

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-0122564

Owner: Scott Brothers, Brian and Tracy
Address: Route 1, P.O. Box 172BB, Hannibal, MO 63401

Continuing Authority: PWSD #1 of Ralls County
Address: 3316 Market Street, Hannibal, MO 63401

Facility Name: Norwoods Subdivision Wastewater Treatment Facility
Facility Address: 52608 Norwoods Place, Hannibal, MO 63401

Legal Description: See Page 2
UTM Coordinates: See Page 2

Receiving Stream: Unnamed Tributary to Little Bear Creek (U)
First Classified Stream and ID: Bear Creek (C) (0009)
USGS Basin & Sub-watershed No.: (071100040501)

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

FACILITY DESCRIPTION

See Page 2

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

September 1, 2012
Effective Date

Sara Parker Pauley
Sara Parker Pauley, Director, Department of Natural Resources

August 31, 2017
Expiration Date

John Madras
John Madras, Director, Water Protection Program

FACILITY DESCRIPTION (continued):

Outfall #001 – Domestic Wastewater – SIC #4952

No-discharge System

The use or operation of this facility does not require the supervision of a **Certified Operator**.
 Single-cell, no-discharge storage lagoon/spray irrigation/sludge is retained in lagoon.
 Design population equivalent is 81.
 Design flow is 6,512 gallons per day (1-in-10 year design including net rainfall minus evaporation).
 Actual design flow is 2,065 gallons per day (dry weather flows).
 Design sludge production is 1.22 dry tons/year.
 Legal Description of entire Outfall #001: N ½, Sec. 5, T56N, R5W, Ralls County
 Legal Description of Lagoon: SE ¼, NE ¼, NW ¼, Sec. 5, T56N, R5W, Ralls County
 Legal Description of Spray Irrigation Site: S ½, NW ¼, NE ¼, Sec. 5, T56N, R5W, Ralls County
 UTM Coordinates: X = 630147, Y = 4393681
 Receiving Stream: Unnamed Tributary to Little Bear Creek (U)
 First Classified Stream and ID: Bear Creek (C) (0009)
 USGS Basin & Sub-watershed No.: (071100040501)

Receiving Stream Watershed: a gaining stream setting

<u>Design Basis:</u>	<u>Avg Annual</u>
Design dry weather flows:	2,065gpd
Design with 1-in-10 year flows:	6,512 gpd
Design P.E.:	65

Storm Water Flows: (Ralls County)

Average Annual Rainfall:	40 inches
1-in-10 Year Annual Rainfall:	52.0 inches
25-year-24-hour Storm:	5.5 inches

1-in-10 year Flows:

	<u>Annual</u>	<u>Percent Reduction Factors for 120 days</u>
Runoff Concrete and Roof Areas:	0 feet	0%
Runoff Earthen Areas (lagoon berm, etc.):	2.2 feet	50%
Rainfall minus Evaporation (R-E) on lagoon water surface:	1.6 feet	70%

Lagoon Dimensions:

	<u>Surface Area</u>	<u>Depth from Bottom</u>	<u>Pump down depth</u> (from spillway)
Center Line Top Berm:	32,640 sq. ft.	11.55 feet depth	
Inside Top Berm:	29,060 sq. ft.	11.55 feet depth	
Emergency Spillway:	27,010 sq. ft.	10.55 feet depth	
Freeboard (top berm to spillway):		1 foot depth	
Maximum operating level:		8.55 feet depth	1 foot
Minimum operating level:		3 feet depth	7.55 feet
Aerobic BOD design basis:		3 feet depth	
Storage volume (minimum to maximum water levels):			939,490 gallons
Berm top width:			10 feet
Berm runoff area (Centerline to emergency spillway):			5,630 sq. ft.
1-in-10 year, 120-day storm water flows into lagoon (R-E):			272,600 gallons

Storage Capacity

	<u>Avg Annual (Days of Storage)</u>
Design for Dry weather Flows:	246 days
Design with 1-in 10 year flows:	167 days

Land Application to fescue grassland: S ½, NW ¼, NE ¼, Sec. 5, T56N, R5W, Ralls County

Irrigation Volume/year:	1,806,930 gallons (including 1-in-10 year flows)
Irrigation areas:	3.26 acres at design loading (5.96 acres total available)
Application rates/acre:	0.14 inch/hour; 1.24 inches/week; 20.4 inches/year
Field slopes:	maximum of 9 percent
Equipment type:	Sprinklers
Vegetation:	Grass hay
Application rate is based on:	hydraulic loading rate

FACILITY DESCRIPTION (continued):

Outfall #002 – Domestic Wastewater /The Fairways at Norwoods Subdivision - SIC #4952

The use or operation of this facility does not require the supervision of a **Certified Operator**.

STEP/re-circulating sand filter/sludge disposal by contract hauler.

Design population equivalent is 65.

Design flow is 4,856 gallons per day.

Actual flow is 186 gallons per day.

Design sludge production is 0.5 dry tons/year.

Legal Description: NE ¼, NE ¼, NW ¼, Sec. 5, T56N, R5W, Ralls County

UTM Coordinates: X = 630153, Y = 4393755

Receiving Stream: Unnamed Tributary to Little Bear Creek (U)

First Classified Stream and ID: Bear Creek (C) (0009)

USGS Basin & Sub-watershed No.: (071100040501)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS				PAGE NUMBER 4 of 10		
				PERMIT NUMBER MO-0122564		
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #001 - Land Application Operational Monitoring & Irrigated Wastewater</u> (Notes 1, 2, 3, 4, 5, and 6)						
Lagoon Freeboard	feet	*			Once/month	measured
Irrigation Period	hours	*			Daily	total
Volume Irrigated	gallons	*			Daily	total
Application Area	acres	*			Daily	total
Application Rate	inches/acre	*			Daily	total
Rainfall	inches	*			Daily	total
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>October 28, 2013</u> .						
B. STANDARD CONDITIONS						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I & III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Outfall #001

* Monitoring requirement only.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 5 of 10	
					PERMIT NUMBER MO-0122564	
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 December 31, 2013 . Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #002</u>						
Fecal Coliform (Note 2)	#/100ml	1000		400	Once/quarter***	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>January 28, 2013</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
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 January 1, 2014 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #002</u>						
E. coli (Note 2)	#/100ml	1030		206	Once/quarter***	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>January 28, 2015</u> . 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 <u>Parts I & III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 6 of 10	
					PERMIT NUMBER MO-0122564	
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 August 31, 2014 . Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #002</u>						
Flow	MGD	*		*	Once/quarter***	24hr estimate
Biochemical Oxygen Demand ₅	mg/L		45	30	Once/quarter***	grab
Total Suspended Solids	mg/L		45	30	Once/quarter***	grab
pH – Units	SU	**		**	Once/quarter***	grab
Ammonia as N	mg/L				Once/quarter***	grab
(April 1 – Sept 30)		*		*		
(Oct 1 – March 31)		*		*		
Oil & Grease	mg/L	15		10	Once/quarter***	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>January 28, 2013</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective September 1, 2014 and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #002</u>						
Flow	MGD	*		*	Once/quarter***	24hr estimate
Biochemical Oxygen Demand ₅	mg/L		45	30	Once/quarter***	grab
Total Suspended Solids	mg/L		45	30	Once/quarter***	grab
pH – Units	SU	**		**	Once/quarter***	grab
Ammonia as N	mg/L				Once/quarter***	grab
(April 1 – Sept 30)		3.7		1.4		
(Oct 1 – March 31)		7.9		2.9		
Oil & Grease	mg/L	15		10	Once/quarter***	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>January 28, 2015</u> . 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 <u>Parts I & III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

Outfall #002

- * Monitoring requirement only.
- ** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.5-9.0 pH units.
- *** See table below for quarterly sampling.

Sample discharge at least once for the months of:	Report is due:
January, February, March (1st Quarter)	April 28
April, May, June (2nd Quarter)	July 28
July, August, September (3rd Quarter)	October 28
October, November, December (4th Quarter)	January 28

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

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

Note 2 – Final limitations and monitoring requirements for *Fecal Coliform* and *E. coli* are applicable only during the recreational season from April 1 through October 31. The Monthly Average Limit for *E. coli* is expressed as a geometric mean.

Note 3 – Records shall be maintained and summarized into an annual operating report that shall be submitted to the Northeast Regional Office by January 28th of each year for the previous calendar year period. The report shall include the following:

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

Note 4 – Lagoon freeboard shall be reported as lagoon water level in feet below the overflow level. See Special Conditions for Wastewater Irrigation System requirements.

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

Note 6 – Monitor in June of each year.

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 and emergency outfalls must be clearly marked in the field.

D. SPECIAL CONDITIONS (continued)

3. Permittee will cease discharge by connection to a facility with an area-wide management plan per 10 CSR 20-6.010(3)(B) within 90 days of notice of its availability.
4. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

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

7. Wastewater Irrigation System

- (a) Discharge Reporting. Any unauthorized discharge from the lagoon or irrigation system shall be reported to the Department as soon as possible but always within 24 hours. Discharge is allowed only as described in the Facility Description and Effluent Limitations sections of this permit.
- (b) Irrigation Design. Design and operation shall be in accordance with 10 CSR 20-8.020(15). Permittee shall operate the land application system in accordance with the design parameters listed in the Facility Description section of this permit:
 - (1) No-Discharge System. When the Facility Description is "No-Discharge", wastewater must be stored and irrigated at appropriate times. There shall be no-discharge from the irrigation site or storage lagoon except due to precipitation exceeding either the 1-in-10 year rainfall event for the design storage period or the 25-year 24-hour rainfall event.
- (c) Lagoon Operating Levels - No-discharge Systems. The minimum and maximum operating water levels for the storage lagoon shall be clearly marked. Each lagoon shall be operated so that the maximum water elevation does not exceed one foot below the overflow point except due to exceedances of the 1-in-10-year or 25-year, 24-hour storm events. Wastewater shall be land applied whenever feasible based on soil and weather conditions and permit requirements. Storage lagoon(s) shall be lowered to the minimum operating level prior to each winter by November 30.

D. SPECIAL CONDITIONS (continued)

- (d) Emergency Spillway. Lagoons and earthen storage basins should have an emergency spillway to protect the structural integrity of earthen structures during operation at near full water levels and in the event of overflow conditions. The spillway shall be at least one foot below top of berm. The Department may waive the requirement for overflow structures on small existing basins.
 - (e) General Irrigation Requirements. The wastewater irrigation system shall be operated so as to provide uniform distribution of irrigated wastewater over the entire irrigation site. A complete ground cover of vegetation shall be maintained on the irrigation site unless the system is approved for row crop irrigation. Wastewater shall be land applied only during daylight hours. The wastewater irrigation system shall be capable of irrigating the annual design flow during an application period of less than 100 days or 800 hours per year.
 - (f) Saturated/Frozen Conditions. There shall be no irrigation during frozen, snow covered, or saturated soil conditions. There shall be no irrigation on days when more than 0.2 inch of precipitation is received or when there is observation by operator of an imminent or impending rainfall event.
 - (g) Buffer Zones. There shall be no irrigation within 300 feet of any down gradient pond, lake, sinkhole, losing stream or water supply withdrawal; 100 feet of gaining streams or tributaries; 150 feet of dwelling; or 50 feet of the property line.
 - (h) Public Access Restrictions. Public access shall not be allowed to the irrigation site(s). Fencing and public access restrictions to land application sites shall be in accordance with requirements in 10 CSR 20-8.020(15)(B)(5).
 - (i) Nitrogen Loading Rates. Wastewater irrigation rates shall not exceed a nitrogen application rate of 150 pounds total nitrogen per acre. Hydraulic application rates exceeding 100 inches per acre per year shall calculate nitrogen loading rates and include results in the annual report. The calculation procedures are as follows: (Total N) x (inches per acre irrigated) = pounds total N per acre. Where Total N = total Kjeldahl nitrogen (TKN) as N + nitrate/nitrite nitrogen as N.
 - (j) Equipment Checks during Irrigation. The irrigation system and application site shall be visually inspected at least once/4 hours; during wastewater irrigation to check for equipment malfunctions and runoff from the irrigation site.
 - (k) Operation and Maintenance Manual. The permittee shall develop, maintain, and implement an Operation and Maintenance (O&M) Manual that includes all necessary items to ensure the operation and integrity of the waste handling and land application systems. Copies of the O&M Manual and subsequent revisions shall be submitted to the Departments' Water Pollution Control Program and Regional Office for review and approval. The O&M Manual shall be reviewed and updated at least every five years.
8. Lagoon and earthen basins shall have a liner that is designed, constructed and maintained in accordance with 10 CSR 20-8.020(13)(A) 4. Percolation losses shall not exceed 500 gallons per acre per day unless approved by the Department under 10 CSR 20-8.020(13)(A) 4.D. If operating records indicate excessive percolation, the Department may require a water balance test in accordance with 10 CSR 20-8.020(16).
9. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
10. Bypasses are not authorized at this facility and are subject to 40 CFR 122.41(m). If a bypass occurs, the permittee shall report in accordance to 40 CFR 122.41(m)(3)(i), and with Standard Condition Part I, Section B, subsection 2.b. Bypasses are to be reported to the Northeast Regional Office.
11. Applicable for Outfall #001: At least one gate, constructed of materials comparable to the fence, must be provided to access the lagoon and provide for maintenance and mowing. The gate shall remain locked except when opened by the permittee to perform maintenance or mowing.
12. At least one sign shall appear on the fence on each side of each facility. Minimum wording shall be "SEWAGE TREATMENT FACILITY – KEEP OUT", in letters at least 2 inches high.
13. Applicable for Outfall #001: The inner and outer berm slopes shall not be steeper than three to one (3:1). Inner berm slopes shall not be flatter than four to one (4:1). Consideration may be given to steeper inner slopes provided special attention is given to stabilizing the slope with rip-rap, concrete, or other rigid materials.
14. Applicable for Outfall #001: The berms of storage basins shall be mowed and kept free of any trees, muskrat dens, or other potential sources of damage to the berms.
15. An all-weather access road shall be provided from a public right-of-way to the treatment facility.

D. SPECIAL CONDITIONS (continued)

16. Applicable for Outfall #001: The discharge from the lagoon system shall be conveyed to the receiving stream via a closed pipe or a paved or rip-rapped open channel. Sheet or meandering drainage is not acceptable. The outfall sewer shall be protected against the effects of floodwater, ice or other hazards as to reasonably insure its structural stability and freedom from stoppage. The outfall shall be maintained so that a sample of the effluent can be obtained at a point after the final treatment process and before the discharge mixes with the receiving stream.
17. Applicable for Outfall #001: The facility shall ensure that adequate provisions are provided to prevent surface water intrusion in to the lagoon and to divert stormwater runoff around the lagoon and protect embankments from erosion.

E. SCHEDULE OF COMPLIANCE

1. Ammonia as N
 - (a) Within six (6) months of issuance of this permit, the permittee shall report progress made in attaining compliance with the final effluent limits.
 - (b) Within one (1) year of issuance of this permit, the permittee shall submit a report detailing progress made in attaining compliance with the final effluent limits.
 - (c) Within two (2) years of issuance of this permit, the permittee shall attain compliance with the final effluent limits.
2. E. coli
 - (a) The permittee must attain compliance with the final effluent limits as soon as possible, but no later than December 31, 2013.
 - (b) Within one (1) year of issuance of this permit, the permittee shall submit a report detailing progress made in attaining compliance with the final effluent limits.
 - (c) If the permittee fails to meet any of the interim dates above, the permittee shall notify the Department in writing of the reason for non-compliance no later than 14 days following each interim date.
 - (d) Upon completion of construction, the permittee shall submit a Statement of Work Complete signed by the owner and a Professional Engineer that is registered in the state of Missouri. (Only required if construction is required)

Missouri Department of Natural Resources
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0122564
NORWOODS SUBDIVISION WASTEWATER TREATMENT FACILITY

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

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

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

This Factsheet is for a Minor

Part I – Facility Information

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

Facility Description:

The facility consists of a single-celled, no discharge lagoon and a Septic Tank Effluent Pumping (STEP) system. The single-celled lagoon is a no-discharge system, storing wastewater used for irrigating a driving range. Outfall number 001 is associated with this no-discharge lagoon. The STEP system is used to treat domestic sewage. The sludge that collects in this STEP system is hauled and disposed of by the City of Hannibal WWTP. See page 2 of the permit for details.

Have any changes occurred at this facility or in the receiving water body that effects effluent limit derivation?
 - No.

Application Date: 05/20/2011
Expiration Date: 11/16/2011
Last Inspection: 11/10/2010 Non-Compliance

OUTFALL(S) TABLE:

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	EFFLUENT TYPE	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.01	Equivalent to Secondary	Domestic (Sanitary) Wastewater	1.98
002	0.0075	Secondary	Domestic (Sanitary) Wastewater	1.98

Outfall #001

Legal Description: N ½, Sec. 5, T56N, R5W, Ralls County
UTM Coordinates: X = 630147, Y = 4393681
Receiving Stream: Unnamed Tributary to Little Bear Creek (U)
First Classified Stream and ID: Bear Creek (C) (0009)
USGS Basin & Sub-watershed No.: (071100040501)

Outfall #002

Legal Description: NE ¼, NE ¼, NW ¼, Sec. 5, T56N, R5W, Ralls County

UTM Coordinates: X = 630153, Y = 4393755

Receiving Stream: Unnamed Tributary to Little Bear Creek (U)

First Classified Stream and ID: Bear Creek (C) (0009)

USGS Basin & Sub-watershed No.: (071100040501)

Receiving Water Body's Water Quality & Facility Performance History:

Water Quality:

The Norwoods Subdivision Wastewater Treatment Facility consists of a no-discharge lagoon, which has an emergency discharge outfall that flows into an Unnamed Tributary to Little Bear Creek, and a STEP system which also discharges into the Unnamed Tributary to Little Bear Creek. The Unnamed Tributary to Little Bear Creek (U) flows approximately 0.25 miles into the Little Bear Creek (U), which flows approximately 1.73 miles into Bear Creek (C). A TMDL was conducted for Bear Creek (C) in Adair County but will not be addressed in this permit. A TMDL does not exist for either of the other two streams mentioned above. Stream surveys do not exist for any of the streams listed above. The Bear Creek (C) has been designated with Whole Body Contact (WBC) – B. The discharge points for the facility are within two (2) miles of this designated stream area, therefore bacterial effluent limitations will be set for E. coli.

Performance History:

A Records Review of the Norwoods Subdivision Wastewater Treatment Facility was conducted on November 10, 2010. During this review, the facility was found to be in non-compliance due to reporting requirements, DMR requirements or other standard conditions not being met. A Letter of Warning (LOW) action and an Administratively Closed (ADCL) action were taken on November 18, 2010 in regards to the non-compliance mentioned above.

Several Letters of Warning (LOW) have been sent in the past, in addition to the LOW mentioned above and are listed below:

- September 24, 2009 – Ammonia as N not reported for Outfall #002, pH not reported for Outfall #001, report submitted without original signatures
- September 11, 2008 – pH holding time exceeded for analysis
- May 14, 2008 – Temperature in degrees Celsius not reported

Comments:

The irrigation area for the wastewater effluent from Outfall #001 is a driving range on a golf course. The facility has informed the Department that the golf balls used for the driving range are disinfected in a washing machine.

The facility submitted an application for construction of UV disinfection on December 28, 2011. This will be an addition to the facility that will require an operating permit modification upon completion of the construction.

See the Reasonable Potential Analysis (RPA) section and the Total Ammonia Nitrogen section below for explanation of the Ammonia as N effluent limitations set in this permit.

Part II – Operator Certification Requirements

As per [10 CSR 20-6.010(8) Terms and Conditions of a Permit], permittees shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions and regulations. Operators or supervisors of operations at regulated wastewater treatment facilities shall be certified in accordance with [10 CSR 20-9.020(2)] and any other applicable state law or regulation.

Not Applicable ; This facility is not required to have a certified operator. However, the facility has indicated that they utilize the services of the operator listed below.

The listing of the operator below only signifies that staff drafting this operating permit have reviewed appropriate Department records and determined that the name listed on the operating permit application has the correct and applicable Certification Level.

Operator's Name: Jon Rogers
Certification Number: 5730
Certification Level: A

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 lists 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.

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

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:

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	12-DIGIT HUC	EDU**
Unnamed Tributary to Little Bear Creek	U	N/A	General Criteria	071100040501	Central Plains/ Cuivre/Salt
Little Bear Creek	U	N/A	General Criteria		
Bear Creek	C	0009	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

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Unnamed Tributary to Little Bear Creek (U)	0.0	0.0	0.0

MIXING CONSIDERATIONS TABLE:

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 MONITORING REQUIREMENTS:

No receiving water monitoring requirements recommended at this time.

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 operating permit 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.

AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:

As per [10 CSR 20-6.010(3)(B)], ...An applicant may utilize a lower preference continuing authority by submitting, as part of the application, a statement waiving preferential status from each existing higher preference authority, providing the waiver does not conflict with any area-wide management plan approved under section 208 of the Federal Clean Water Act or any other regional sewage service and treatment plan approved for higher preference authority by the Department.

BIOSOLIDS & SEWAGE SLUDGE:

Biosolids are solid materials resulting from domestic wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works. Additional information regarding biosolids and sludge is located at the following web address:

<http://dnr.mo.gov/env/wpp/pub/index.html>, items WQ422 through WQ449.

- Sludge/biosolids are removed by contract hauler.

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)].

Pretreatment programs are required at any POTW (or combination of POTW operated by the same authority) and/or municipality with a total design flow greater than 5.0 MGD and receiving industrial wastes that interfere with or pass through the treatment works or are otherwise subject to the pretreatment standards. Pretreatment programs can also be required at POTWs/municipals with a design flow less than 5.0 MGD if needed to prevent interference with operations or pass through.

Several special conditions pertaining to the permittee's pretreatment program may be included in the permit, and are as follows:

- Implementation and enforcement of the program,
- Annual pretreatment report submittal,
- Submittal of list of industrial users,
- Technical evaluation of need to establish local limitations, and
- Submittal of the results of the evaluation

Not Applicable ;

The permittee, at this time, is not required to have a Pretreatment Program or does not have an approved pretreatment program.

REASONABLE POTENTIAL ANALYSIS (RPA):

Federal regulation [40 CFR Part 122.44(d)(1)(i)] requires effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause or contribute to an in-stream excursion above narrative or numeric water quality standard.

In accordance with [40 CFR Part 122.44(d)(iii)] if the permit writer determines that any give pollutant has the reasonable potential to cause, or contribute to an in-stream excursion above the WQS, the permit must contain effluent limits for that pollutant.

Applicable ;

A RPA was conducted on appropriate parameters. Please see **APPENDIX A – RPA RESULTS**. A RPA was conducted for just Outfall #002. The Discharge Monitoring Report (DMR) data did not contain the required minimum amount of data points to use the results for effluent limits calculations. However, these points did show a Reasonable Potential to exceed Water Quality Standards for Ammonia as N. Thus, the default Coefficient of Variation (CV) values have been used to determine effluent limitations for Ammonia as N. See the Total Ammonia Nitrogen section in Part V of the Factsheet for calculation.

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)/municipals.

Not Applicable ;

Influent monitoring is not being required to determine percent removal.

SANITARY SEWER OVERFLOWS (SSO) AND INFLOW AND INFILTRATION (I&I):

Sanitary Sewer Overflows (SSOs) are defined as an untreated or partially treated sewage release are considered bypassing under state regulation [10 CSR 20-2.010(11)] and should not be confused with the federal definition of bypass. SSO's have a variety of causes including blockages, line breaks, and sewer defects that allow excess storm water and ground water to (1) enter and overload the collection system, and (2) overload the treatment facility. Additionally, SSO's can be also be caused by lapses in sewer system operation and maintenance, inadequate sewer design and construction, power failures, and vandalism. SSOs also include overflows out of manholes and onto city streets, sidewalks, and other terrestrial locations.

Additionally, Missouri RSMo §644.026.1 mandates that the Department require proper maintenance and operation of treatment facilities and sewer systems and proper disposal of residual waste from all such facilities.

- 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 were established in accordance with [10 CSR 20-7.031(10)]. Ammonia as N limitations must be met within two years of the issuance of the permit. This has been determined sufficient time to meet the limitations. UV disinfection is being installed at the facility for Outfall #002. A schedule of compliance for E. coli has been set in this permit to incorporate the construction of the UV disinfection system.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP):

In accordance with 40 CFR 122.44(k) *Best Management Practices (BMPs)* to control or abate the discharge of pollutants when: (1) Authorized under section 304(e) of the Clean Water Act (CWA) for the control of toxic pollutants and hazardous substances from ancillary industrial activities; (2) Authorized under section 402(p) of the CWA for the control of storm water discharges; (3) Numeric effluent limitations are infeasible; or (4) the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

In accordance with the EPA's *Developing Your Stormwater Pollution Prevention Plan, A Guide for Industrial Operators*, (Document number EPA 833-B-09-002) [published by the United States Environmental Protection Agency (USEPA) in February 2009], BMPs are measures or practices used to reduce the amount of pollution entering (regarding this operating permit) waters of the state. BMPs may take the form of a process, activity, or physical structure.

Additionally in accordance with the Storm Water Management, a SWPPP is a series of steps and activities to (1) identify sources of pollution or contamination, and (2) select and carry out actions which prevent or control the pollution of storm water discharges.

Not Applicable ;

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

VARIANCE:

As per the Missouri Clean Water Law § 644.061.4, variances shall be granted for such period of time and under such terms and conditions as shall be specified by the commission in its order. The variance may be extended by affirmative action of the commission. In no event shall the variance be granted for a period of time greater than is reasonably necessary for complying with the Missouri Clean Water Law §§644.006 to 644.141 or any standard, rule or regulation promulgated pursuant to Missouri Clean Water Law §§644.006 to 644.141.

Not Applicable ;

This operating permit is not drafted under premises of a petition for variance.

WASTELOAD ALLOCATIONS (WLA) FOR LIMITS:

As per [10 CSR 20-2.010(78)], the amount of pollutant each discharger is allowed by the Department to release into a given stream after the Department has determined total amount of pollutant that may be discharged into that stream without endangering its water quality.

Applicable ;

Wasteload allocations were calculated where applicable using water quality criteria or water quality model results and the dilution equation below:

$$C = \frac{(C_s \times Q_s) + (C_e \times Q_e)}{(Q_e + Q_s)} \quad (\text{EPA/505/2-90-001, Section 4.5.5})$$

Where C = downstream concentration

Cs = upstream concentration

Qs = upstream flow

Ce = effluent concentration

Qe = effluent flow

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

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

Number of Samples “n”:

Additionally, in accordance with the TSD for water quality-based permitting, effluent quality is determined by the underlying distribution of daily values, which is determined by the Long Term Average (LTA) associated with a particular Wasteload Allocation (WLA) and by the Coefficient of Variation (CV) of the effluent concentrations. Increasing or decreasing the monitoring frequency does not affect this underlying distribution or treatment performance, which should be, at a minimum, be targeted to comply with the values dictated by the WLA. Therefore, it is recommended that the actual planned frequency of monitoring normally be used to determine the value of “n” for calculating the AML. However, in situations where monitoring frequency is once per month or less, a higher value for “n” must be assumed for AML derivation purposes. Thus, the statistical procedure being employed using an assumed number of samples is “n = 4” at a minimum. For Total Ammonia as Nitrogen, “n = 30” is used.

WLA MODELING:

There are two general types of effluent limitations, technology-based effluent limits (TBELs) and water quality based effluent limits (WQBELs). If TBELs do not provide adequate protection for the receiving waters, then WQBEL must be used.

Not Applicable ;

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

WATER QUALITY STANDARDS:

Per [10 CSR 20-7.031(3)], General Criteria shall be applicable to all waters of the state at all times including mixing zones. Additionally, [40 CFR 122.44(d)(1)] directs the Department to establish in each NPDES permit to include conditions to achieve water quality established under Section 303 of the Clean Water Act, including State narrative criteria for water quality.

WHOLE EFFLUENT TOXICITY (WET) TEST:

A WET test is a quantifiable method of determining if a discharge from a facility may be causing toxicity to aquatic life by itself, in combination with or through synergistic responses when mixed with receiving stream water.

Not Applicable ;

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

40 CFR 122.41(M) - BYPASSES:

The federal Clean Water Act (CWA), Section 402 prohibits wastewater dischargers from “bypassing” untreated or partially treated sewage (wastewater) beyond the headworks. A bypass, which includes blending, is defined as an intentional diversion of waste streams from any portion of a treatment facility, [40 CFR 122.41(m)(1)(i)]. Additionally, Missouri regulation 10 CSR 20-2.010(11) defines a bypass as the diversion of wastewater from any portion of wastewater treatment facility or sewer system to waters of the state. Only under exceptional and specified limitations do the federal regulations allow for a facility to bypass some or all of the flow from its treatment process. Bypasses are prohibited by the CWA unless a permittee can meet all of the criteria listed in 40 CFR 122.41(m)(4)(i)(A), (B), & (C). Any bypasses from this facility are subject to the reporting required in 40 CFR 122.41(1)(6) and per Missouri’s Standard Conditions I, Section B, part 2.b. Additionally, Anticipated Bypasses include bypasses from peak flow basins or similar devices designed for peak wet weather flows.

- Not Applicable, this facility does not bypass.

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

Not Applicable ;

This facility does not discharge to a 303(d) listed stream.

Part V – Effluent Limits Determination

Effluent limitations derived and established in the below Effluent Limitations Table are based on current operations of the facility. Future permit action due to facility modification may contain new operating permit terms and conditions that supersede the terms and conditions, including effluent limitations, of this operating permit.

EFFLUENT LIMITATIONS TABLE:

Outfall #001:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
LAGOON FREEBOARD	FEET	1	*			NO	*
IRRIGATION PERIOD	HOURS	1	*			NO	*
VOLUME IRRIGATION	GALLONS	1	*			NO	*
APPLICATION AREA	ACRES	1	*			NO	*
APPLICATION RATE	INCHES/ACRE	1	*			NO	*
RAINFALL	INCHES	1	*			NO	*

* - Monitoring requirement only.

Outfall #002:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
FLOW	GPD	1	*		*	NO	*/*
BOD ₅	MG/L	1,3		45	30	NO	45/30
TSS	MG/L	1,3		45	30	NO	45/30
PH	SU	1,3	6.5-9.0		6.5-9.0	YES	6.0-9.0
AMMONIA AS N (APRIL 1 – SEPT 30)	MG/L	1,2,5	3.7		1.4	YES	*/*
AMMONIA AS N (OCT 1 – MARCH 31)	MG/L	1,2,5	7.5		2.9	YES	*/*
ESCHERICHIA COLI	***	1,3	1030		206	YES	FECAL COLIFORM 1000/400
OIL & GREASE (MG/L)	MG/L	1,3	15		10	YES	***

* - Monitoring requirement only.

** - # of colonies/100mL; the Monthly Average for *E. coli* is a geometric mean.

*** - Parameter not previously established in previous state 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. Antidegradation Review | |

OUTFALL #001 – DERIVATION AND DISCUSSION OF LIMITS:

This is a no-discharge system and does not allow discharge of the previous parameters into waters of the State. All parameters for this outfall are monitoring requirements only.

OUTFALL #002 – DERIVATION AND DISCUSSION OF LIMITS:

- **Flow**. In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.
- **Biochemical Oxygen Demand (BOD₅)**. Effluent limitations from the previous state operating permit have been reassessed and verified that they are still protective of the receiving stream's Water Quality. Therefore, 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 from the previous state operating permit have been reassessed and verified that they are still protective of the receiving stream's Water Quality. Therefore, 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**. In accordance with 10CSR 20-7.015(8)(A)1., pH shall be maintained between 6.5 and 9.0.

- **Total Ammonia Nitrogen.** Early Life Stages Present Total Ammonia Nitrogen criteria apply [10 CSR 20-7.031(4)(B)7.C. & Table B3] default pH 7.8 SU Background total ammonia nitrogen = 0.01 mg/L. No mixing considerations allowed; therefore, WLA = appropriate criterion. An RPA shows that there is Reasonable Potential to exceed Water Quality Standards. However, the data set does not meet the 10 value minimum for the use of those values so the default CV has been used to calculate Ammonia as N limitations.

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg/L)	Total Ammonia Nitrogen CMC (mg/L)
Summer	26	7.8	1.5	12.1
Winter	6	7.8	3.1	12.1

Summer: April 1 – September 30

Chronic WLA: $C_e = ((0.0075 + 0.0)1.5 - (0.0 * 0.01))/0.0075$
 $C_e = 1.5 \text{ mg/L}$

Acute WLA: $C_e = ((0.0075 + 0.0)12.1 - (0.0 * 0.01))/0.0075$
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 1.5 \text{ mg/L} (0.780) = \mathbf{1.2 \text{ mg/L}}$
 $LTA_a = 12.1 \text{ mg/L} (0.321) = 3.9 \text{ mg/L}$

[CV = 0.6, 99th Percentile, 30 day avg.]
 [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

MDL = 1.2 mg/L (3.11) = 3.7 mg/L
 AML = 1.2 mg/L (1.19) = 1.4 mg/L

[CV = 0.6, 99th Percentile]
 [CV = 0.6, 95th Percentile, n =30]

Winter: October 1 – March 31

Chronic WLA: $C_e = ((0.0075 + 0.0)3.1 - (0.0 * 0.01))/0.0075$
 $C_e = 3.1 \text{ mg/L}$

Acute WLA: $C_e = ((0.0075 + 0.0)12.1 - (0.0 * 0.01))/0.0075$
 $C_e = 12.1 \text{ mg/L}$

$LTA_c = 3.1 \text{ mg/L} (0.780) = \mathbf{2.4 \text{ mg/L}}$
 $LTA_a = 12.1 \text{ mg/L} (0.321) = 3.9 \text{ mg/L}$

[CV = 0.6, 99th Percentile, 30 day avg.]
 [CV = 0.6, 99th Percentile]

Use most protective number of LTA_c or LTA_a .

MDL = 2.4 mg/L (3.11) = 7.5 mg/L
 AML = 2.4 mg/L (1.19) = 2.9 mg/L

[CV = 0.6, 99th Percentile]
 [CV = 0.6, 95th Percentile, n =30]

- **Escherichia coli (E. coli).** Monthly Average of 206 per 100 ml as a geometric mean and Daily Maximum of 1030 during the recreational season (April 1 – October 31), to protect Whole Body Contact Recreation (B) designated use of the receiving stream, as per 10 CSR 20-7.031(4)(C). Daily Maximum effluent variability will be evaluated in development of a future effluent limit. An effluent limit for both monthly average and weekly average is required by 40 CFR 122.45(d).
- **Oil & Grease.** Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

Part VI: Finding of Affordability

Pursuant to Section 644.145, RSMo., the Department is required to determine whether a permit or decision is affordable and makes a finding of affordability for certain permitting and enforcement decisions. This requirement applies to discharges from combined or separate sanitary sewer systems or publically-owned treatment works.

Not Applicable;

The Department is not required to determine findings of affordability because the facility is not a **combined or separate sanitary sewer system for a publically-owned treatment works.**

Part VII – Administrative Requirements

On the basis of preliminary staff review and the application of applicable standards and regulations, the Department, as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions contained herein and within the operating permit. The proposed determinations are tentative pending public comment.

PUBLIC NOTICE:

The Department shall give public notice that a draft permit has been prepared and its issuance is pending. Additionally, public notice will be issued if a public hearing is to be held because of a significant degree of interest in and water quality concerns related to a draft permit. No public notice is required when a request for a permit modification or termination is denied; however, the requester and permittee must be notified of the denial in writing.

The Department must issue public notice of a pending operating permit or of a new or reissued statewide general permit. The public comment period is the length of time not less than 30 days following the date of the public notice which interested persons may submit written comments about the proposed permit.

For persons wanting to submit comments regarding this proposed operating permit, then please refer to the Public Notice page located at the front of this draft operating permit. The Public Notice page gives direction on how and where to submit appropriate comments.

- The Public Notice period for this operating permit began on June 8, 2012 and ended on July 9, 2012. No comments were received during the Public Notice period.

DATE OF FACT SHEET: APRIL 20, 2012

COMPLETED BY:

**LOGAN COLE, ENVIRONMENTAL SPECIALIST I
DOMESTIC WASTEWATER UNIT
OPERATING PERMITS SECTION
WATER PROTECTION PROGRAM
(573) 751-5827
LOGAN.COLE@DNR.MO.GOV**

Appendices

APPENDIX A – RPA RESULTS:

OUTFALL #002:

<u>Symbol</u>	<u>Analyte</u>	<u>Units</u>	<u>CMC</u>	<u>RWC Acute</u>	<u>CCC</u>	<u>RWC Chronic</u>	<u>Reasonable Potential</u>	<u>n*</u>	<u>CV**</u>
NH3	Total Ammonia as Nitrogen (Summer)	mg/L	12.10	171.04	1.50	171.04	YES	7	0.939098658
NH3	Total Ammonia as Nitrogen (Winter)	mg/L	12.10	112.53	3.10	112.53	YES	7	0.955448337

N/A – Not Applicable

* - If the number of samples is 10 or greater, then the CV value must be used in the WQBEL for the applicable constituent.

** - Coefficient of Variation (CV) is calculated by dividing the Standard Deviation of the sample set by the Mean of the same sample set.

RWC – Receiving Water Concentration. It is the concentration of a toxicant or the parameter toxicity in the receiving water after mixing (if applicable).

n – Is the number of samples.

MF – Multiplying Factor. 99% Confidence Level and 99% Probability Basis.

RP – Reasonable Potential. It is where an effluent is projected or calculated to cause an excursion above a water quality standard based on a number of factors including, as a minimum, the four factors listed in 40 CFR 122.44(d)(1)(ii).

Reasonable Potential Analysis is conducted as per (TSD, EPA/505/2-90-001, Section 3.3.2). A more detailed version including calculations of this RPA is available upon request.