Exhibit No.:	
Issues:	Customer Bills
Witness:	Martin Hummel
Sponsoring Party:	MO PSC Staff
Type of Exhibit:	Direct Testimony
Case Nos.:	SR-2010-0110 & WR-2010-0111
Date Testimony Prepared:	January 13, 2010

MISSOURI PUBLIC SERVICE COMMISSION

UTILITY OPERATIONS DIVISION

DIRECT TESTIMONY

OF

MARTIN HUMMEL

LAKE REGION WATER & SEWER COMPANY

CASE NOs. SR-2010-0110 & WR-2010-0111

Jefferson City, Missouri
January 2010

Staff Exhibit No. 1
Date 3-29-10 Reporter KF
File No SR-2010-0110 / WR-2010-0111

TABLE OF CONTENTS

DIRECT TESTIMONY

OF

MARTIN HUMMEL

LAKE REGION WATER & SEWER COMPANY

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Lake Region Water & Sewer Company's Application to Implement a General Rate Increase in Water and Sewer Service.	))))	Case No. SR-2010-0110 & WR-2010-0111

AFFIDAVIT OF MARTIN HUMMEL

STATE OF MISSOURI)
) ss
COUNTY OF COLE)

Martin Hummel, of lawful age, on his oath states: that he has participated in the preparation of the following Direct Testimony in question and answer form, consisting of 9 pages of Direct Testimony to be presented in the above case, that the answers in the following Direct Testimony were given by him; that he has knowledge of the matters set forth in such answers; and that such matters are true to the best of his knowledge and belief.

Martin Hummel
Martin Hummel

Subscribed and sworn to before me this 13th day of January, 2010.

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

SUSAN L. SUNDERMEYER
My Commission Expires
September 21, 2010
Callaway County
Commission #06942086

Susan L. Sundermeyer
Notary Public

DIRECT TESTIMONY

OF

MARTIN HUMMEL

LAKE REGION WATER & SEWER COMPANY

CASE NOs. SR-2010-0110 & WR-2010-0111

INTRODUCTION

Q. Please state your name and business mailing address?

A. Martin Hummel, P.O. Box 360, Jefferson City, MO 65102.

Q. By whom are you employed and in what capacity?

A. I am employed by the Missouri Public Service Commission (Commission) as a Utility Engineering Specialist III in the Water & Sewer Department (W/S Dept) of the Utility Operations Division.

Q. How long have you been employed by the Commission?

A. I have been employed by the Commission since February 1989.

Q. What is your education background?

A. I received a Bachelor of Science degree in Engineering and a Bachelor of Science degree in Education-Science from the University of Missouri-Columbia.

Q. What is your employment experience?

A. Prior to my employment at the Commission, I worked with the Missouri Department of Natural Resources (DNR) in the Water Pollution Control Program. I have also worked as a Research Associate on water-related projects with Louisiana State University-Baton Rouge; and as a Project Engineer with a consulting engineering firm, primarily on wastewater treatment.

Q. Have you previously testified in cases before this Commission?

A. Yes. I have also filed several recommendations or reports in certificate and complaint cases. Please see Schedule 1 for a list of cases that I have filed written testimony.

EXECUTIVE SUMMARY

Q. What has been the nature of your involvement in this case?

A. I have knowledge of the service area and the physical sewer facilities that are owned and operated by Lake Region Water and Sewer Company (LRWS or Company). I have spoken and met with LRWS personnel and representatives of the Four Seasons Racquet Club Property Owners Association (Racquet Club or Customer) to learn about the facts and issues in question, and I have reviewed related documentation. I have met with the present and previous management regarding excessive water run off into the sewer system that has caused concern to the Company, Staff, and representatives of the DNR over the last several years. I have discussed the billing dispute and inspected the collection system with the Racquet Club personnel.

Q. Please summarize the Direct Testimony you are presenting.

A. I am presenting testimony with regard to the need to measure the wastewater flow from the Racquet Club campus and billing the Racquet Club for wastewater treatment based on that measurement. The Racquet Club owns and controls most of the collection system on its campus and its system is delivering excessive flow to LRWS's treatment plant during periods of heavy rainfall/excessive ground water. Excessive flow may cause sewage overflows or backups, treatment facility operations problems, and higher bills for the Racquet club.

Q. What will your testimony on the above-noted matters show?

A. My testimony will show that there are provisions in the LRWS's Commission approved tariff that provide guidance to the Company and the Customer in addressing their dispute on the appropriate way to charge for wastewater treatment, and, that both parties benefit from a mutually agreed upon flow measurement.

BACKGROUND INFORMATION

Q. Please explain the billing dispute between the Company and the Racquet Club.

A. LRWS has had concerns about the amount of storm water run-off from the Customer's facilities entering the sewer system and causing operational disruptions and additional costs to the Company. This resulted in the Company installing a flowmeter device to directly measure the amount of wastewater flow coming from the Racquet Club's collection system. Since the flowmeter was installed, the Racquet Club has seen an increase in its sewer bill.

Q. Please give a brief historical overview of the relationship between LRWS and the customer, Racquet Club?

A. Originally the LRWS sewer operation and the Racquet Club development were established by the same development group. After development they were separated into independent entities. The Racquet Club condominium development was constructed in the early 1980's and includes about 50 buildings with 257 condominiums. The original utility company started operation in the early 1970's and was operated by the Lodge of the Four Seasons (Lodge). This property was sold by the Lodge, with eventual ownership of the water utility operations taken over by Ozark Shores (now an affiliate of LRWS) and sewer utility operations by LRWS.

Q. Is there an excessive flow from the Racquet Club collection system to LRWS's treatment plant during rainfall events?

A. Yes. The Company noticed that during rainfall events, the amount of wastewater increased dramatically. Due to this excessive flow, LRWS installed a flowmeter on the Racquet Club sewer line in the fall of 2008. Subsequently the flow measurement showed excessive flow. Such excess flow has been observed, though not measured, in the collection system for the past several years by operators of the treatment plant. The Company started billing the Racquet Club based on direct flow measurement with the December 2008 sewer bill. Prior to this change, the Company billed the Racquet Club based on its metered drinking water usage.

Q. What is included in "drinking water usage"?

A. Drinking water usage includes all household uses such as showers, clothes washing, food preparation, and toilet flushing.

Q. Is the installed flowmeter a better measure of sewer service being provided than using estimates based on drinking water use?

A. Yes. In this particular circumstance the wastewater is coming from an extensive collection system and many separate buildings, not just one house. Using drinking water meter readings to estimate sewer flow relies on a major **assumption** that there is negligible extraneous water besides drinking water going to the sewer. That assumption is known to be false in this circumstance.

This is not to say that the installed flowmeter is as precise and trouble free as an operator might wish. The meter results should be diligently compared to drinking water use, irrigation use and rainfall events, in order to confirm the meter results. During dry periods

without irrigation the flowmeter amounts should be very close to the same as the drinking water use.

Q. What causes the excessive flow?

A. The excess flow is due to Inflow and Infiltration (I/I) into the sewer system.

Q. What is Inflow and Infiltration?

A. I/I is relatively clean rain and groundwater entering the sewer system. Infiltration is entry of clean water through cracks and holes in the pipes and manholes. Inflow is entry of clean water from roof drains, driveway drains or other intentional pipe connections. I/I may also come from excess irrigation. Virtually all sewer systems have some I/I, but excessive I/I is the issue of concern in this case.

Q. What are some of the problems associated with excessive I/I?

A. One of the problems with excessive I/I is that it may cause an increase in costs. Another problem is that I/I may cause disruptions in normal operations.

Q. What costs can result from I/I?

A. The cost to pass I/I through the treatment plant is generally similar to any other wastewater flow. Without a flowmeter to properly bill a customer whose system is causing I/I, the Company will face higher costs without the ability to collect appropriate revenues to cover those costs.

Q. Please describe how I/I can disrupt normal operations.

A. I/I can disrupt operations in different ways. I/I is unpredictable, generally associated with large rainfall events, often making routine plant operation impossible. Excessive I/I may totally disrupt normal operations with a hydraulic overload and result in a

washout of the solids from the treatment plant into the receiving stream or lake. Excessive flow, if not corrected, will result in the need to add capacity which is very costly.

Trying to accommodate excessive I/I at the treatment plant involves construction of special facilities and is often impractical because of cost. Regulatory, environmental cleanup and legal costs that can result from excessive I/I and violations of discharge permit limits are unpredictable. There is a very real potential of a DNR violation which would be very costly to the Company in terms of actual fines and public relations.

Q. What is the difference between a sanitary sewer and a storm sewer?

A. A sanitary sewer is a pipe that carries polluted wastewater to a sewage treatment plant. A storm sewer is pipe and ditches that carry rain water away from streets and buildings to a stream, river or other watercourse. Excessive I/I should be going to the storm sewer, not to the sanitary sewer.

Q. Is excessive I/I from the Racquet Club a new development?

A. No. This problem has existed for several years. LRWS can not correct the problem because the Racquet Club owns, controls and maintains the collection system that is the source of the I/I. In August of 2006 I wrote a letter to LRWS stating my opinion that flow measurement should be used and that billing for sewer service should be based on such measurement. (attached as Schedule 2) Prior to 2009 Racquet Club was being billed for sewer service based on estimating sewage amounts using drinking water meter records. As such no I/I was included. There was little incentive for the Racquet Club to control the I/I. Prior to 2006, evaluation of the sewer going to the treatment plant and the collection system at the Racquet Club condominium campus showed that there was a problem.

Q. Is DNR concerned about the I/I impact on the Racquet Club treatment plant?

A. Yes, in the November 2007 renewal of the discharge permit (Mo-0102628) specific language regarding I/I was added to the permit on page 7 part E. This language is not generally included in DNR's discharge permits and specifically recognizes the I/I problem for this system. (attached as Schedule 3)

Q. Is the Racquet Club collection system the only source of I/I to the treatment plant?

A. No, other collection systems deliver wastewater to the plant, but these collection systems are owned by LRWS and improvements have been and continue to be made on these collection systems by the Company.

Q. Would transferring the ownership of the collection system from the Racquet Club to LRWS fix the problem?

A. No. The I/I in the sanitary sewer is tied to and affected by many factors, including the maintenance of the grounds, roof drains, ditches, streets, irrigation and storm sewers. The Racquet Club owns and maintains the buildings, streets, storm sewers, irrigation pipes within the development. Consequently, the I/I in the sanitary sewer can be addressed much more efficiently by the Racquet Club since it has control of the surrounding infrastructure.

Q. Is the I/I from the Racquet Club since the meter was installed worse than expected due to the rainfall of 2009.

A. Yes. The rainfall for 2009 was much higher than average and made the I/I problem as recorded by the flowmeter much worse. For example, during October 2009, the

number of days with rain greater than 0.1 inch and monthly total rainfall were about 3 times the average.

Q. Has the Racquet Club made some improvements to its collection system?

A. Yes, the Racquet Club has corrected some problems with manhole lids, (e.g. reseal, re-center and landscape) building service connections and sewer main; but, the near record rainfall since the flowmeter was put in use (late 2008) likely masked what improvements that had been made, at least making quantifying the improvement in reducing I/I very difficult.

Q. Is the excessive I/I from the Racquet Club correctable?

A. Yes, and at a reasonable cost. This answer is based on my inspection of the collection system and my experience with water issues. The system is on top of a hill. The Racquet Club has made some practical repairs to the system already. But the focus now needs to change to the stormwater and ground water. If ground water can promptly drain away from the sewer pipes and manholes most of the excess I/I will be relieved. While I believe this can be done economically, it will require diligent evaluation, planning and effort.

Q. Does the LRWS's tariff address issues regarding excessive flow or I/I from a customer?

A. Both Rule 7 and Rule 11 address these issues. Rule 7 (B) states: No person shall discharge ... surface water, ground water ... roof runoff, sub-surface drainage... into Company's collecting sewers. Rule 11 states: In the event that the Customer...proposes to discharge... an abnormally high volume...service shall be provided ...under...a mutually satisfactory contract.

CONCLUSIONS AND RECOMMENDATIONS

Q. What are your recommendations at this time?

A. I recommend that the Racquet Club and LRWS cooperate in using the installed meter to measure sewer flow for billing and evaluating efforts to eliminate excessive I/I. I recommend that the Racquet Club continue to eliminate I/I from its collection system.

Q. Does this conclude your testimony at this time?

A. Yes.

Martin Hummel

Testimony

CASE No. SC-2005-0083
Gerald and Joanne Reierson V. Kenneth Jaeger, et al

Case No. WC-2006-0480.
Big Island

Case No. ST-2003-0562
Osage Water Company

Schedule 1-1

Lake Region Water and Sewer Co.
PO Box 9
Lake Ozark, MO 65049

Dear Permittee:

Pursuant to the Federal Water Pollution Control Act, under the authority granted to the State of Missouri and in compliance with the Missouri Clean Water Law, we have issued and are enclosing your State Operating Permit to discharge from Racquet Club Treatment Plant, Camden County, Missouri.

Please read your permit and enclosed Standard Conditions. They contain important information on monitoring requirements, effluent limitations, sampling frequencies and reporting requirements.

Monitoring reports required by the special conditions must be submitted on a periodic basis. The required forms are enclosed. Please make copies for your use. Completed forms should be mailed to this office.

Please note: The new Total Residual Chlorine effluent limitations that will take effect November 8, 2010. These new effluent limitations will require the addition of a dechlorination step at the end of the current treatment process or conversion to a different type of disinfection system. Please refer to Part E of the enclosed permit, which outlines the specific schedule you must follow.

The project to upgrade your facility to add dechlorination equipment will require careful planning, time and expenditure of capital. State regulations require that you involve a Missouri licensed professional engineer to design your project. The completed design is required to be submitted to this office for review and approval. Once approved, a construction permit is issued and you may begin your construction project to add the necessary dechlorination equipment.

It is my recommendation that you allow yourself at least 18 months of lead-time (if possible) to engage your engineer, receive the necessary permit, and complete the construction of your project. With proper planning you will be successful in meeting the schedule to achieve the Total Residual Chlorine effluent limitations as described in Part D of the enclosed permit.

Please Note: Total Ammonia as N monitoring is included to assess if there is reasonable potential for permit limits. For discharges to Unnamed Tributary to Lake of the Ozarks, a class U stream, the expected Missouri State Operating Permit (MSOP) limits for Total Ammonia as N are listed below:

Season	pH & Temperature	Dates	Total Ammonia as N	
			mg/L	mg/L
	used as basis		MDL	AML
Spring	7.8 pH, 16° C	Mar 1 – May 31	6.8	2.6
Summer	7.8 pH, 28° C	Jun 1 – Aug 31	3.2	1.2
Fall	7.8 pH, 16° C	Sep 1 – Nov 30	6.8	2.6
Winter	7.8 pH, 6° C	Dec 1 – Feb 29	7.5	2.9

This permit is both your Federal Discharge Permit and your new State Operating Permit and replaces all previous State Operating Permits for this facility under this permit number. In all future correspondence regarding this facility, please refer to your State Operating Permit number and facility name as shown on page one of the permit.

If you were affected by this decision, you may appeal to have the matter heard by the administrative hearing commission. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission.

If you have questions concerning this permit please contact Mr. Charles Greeson of my staff by calling 417-891-4300 or via mail at Southwest Regional Office, 2040 W. Woodland, Springfield, MO 65807-5912.

Sincerely,

SOUTHWEST REGIONAL OFFICE

Cynthia S. Davies
Regional Director

CSD/cgl

Enclosures

c: Mr. Dale Johansen, Missouri Public Service Commission

029.wpcp.RacquetClubTreatmentPlant.mo0102628.x.2007.11.26.fy08.opren.op4110.ccg

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-0102628
Owner:	Lake Region Water and Sewer Co.
Address:	PO Box 9, Lake Ozark, MO 65049
Continuing Authority:	Same as Above
Address:	Same as Above
Facility Name:	Racquet Club Treatment Plant
Facility Address:	Hogan Road, Lake Ozark MO 65049
Legal Description:	SW¼, NE¼, Sec. 27, T40N, R16W, Camden County
Lat/Long:	+3811507 / -09241118
Receiving Stream:	Unnamed Tributary to Lake of the Ozarks (U)
First Classified Stream and ID:	Lake of the Ozarks (L2) (07205) 303 (d)
USGS Basin & Sub-watershed No.:	(10290109-080005)

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

FACILITY DESCRIPTION
Outfall #001 – Sewerage Works SIC # 4952 / 4952

Extended aeration / chlorination / sludge disposal by contract hauler.

Design organic population equivalent is 3,450.
Design average daily flow is 292,500 gallons per day.
Design sludge production is 62.1 dry tons/year.

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 26, 2007
Effective Date

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

November 25, 2012
Expiration Date
MO 780-0041 (10-93)

Cynthia S. Davies, Regional Director, Southwest Regional Office

Schedule 2-3

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS	PAGE NUMBER 2 of 7
	PERMIT NUMBER MO-0102628

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 **November 7, 2010**. 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						
Flow	MGD	*		*	once/week**	24 hr. total
Biochemical Oxygen Demand$_5$	mg/L		30	20	once/month**	24 hour composite
Total Suspended Solids	mg/L		30	20	once/month**	24 hour composite
pH – Units	SU	***		***	once/month**	grab
Fecal Coliform (Note 1)	#/100 ml	1000		400 (Note 2)	once/month**	grab
Total Residual Chlorine as Cl_2	mg/L	1.0 (Note 3)		1.0 (Note 3)	once/month**	grab
Ammonia as N	mg/L	*		*	once/month**	grab
Temperature	°C	*		*	once/month**	grab
Oil & Grease	mg/L	*		*	once/month**	grab

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

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)	PAGE NUMBER 3 of 7
	PERMIT NUMBER MO-0102628

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 **November 8, 2010** and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/week**	24 hr. total
Biochemical Oxygen Demand$_5$	mg/L		30	20	once/month**	24 hour composite
Total Suspended Solids	mg/L		30	20	once/month**	24 hour composite
pH – Units	SU	***		***	once/month**	grab
Fecal Coliform (Note 1)	#/100 ml	1000		400 (Note 2)	once/month**	grab
Total Residual Chlorine as Cl_2	mg/L	0.019 (Note 3) (0.13 ML)		0.0095 (Note 3) (0.13 ML)	once/month**	grab
Ammonia as N	mg/L	*		*	once/month**	grab
Temperature	°C	*		*	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, 2010. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

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

MO 780-0010 (8/91)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

** Reports shall be submitted by the 28th day of the month following the reporting period, e.g. Reporting period is the month of March (samples collected weekly or monthly), report due by April 28th.

*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.

Note 1 - Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31.

Note 2 - Monthly average limit for Fecal Coliform is expressed as a geometric mean. Geometric mean for n samples = $[a_1 \times a_2 \times a_3 \ldots . \times a_n]^{1/n}$

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Note 3 - 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.

C. INFLUENT MONITORING REQUIREMENTS	PAGE NUMBER 5 of 7
	PERMIT NUMBER MO-0102628

The facility is required to meet a removal efficiency of 85% or more. The monitoring requirements shall become effective upon issuance and remain in effect until expiration of the permit. To determine removal efficiencies, the influent wastewater shall be monitored by the permittee as specified below:

SAMPLING LOCATION AND PARAMETER(S)	UNITS	MONITORING REQUIREMENTS	
		MEASUREMENT FREQUENCY	SAMPLE TYPE
Influent			
Biochemical Oxygen Demand$_5$	mg/L	once / month*	24-hour composite
Total Suspended Solids	mg/L	once / month*	24-hour composite

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

MO 780-6010 (8/91)

C. INFLUENT MONITORING REQUIREMENTS (continued)

* Reports shall be submitted by the 28th day of the month following the reporting period, e.g. Reporting period is the month of March (samples collected weekly or monthly), report due by April 28th.

D. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:

   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:

      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

      (2) controls any pollutant not limited in the permit.

   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.

   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

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

2. All outfalls must be clearly marked in the field.

3. Permittee will cease discharge by connection to areawide 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 knows or has reason to believe:

   (a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"

      (1) One hundred micrograms per liter (100 µg/L);

      (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;

D. SPECIAL CONDITIONS (continued)

(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. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities

(a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.

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

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

E. SCHEDULE OF COMPLIANCE

For Dechlorination Improvements and Oil & Grease Improvements:

1. By **May 15, 2008** submit a completed 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 providing wastewater treatment facility improvements 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 365 calendar days 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.

5. Annual progress reports shall be submitted on January 28th of each year until the construction completed. The report shall include what step of the process the facility is at, how much construction has been completed, approximately time of completion, etc. The first report is due **January 28, 2009.**

For I & I Improvements:

1. By **May 15, 2008** the permittee shall develop and implement a program for maintenance and repair of the collection system. The suggested guidance is the US EPA's Guide For Evaluating Capacity, Management, Operation, And Maintenance (CMOM) Programs At Sanitary Sewer Collection Systems (Document number EPA 305-B-05-002). A written summary of this program shall be submitted to the Southwest Regional Office via mail, Missouri Department of Natural Resources, 2040 West Woodland, Springfield, Missouri, 65807

2. By **July 15, 2008** the permittee shall submit to the Southwest Regional Office Regional Office a written Plan to Reduce Inflow and Infiltration (Plan) into the sewer collection system. The Plan will include a schedule for locating sources of inflow and infiltration, describing the sources and their believed causes, and rate its priority for correction. The suggested format for the Plan would be to divide the collection system into designated areas that would be prioritized by the City based on currently known problem areas with target dates to TV or smoke test the lines within a given area. Lines that are newer than 15 years old may be excluded from the plan unless the City has reason to believe they are a major source of inflow or infiltration. Once the Plan is approved by the Department, the City will immediately implement the plan.

3. By October 30th of each year following approval of the Plan, the City must report the findings of the work accomplished during the year for the targeted area and note which inflow/infiltration problems were corrected during the year. In the event that revisions to the Plan are necessary, the City will submit requested revisions to the Plan with the October 30th report to the Southwest Regional Office Regional Office Regional Office for review and approval. In addition the city must prepare an annual summary report noting the influent biological oxygen demand and total suspended solids, rainfall during discharge events, effluent biological oxygen demand and total suspended solids, and calculate the percent removal.

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.

Missouri Department of Natural Resources
Statement of Basis
Racquet Club Treatment Plant
NPDES #: MO-0102628
Camden 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 does not include calculations for the effluent limits provided herein and in the operating permit, and does not discuss the public comment process. This Statement also does not pertain to operating permits that include sewage sludge land application plans and variance procedures.

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

Rationale of Effluent Limitations & Permit Language Determination

ANTI-BACKSLIDING:
A provision in the Federal Regulations [CWA §303(d)(4); CWA §402(c); CFR §122.44(l)] 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:
Policies which ensure protection of water quality for a particular water body where the water quality exceeds levels necessary to protect fish and wildlife propagation and recreation on and in the water. This also includes special protection of waters designated as outstanding natural resource waters. Antidegradation requirements are consistent with 40 CFR 131.12 that outlines methods used to assess activities that may impact the integrity of a water and protect existing uses. This policy may compel the state to maintain a level of water quality above those mandated by criteria.

Not Applicable ☒

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.

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, and from appropriate sections of the renewal application.

BASIS FOR LIMITATIONS:
Effluent limits established in this Statement of Basis and Missouri State Operating Permit are derived from State or Federal Regulation, Water Quality Standards, Lagoon Policy, Ammonia Policy, Antidegradation Policy, Best Professional Judgement, TMDL or Permit in lieu of TMDL, or WET Test Policy.

COMPLIANCE AND ENFORCEMENT:
Action taken by the department to resolve violations of the Missouri Clean Water Law, its implementing regulations, and/or any terms and condition of an operating permit.

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

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

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

RECEIVING STREAM INFORMATION:
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 1st receiving stream for this facility is Unnamed Tributary to Lake of the Ozarks, which is a class U stream, and its Beneficial Water Use* to be maintained is General Criteria.

The first classified receiving stream is Lake of the Ozarks, which is a class L2 stream and is approximately 150 feet downstream from the discharge point. Lake of the Ozarks beneficial uses are LWW, AQL, WBC** and SCR.

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

RECEIVING STREAM MONITORING REQUIREMENTS:

No receiving water monitoring requirements recommended at this time.

REMOVAL EFFICIENCY:
Removal efficiency is one method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD_5) and Total Suspended Solids (TSS) for domestic wastewater sources.

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

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

Applicable ☒;
The permittee is required to develop or implement a program for maintenance and repair of the collection system and shall be required in this operating permit by either means of a Special Condition or Schedule of Compliance.

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

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

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

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

WHOLE EFFLUENT TOXICITY (WET) TEST:
As per [10 CSR 20-7.031(1)(CC)], a toxicity test conducted under specified laboratory conditions on specific indicator organism; and as per [40 CFR §122.2], the aggregate toxic effect of an effluent measured directly by a toxicity test.

Not Applicable ☒;
At this time, the permittee is not required to conduct WET test for this facility.

303(d) LIST & TOTAL MAXIMUM DAILY LOAD (TMDL):
Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The 303(d) list helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs.

A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation

Applicable ☒;
Lake of the Ozarks is listed on the 2002 Missouri 303(d) List for Low DO, Gas Supersaturation and Fish Trauma

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

Outfall #001 – Main Facility Outfall
EFFLUENT LIMITATIONS TABLE

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	N/C
BOD_5 **	MG/L	1		30	20	NO	N/C
TSS **	MG/L	1		30	20	NO	N/C
PH (S.U.)	SU	1	***		***	NO	N/C
AMMONIA AS N	MG/L	5	*		*	YES	*****
TEMPERATURE	°C	5	*		*	YES	*****
FECAL COLIFORM	****	1	1000		400 (Note 1)	NO	N/C
CHLORINE, TOTAL RESIDUAL (MG/L)	MG/L	3	0.019		0.0095	YES	1.0
OIL & GREASE (MG/L)	MG/L	1	15		10	YES	*****
MONITORING FREQUENCY	N/A	1,8	WEEKLY/ MONTHLY		WEEKLY/ MONTHLY	NO	N/C

* - Monitoring requirement only
** - This facility is required to provide a 30-day average percent removal of at least 85%.
*** - pH is measured in pH units and is not to be averaged. The pH for all facilities except lagoons is limited to the range of 6.0-9.0 pH units
**** - # of colonies/100mL
***** - Parameter not previously established in previous state operating permit.
N/C – No Change

Note 1 – Monthly Average for Fecal Coliform is a geometric mean and not average.

Basis for Limitations Codes:

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

[2] – Water Quality Standards also includes Reasonable Potential Analysis.

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

Biochemical Oxygen Demand (BOD_5).
☒ – Effluent limitations are protective and have been retained from previous state operating permit.

Total Suspended Solids (TSS).
☒ – Effluent limitations are protective and have been retained from previous state operating permit.

pH.
☒ – Effluent limitation has been retained from previous state operating permit,

Total Ammonia Nitrogen, Temperature. Monitoring requirement only. Monitoring for temperature and ammonia are included to determine whether "reasonable potential" to exceed water quality standards exists after the discharge begins.

Fecal Coliform. Discharge shall not contain more than a monthly geometric mean of 400 colonies/ 100 mL and a daily maximum of 1000 colonies/100 mL during the recreational season (April 1 – October 31) [10 CSR 20-7.015]. Future renewals of the facility operating permit will contain effluent limitations for E. coli, which will replace fecal coliform as the applicable bacteria criteria in Missouri's water quality standards.

Future renewals of the facility operating permit will contain effluent limitations for E. coli, which will replace fecal coliform as the applicable bacteria criteria in Missouri's water quality standards

Total Residual Chlorine (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. Due to the fact the flows through the lakes are large, Acute criteria will be used only.

((Qe + Qs)*C-(Qs*Cs))/Qe

Acute: C_e = ((25.9+0)*0.019-(0*0))/ 25.9 = 0.019
WLA_a = 0.019 mg/L

LTA_a = 0.019 (0.321)= 0.0061 mg/L [CV = 0.6, 99th Percentile]

MDL = 0.0061(3.114)= 0.019 mg/L [CV = 0.6, 99th Percentile]
AML = 0.0061(1.55)= 0.0095 mg/L [CV = 0.6, 95th Percentile, n = 4]

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

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 or within the operating permit. The proposed determinations are tentative pending public comment.

GENERAL ASSUMPTIONS OF THE STATEMENT:

1. A Statement assumes that [10 CSR 20-6.010(3) Continuing Authorities] has been or will be addressed in a Missouri State Operating Permit or Construction Permit Application.
2. A Statement does not indicate approval or disapproval of alternative analysis as per [10 CSR 20-7.015(4) Losing Streams], and/or any section of the effluent regulations.
3. Changes to Federal and State Regulations made subsequent to the drafting of this Statement may alter effluent limitations and or permit conditions.
4. Water Quality Based Effluent Limitations supercede Effluent Guidelines Limits only when they are more stringent. Mass limits derived from technology based limits are still appropriate.
5. A Statement does not allow discharges to waters of the state, and shall not be construed as a National Pollution Discharge Elimination System or Missouri State Operating Permit to discharge or a permit to construct, modify, or upgrade.
6. Limitations and other requirements in a Statement may change as Water Quality Standards, Methodology, and Implementation procedures change.

Date of Statement: 8/17/07

Charles Greeson
Permitting & Assistance Unit
(417) 891-4300
charles.greeson@dnr.mo.gov

Missouri Public Service Commission

POST OFFICE BOX 360
JEFFERSON CITY MISSOURI 65102
573-751-3234
573-751-1847 (Fax Number)
http://www.psc.mo.gov

John Summers
Lake Region Water and Sewer Company
PO Box 9
Lake Ozark, Mo. 65049

August 18, 2006

Re: Flow measurement for the Racquet Club

Mr. Summers:

Per my operations investigations and my discussions with you on the operations of the Racquet Club sewage treatment plant (plant), I wish to make clear my position on the need to measure the flow from the Racquet Club to the plant.

As a large commercial customer, the Racquet Club is supposed to be charged for sewer service based on "sewer or water use", see the Tariff sheet 7. While meter records of drinking water delivered to the Racquet Club should show the amount of "sewer or water use", such information does not accurately reflect flow to the plant when there is irrigation or when rainfall enters the Racquet Club collection system.

Accurate flow measure becomes even more critical as the number of customers and total flow increases, and the likelihood of a sludge washout to the Lake of the Ozarks also increases.

Lake Region Water and Sewer Company must install a flow measurement device, on the line coming from the Racquet Club, to be used with the drinking water meter records to accurately establish the amount of use and to accurately monitor actual plant flow for optimal operations.

If you or representatives of the Racquet Club have questions on this, call me at 573/751-7722.

Sincerely,

Martin Hummel
Water and Sewer Department