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)

C. SPECIAL CONDITIONS (continued)

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 $p < 0.05$)
Test Acceptability criterion:	90% or greater survival in controls

D. SCHEDULE OF COMPLIANCE

1. This permit contains interim effluent limitations which are applicable for three years following issuance of this permit. The final limits shall apply thereafter.
2. After twelve {12} months of monitoring following the issuance of this permit, determine, by analyzing effluent data, if the wastewater treatment facility could comply with the final effluent limitations for Total Residual Chlorine (TRC) and Total Recoverable Copper (CU T). If the TRC and CU T could not be complied with, submit, within twelve (12) months after the end of the twelfth month monitoring event (or twenty four {24} months after the issuance of this permit), a completed application for a construction permit, and one copy each of an engineering report, plans and specifications prepared by a professional engineer registered in the State of Missouri to the Missouri Department of Natural Resources, Kansas City Regional Office, 500 Northeast Colbern Road, Lee Summit, MO 64086, for providing wastewater treatment facility improvements to comply with the final effluent limits for TRC as listed in part A of this permit, designed in accordance with the Missouri Clean Water Law Regulation 10 CSR 20 Chapter 8.
3. 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's address as shown in Paragraph D. 2. above.
4. Within one year of issuance of the construction permit, construct the permitted wastewater treatment facility improvements.
5. 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 department's address shown in Paragraph D. 2. above.

PERMIT TRANSFER

This permit may be transferred to a new owner by submitting an "Application for Transfer of Operating Permit" signed by the seller and buyer of the facility, along with the appropriate modification fee.

PERMIT RENEWAL REQUIREMENTS

Unless this permit is terminated, the permittee shall submit an application for the renewal of this permit no later than six (6) months prior to the permit's expiration date. Failure to apply for renewal may result in termination of this permit and enforcement action to compel compliance with this condition and the Missouri Clean Water Law.

TERMINATION

In order to terminate this permit, the permittee shall notify the department by submitting Form J, included with the State Operating Permit. The permittee shall complete Form J and mail it to the department at the address noted in the cover letter of this permit. Proper closure of any storage structure is required prior to permit termination. A closure plan shall be submitted to the department and approved prior to initiating closure activities.

DUTY OF COMPLIANCE

The permittee shall comply with all conditions of this permit. Any noncompliance with this permit constitutes a violation of Chapter 644, Missouri Clean Water Law, and 10 CSR 20-6. Noncompliance may result in enforcement action, termination of this authorization, or denial of the permittee's request for renewal.

This permit authorizes only the activities described in this permit. Compliance with this permit may not be considered a shield from compliance with any local ordinance, State Regulation or State Law.

Missouri Department of Natural Resources
Statement of Basis
Worlds of Fun
NPDES #: MO-0103659
Clay County

A Statement of Basis (Statement) gives pertinent information regarding the applicable regulations and rational for the development of the NPDES Missouri State Operating Permit (operating permit). This Statement includes Wasteload Allocations, Water Quality Based Effluent Limitations, and Reasonable Potential Analysis calculations as well as any other calculations that effect the effluent limitations of this operating permit. This Statement does not pertain to operating permits that include sewage sludge land application plans and variance procedures, and does not include the public comment process for this operating permit.

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

Part I – Facility Information

Facility Type: Amusement Park
 Facility SIC Code(s): 7996
 Facility Description: Stormwater, pond overflow, lawn watering run-off, concrete pad run-off and instream monitoring.

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.0403	none	Seasonal discharge/stormwater run-off/ lawn watering run-off	2.0
002	N/A	none	Storm water drain	2.2
003	N/A	none	Storm water drain	2.1
004	N/A	none	Storm water drain	2.3
005	0.2899	none	Pond – seasonal overflow	1.6
006	1.2927	none	Pond – seasonal overflow	2.3
007	0.8122	none	Pond – seasonal overflow	2.1
008	0.3488	none	Boat Lake overflow/ stormwater run-off (formerly Oceans of Fun outfalls #001 & #007)	2.0
009	0.0822	none	Seasonal discharge/ storm sewer discharge and Lawn watering run-off (formerly Oceans of Fun outfalls #002 - #006)	
010	Rainfall dependent	none	Instream compliance point	1.8

Water Quality History:

- Outfall #001 – Nine violations for TRC, 1 violation for non-reporting all parameters.
- Outfall #002 – No monitoring, no reports, unknown # of violations for non-reporting after all rainfall events.
- Outfall #003 - No monitoring, no reports, unknown # of violations for non-reporting after all rainfall events.
- Outfall #004 - No monitoring, no reports, unknown # of violations for non-reporting after all rainfall events.
- Outfall #005 – Two violations for high pH, one violation for TSS, one violation for non-reporting all parameters. failure to report results for TRC, copper and Algaecide.
- Outfall #006 – Five violations for high pH, One violation for non-reporting all parameters. failure to report results for TRC, copper and Algaecide.
- Outfall #007 – Four violations for high pH, one violation for non-reporting all parameters. failure to report results for TRC, copper and Algaecide.
- Outfall #008 – Seven violations for TRC, one violation for copper, one violation for high pH and one violation for TSS. And one violation for non-reporting all parameters.
- Outfall #009 – 19 violations for TRC, and one violation for non-reporting all parameters.
- Outfall #010 – Seven violations for TRC, one violation for TSS and one violation for non-reporting all parameters.

Failure to monitor Outfalls #'s 002, 003 and 004 for the life of the permit.

Comments: - This facility is an amusement park with surface rides and WBC water pools. Principal violations are for TRC due to chlorination of WBC water pools and failure to monitor and report.

Part II – Operator Certification Requirements

As per [10 CSR 20-9.010(2)(A)], requirements for operation by certified personnel shall apply to all wastewater treatment systems, if applicable, as listed below:

Not Applicable ;

This facility is not required to have a certified operator.

Part III – Receiving Stream Information

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

As per Missouri’s Effluent Regulations [10 CSR 20-7.015], the waters of the state are divided into the below listed seven (7) categories. Each category list effluent limitations for specific parameters, which are presented in each outfall’s Effluent Limitation Table and further discussed in the Derivation & Discussion of Limits section.

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

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

10 CSR 20-7.031 Missouri Water Quality Standards, the department defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and/or 1st classified receiving stream’s beneficial water uses to be maintained are located in the Receiving Stream Table located below in accordance with [10 CSR 20-7.031(3)].

RECEIVING STREAM(S) TABLE: OUTFALL #'S 001,002,003,004,006, 007, 008, 009 AND 010.

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
Tributary to Shoal Creek	U	N/A	General criteria	10300101	Central Plains/ Blackwater / Lamine
Shoal Creek	P	00396	LWW, AQL, WBC-B***		

* - 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), Groundwater (GRW).

** - Ecological Drainage Unit

*** - UAA has not been conducted.

Receiving Stream(s) Low-Flow Values Table: Outfall #'s 001,002,003,004,006, 007, 008, 009 and 010.

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

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

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

RECEIVING STREAM(S) TABLE: OUTFALL # 005

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
Tributary to Missouri River	U	N/A	General criteria	10300101	Central Plains/ Blackwater / Lamine
Missouri River	P	00396	IRR,LWW, AQL, WBC-B, SCR, DWS, IND***		

* - 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), Groundwater (GRW).

** - Ecological Drainage Unit

*** - UAA has not been conducted.

Receiving Stream(s) Low-Flow Values Table: Outfall # 005

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Tributary to Missouri River (U)	0	0	0

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

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

Part IV – 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 statement 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 for conventional, non-conventional, and toxic pollutants have been obtained from the previous NPDES operating permit for this facility, technology based effluent limits, water quality based effluent limits, and from appropriate sections of the renewal application.

COMPLIANCE AND ENFORCEMENT:

Enforcement is the action taken by the Water Protection Program (WPP) to bring an entity into compliance with the Missouri Clean Water Law, its implementing regulations, and/or any terms and conditions of an operating permit. The primary purpose of the enforcement activity in the WPP is to resolve violations and return the entity to compliance.

Not Applicable ;

The permittee/facility is not currently under Water Protection Program enforcement action.

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 (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs). Please see the United States Environmental Protection Agency's (EPA) website for interpretation of percent removal requirements for National Pollutant Discharge Elimination System Permit Application Requirements for Publicly Owned Treatment Works and Other Treatment Works Treating Domestic Sewage @ www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm

Not Applicable ;

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

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

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

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.

Applicable ;

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

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

C_s = upstream concentration

Q_s = upstream flow

C_e = effluent concentration

Q_e = effluent flow

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

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

WLA MODELING:

Not Applicable ;

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

WHOLE EFFLUENT TOXICITY (WET) TEST:

As per [10 CSR 20-7.031(1)(CC)], a toxicity test conducted under specified laboratory conditions on specific indicator organism; and as per [40 CFR 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 Part 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 ;

Missouri River is listed on the 2004/2006 Missouri 303(d) List for PCB's and chlordane..

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

Part V – Effluent Limits Determination

Outfalls #001, #008 & #009

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	S
RAINFALL	INCHES	1	*		*	NO	S
BOD ₅	MG/L	1		45	30	NO	S
TSS	MG/L	1		45	30	NO	S
pH (S.U.)	SU	1	6.5 – 9.0		6.5 – 9.0	YES	6/9
CHLORINE, TOTAL RESIDUAL (MG/L)	MG/L	1/2	0.017		0.008	YES	0.019/0.019
OIL & GREASE (MG/L)	MG/L	1	15		10	NO	S
COPPER, TOTAL RECOVERABLE**	µG/L	1/3	17.1		8.5	NO	45.9/22.9
AQUA BLUE LAKE DYE	MG/L	9	*		*	NO	S
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only

** - An algacide which has an active ingredient other than copper, must be reported to the Kansas City Regional office of MDNR prior to use.

*** - 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 | 7. Antidegradation Policy |
| 2. Water Quality Standard (includes RPA) | 8. Water Quality Model |
| 3. Water Quality Based Effluent Limits | 9. Best Professional Judgement |
| 4. Lagoon Policy | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy | 11. WET test Policy |
| 6. Dissolved Oxygen Policy | |

OUTFALLS #001, #008 AND #009 – DERIVATION AND DISCUSSION OF LIMITS:

- **Biochemical Oxygen Demand (BOD₅)**. Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.
- **Total Suspended Solids (TSS)**. Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.
- **pH**. Effluent limitations have been changed to comply with 10 CSR 20-7.031 (4) (E).
- **Total Residual Chlorine (TRC)**. Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. Background TRC = 0.0 µg/L.

Chronic WLA: $C_e = ((0.3488 + 0.0)10 - (0.0 * 0.0)) / 0.3488$
 $C_e = 10 \mu\text{g/L}$

Acute WLA: $C_e = ((0.3488 + 0.0)19 - (0.0 * 0.0)) / 0.3488$
 $C_e = 19 \mu\text{g/L}$

$LTA_c = 10 (0.527) = 5.3 \mu\text{g/L}$

$LTA_a = 19 (0.321) = 6.1 \mu\text{g/L}$

[CV = 0.6, 99th Percentile]

[CV = 0.6, 99th Percentile]

MDL = 5.3 (3.11) = 16.5 µg/L

AML = 5.3 (1.55) = 8.2 µg/L

[CV = 0.6, 99th Percentile]

[CV = 0.6, 95th Percentile, n = 4]

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

- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Metals**
Effluent limitations for total recoverable metals were developed using methods and procedures outlined in EPA/505/2-90-001 and “The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion” (EPA 823-B-96-007). General warm-water fishery criteria apply and water hardness = 162 mg/L.

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

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Copper	0.960	0.960

- **Copper, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 10 µg/L, Acute Criteria = 20 µg/L.

$$\text{Chronic} = 10.0/0.960 = 10.4 \mu\text{g/L}$$

$$\text{Acute} = 20.0/0.960 = 20.8 \mu\text{g/L}$$

Chronic

$$C_c = ((0.3488 + 0.0)10.4 - (0.0 * 0.0))/0.3488$$

$$C_c = 10.4 \mu\text{g/L}$$

$$\text{WLA}_c = 10.4 \mu\text{g/L}$$

Acute

$$C_c = ((0.3488 + 0.0)20.8 - (0.0 * 0.0))/0.3488$$

$$C_c = 20.8 \mu\text{g/L}$$

$$\text{WLA}_a = 20.8 \mu\text{g/L}$$

$$\text{LTA}_c = 10.4(0.527) = 5.5 \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

$$\text{LTA}_a = 20.8(0.321) = 6.7 \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

$$\text{MDL} = 5.5(3.11) = 17.1 \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

$$\text{AML} = 5.5(1.55) = 8.5 \mu\text{g/L}$$

[CV = 0.6, 95th Percentile, n = 4]

Total Recoverable Copper effluent limits of 17.1 µg/L daily maximum, 8.5 µg/L monthly averages are recommended if copper remains an ingredient of vegetation control. Standard compliance language for CU T, including the minimum level (ML), should be included in the permit.

- **Aqua Blue Lake Dye.** Monitoring requirements have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.

Outfalls #002, #003 & #004

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	S
RAINFALL	INCHES	1	*		*	NO	S
OIL & GREASE	MG/L	1	15		10	NO	S
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only

N/A – Not applicable

S – Same as previous operating permit

Basis for Limitations Codes:

- | | |
|--|------------------------------------|
| 1. State or Federal Regulation/Law | 7. Antidegradation Policy |
| 2. Water Quality Standard (includes RPA) | 8. Water Quality Model |
| 3. Water Quality Based Effluent Limits | 9. Best Professional Judgement |
| 4. Lagoon Policy | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy | 11. WET test Policy |
| 6. Dissolved Oxygen Policy | |

OUTFALLS #002, #003 AND #004 – DERIVATION AND DISCUSSION OF LIMITS:

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

Outfalls #005, #006 & #007

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	S
RAINFALL	INCHES	1	*		*	NO	S
BOD ₅	MG/L	1		45	30	YES	S
TSS	MG/L	1		45	30	YES	S
pH (S.U.)	SU	1	6.5–9.0		6.5–9.0	NO	S
OIL & GREASE (MG/L)	MG/L	1	15		10	NO	S
CHLORINE, TOTAL RESIDUAL (MG/L)	MG/L	1/2	0.017		0.008	YES	0.019/0.019
COPPER, TOTAL RECOVERABLE**	µG/L	1/3	17.1		8.5	NO	45.9/22.9
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only

** - An algacide which has an active ingredient other than copper, must be reported to the Kansas City Regional office of MDNR prior to use.

N/A – Not applicable

S – Same as previous operating permit

Basis for Limitations Codes:

- | | |
|--|------------------------------------|
| 1. State or Federal Regulation/Law | 7. Antidegradation Policy |
| 2. Water Quality Standard (includes RPA) | 8. Water Quality Model |
| 3. Water Quality Based Effluent Limits | 9. Best Professional Judgment |
| 4. Lagoon Policy | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy | 11. WET test Policy |
| 6. Dissolved Oxygen Policy | |

OUTFALLS #005, #006 AND #007 – DERIVATION AND DISCUSSION OF LIMITS:

- **Biochemical Oxygen Demand (BOD₅).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.
- **Total Suspended Solids (TSS).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.
- **pH.** Effluent limitations have been changed to comply with 10 CSR 20-7.031 (4) (E).
- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Total Residual Chlorine (TRC).** Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. Background TRC = 0.0 µg/L.

Chronic WLA: $C_e = ((1.2927 + 0.0)10 - (0.0 * 0.0)) / 1.2927$
 $C_e = 10 \text{ µg/L}$

Acute WLA: $C_e = ((1.2927 + 0.0)19 - (0.0 * 0.0)) / 1.2927$
 $C_e = 19 \text{ µg/L}$

$LTA_c = 10 (0.527) = 5.3 \text{ µg/L}$ [CV = 0.6, 99th Percentile]
 $LTA_a = 19 (0.321) = 6.1 \text{ µg/L}$ [CV = 0.6, 99th Percentile]

$MDL = 5.3 (3.11) = 16.5 \text{ µg/L}$ [CV = 0.6, 99th Percentile]
 $AML = 5.3 (1.55) = 8.2 \text{ µg/L}$ [CV = 0.6, 95th Percentile, n = 4]

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

- **Metals**
 Effluent limitations for total recoverable metals were developed using methods and procedures outlined in EPA/505/2-90-001 and “The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion” (EPA 823-B-96-007). General warm-water fishery criteria apply and water hardness = 162 mg/L.

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

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Copper	0.960	0.960

- **Copper, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 10 µg/L, Acute Criteria = 20 µg/L.

Chronic = $10.0 / 0.960 = 10.4 \text{ µg/L}$
 Acute = $20.0 / 0.960 = 20.8 \text{ µg/L}$

Chronic
 $C_e = ((1.2927 + 0.0)10.4 - (0.0 * 0.0)) / 1.2927$
 $C_e = 10.4 \text{ µg/L}$
 $WLA_c = 10.4 \text{ µg/L}$

Acute

$$C_c = ((1.2927 + 0.0)20.8 - (0.0 * 0.0))/1.2927$$

$$C_c = 20.8 \mu\text{g/L}$$

$$\text{WLA}_a = 20.8 \mu\text{g/L}$$

$$\text{LTA}_c = 10.4(0.527) = 5.5 \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

$$\text{LTA}_a = 20.8(0.321) = 6.7 \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a.

$$\text{MDL} = 5.5(3.11) = 17.1 \mu\text{g/L}$$

[CV = 0.6, 99th Percentile]

$$\text{AML} = 5.5(1.55) = 8.5 \mu\text{g/L}$$

[CV = 0.6, 95th Percentile, n = 4]

Total Recoverable Copper effluent limits of 17.1 μg/L daily maximum, 8.5 μg/L monthly average are recommended if copper remains an ingredient of vegetation control. Standard compliance language for CU T, including the minimum level (ML), should be included in the permit.

Outfall #010

EFFLUENT LIMITATIONS TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	S
BOD ₅	MG/L	1		45	30	NO	S
TSS	MG/L	1		45	30	NO	S
PH	SU	1	6.5 – 9.0		6.5 – 9.0	YES	6/9
CHLORINE, TOTAL RESIDUAL	MG/L	1/2	0.017		0.008	YES	0.019/0.019
OIL & GREASE	MG/L	1	15		10	NO	S
COPPER, TOTAL RECOVERABLE**	μG/L	1/3	17.1		8.5	NO	45.9/22.9
DISSOLVED OXYGEN	MG/L	9	*		*	NO	S
AQUA BLUE LAKE DYE	MG/L	9	*		*	NO	S
WHOLE EFFLUENT TOXICITY (WET) TEST	% SURVIVAL	1	see special conditions			NO	****
MONITORING FREQUENCY	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only

** - An algacide which has an active ingredient other than copper, must be reported to the Kansas City Regional office of MDNR prior to use.

*** - 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 | 7. Antidegradation Policy |
| 2. Water Quality Standard (includes RPA) | 8. Water Quality Model |
| 3. Water Quality Based Effluent Limits | 9. Best Professional Judgment |
| 4. Lagoon Policy | 10. TMDL or Permit in lieu of TMDL |
| 5. Ammonia Policy | 11. WET test Policy |
| 6. Dissolved Oxygen Policy | |

• **Biochemical Oxygen Demand (BOD₅).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**

• **Total Suspended Solids (TSS).** Effluent limitations have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information.**

- **pH.** Effluent limitations have been changed to comply with 10 CSR 20-7.031 (4) (E).
- **Total Residual Chlorine (TRC).** Warm-water Protection of Aquatic Life CCC = 10 µg/L, CMC = 19 µg/L [10 CSR 20-7.031, Table A]. Background TRC = 0.0 µg/L. X equals a seasonal release from a lake, pond, pool or rainfall event of unknown quantity.

Chronic WLA: $C_e = ((x + 0.0)10 - (0.0 * 0.0)) / x$
 $C_e = 10 \text{ µg/L}$

Acute WLA: $C_e = ((x + 0.0)19 - (0.0 * 0.0)) / x$
 $C_e = 19 \text{ µg/L}$

$LTA_c = 10 (0.527) = 5.3 \text{ µg/L}$
 $LTA_a = 19 (0.321) = 6.1 \text{ µg/L}$

[CV = 0.6, 99th Percentile]
[CV = 0.6, 99th Percentile]

$MDL = 5.3 (3.11) = 16.5 \text{ µg/L}$
 $AML = 5.3 (1.55) = 8.2 \text{ µg/L}$

[CV = 0.6, 99th Percentile]
[CV = 0.6, 95th Percentile, n = 4]

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

- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.
- **Metals**
Effluent limitations for total recoverable metals were developed using methods and procedures outlined in EPA/505/2-90-001 and “The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion” (EPA 823-B-96-007). General warm-water fishery criteria apply and water hardness = 162 mg/L.

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

METAL	CONVERSION FACTORS	
	ACUTE	CHRONIC
Copper	0.960	0.960

- **Copper, Total Recoverable.** Protection of Aquatic Life Chronic Criteria = 10 µg/L, Acute Criteria = 20 µg/L.

Chronic = $10.0/0.960 = 10.4 \text{ µg/L}$
Acute = $20.0/0.960 = 20.8 \text{ µg/L}$

Chronic: $WLA_c = 10.4 \text{ µg/L}$

Acute: $WLA_a = 20.8 \text{ µg/L}$

$LTA_c = 10.4(0.527) = 5.5 \text{ µg/L}$
 $LTA_a = 20.8(0.321) = 6.7 \text{ µg/L}$

[CV = 0.6, 99th Percentile]
[CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

$MDL = 5.5(3.11) = 17.1 \text{ µg/L}$
 $AML = 5.5(1.55) = 8.5 \text{ µg/L}$

[CV = 0.6, 99th Percentile]
[CV = 0.6, 95th Percentile, n = 4]

Total Recoverable Copper effluent limits of 17.1 µg/L daily maximum, 8.5 µg/L monthly average are recommended if copper remains an ingredient of vegetation control. Standard compliance language for CU T, including the minimum level (ML), should be included in the permit.

- **Dissolved Oxygen**. Monitoring requirements have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.
- **Aqua Blue Lake Dye**. Monitoring requirements have been retained from previous state operating permit, please see the **APPLICABLE DESIGNATION OF WATERS OF THE STATE** sub-section of the **Receiving Stream Information**.
- **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/permit cycle	grab	Any month in 2009 during a discharge from outfall #009 which includes discharge from wave pool, speed slide or swimming pool.

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

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
FLOW	ONCE/MONTH	ONCE/MONTH
BOD ₅	ONCE/MONTH	ONCE/MONTH
TSS	ONCE/MONTH	ONCE/MONTH
pH (S.U.)	ONCE/MONTH	ONCE/MONTH
CHLORINE, TOTAL RESIDUAL	ONCE/MONTH	ONCE/MONTH
OIL & GREASE	ONCE/MONTH	ONCE/MONTH
COPPER, TOTAL RECOVERABLE	ONCE/MONTH	ONCE/MONTH
DISSOLVED OXYGEN	ONCE/MONTH	ONCE/MONTH
AQUA BLUE LAKE DYE	ONCE/MONTH	ONCE/MONTH
WET TEST	ONCE/ PERMIT CYCLE	WITHIN 30 DAYS OF SUCESSFUL COMPLETION

Part VI – 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.

Date of Factsheet: July 23, 2008

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Worlds of Fun MO-0103659



Legend

- NPDES Outfalls
 - CAFO
 - MUNICIPAL
 - NON-MUNICIPAL
- WQS Table E (P)
- WQS Table E (L)
- WQS Table D
- WQS - Table H
- WQS - Table G
- NHD 1:100k
- Public Land Survey System
- 14 Digit Watershed Boundary
- 8 Digit Watershed Boundary
- County Boundary
- Impaired Waters 2002 - 2003