

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-0034509

Owner: MDNR – Division of State Parks
Address: PO Box 176, Jefferson City, MO 65102

Continuing Authority: Same as above
Address: Same as above

Facility Name: MDNR, Dr. Edmund A. Babler Memorial State Park
Address: 800 Guy Park Drive, Wildwood, MO 63005

Legal Description: See page 2
Latitude/Longitude: See page 2

Receiving Stream: See page 2
First Classified Stream and ID: See page 2
USGS Basin & Sub-watershed No.: (10300200-130003)

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

FACILITY DESCRIPTION – See pages 2 - 4

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.

March 12, 2010
Effective Date


Mark N. Templeton, Director, Department of Natural Resources

March 11, 2015
Expiration Date


Mike Struckhoff, Director, St. Louis Regional Office

FACILITY DESCRIPTIONS

Outfall #001 – Outdoor Education Center lagoon

Legal Description: Land Grant 1956, St. Louis Co.
Latitude/Longitude: +3836258/-09042339
Receiving Stream: Unnamed tributary to Wildhorse Creek (U)
First Classified Stream & ID: Wildhorse Creek (C) (01700)
USGS Basin & Sub-watershed No. (10300200-130000)

Facility Description: No-discharge / domestic wastewater - SIC #4952
 Single cell storage lagoon/wastewater irrigation/sludge is retained in lagoon.
 Design population equivalent: **65**
 Annual Avg. design flow with 1-in-10 year rainfall minus evaporation: **4,300 gallons/day (gpd)**
 Est. Annual Average flow: Less than 1,000 gpd
 Design sludge production: 1.0 dry tons per year.

<u>Design Basis:</u>	<u>April - Oct</u>	<u>Nov - Mar</u>
Design dry weather flows	5,000 gpd	1,700 gpd
Design with 1-in-10 year flows	5,700 gpd	2,400 gpd

<u>Storage Volumes:</u>	<u>Elevation</u>	<u>Depth (ft.)</u>	<u>Volume (gallons)</u>
Empty	536.1	0.0	0
Minimum	538.1	2.0	351,580
Normal Max	540.1	4.0	837,820
Maximum	541.1	5.0	1,131,430
Emergency Overflow	541.6		
Berm Top	542.6		

Normal freeboard: Elev 542.6 – 540.1 = 2.5 ft.

Detention Storage Days:
 Normal Dry Weather: 837,820 / 5,000 gpd = 167.6 days
 Design with 1-in-10 year flows: 1,131,430 / 5,700 gpd = 198.5 days
 Storage between 2 – 4 ft. elev: (837,820 – 351,580) / 1,700 gpd = 286 days

Land Application:
 Irrigation Volume/year: 1,580,000 gallons (including 1-in-10 year flows)
 Irrigation area: 1.9 acres (82,500 sq. ft.)
 Application rates: 0.19 inch/hour; 0.146 inch/day; 1.0 inch/week; 30.6 inches/year
 Max weekly application rate (based on 2-inches/week): 82,500 x 2/12 x 7.48 = 105,850 gallons/week (14,700 gpd)
 Field slopes: less than 2.0 percent
 Equipment type: Rainbird 70H spray heads; 165 gpm pumping rate.
 Vegetation: Mixed woods/grass
 Application rate based on: Hydraulic loading rate

Outfall #002 – Imhoff Tank and Sand Filter - To be eliminated – SIC 4952

Legal Description: Land grant 1956, St. Louis Co.
Latitude/Longitude: +3837488/-09041545
Receiving Stream: Unnamed tributary to Wildhorse Creek (U)
First Classified Stream & ID: Wildhorse Creek (C) (01700)
USGS Basin & Sub-watershed No. (10300200-130000)

Outfall #003 – Campground lagoon

Legal Description: SE ¼, NE ¼, SW ¼, Sec. 28, T45N, R3E, St. Louis Co.
Latitude/Longitude: +3836400/-09041200
Receiving Stream: Unnamed tributary to Bonhomme Creek (U)
First Classified Stream & ID: Bonhomme Creek (C) (01701)
USGS Basin & Sub-watershed No. (10300200-130000)

Facility Description: No-discharge / domestic wastewater - SIC #4952
 Single cell storage lagoon/wastewater irrigation/sludge is retained in lagoon.
 Design population equivalent: **96**
 Annual Avg. design flow with 1-in-10 year rainfall minus evaporation: **5,000 gallons/day (gpd)**
 Est. Annual Average flow: Approx. 4,500 gpd
 Design sludge production: 1.4 dry tons per year.

<u>Design Basis:</u>	<u>April - Oct</u>	<u>Nov - Mar</u>
Design dry weather flows	6,500 gpd	2,000 gpd
Design with 1-in-10 year flows	6,800 gpd	2,300 gpd

<u>Storage Volumes:</u>	<u>Elevation</u>	<u>Depth (ft.)</u>	<u>Volume (gallons)</u>
Empty	656.95	0.0	0
Minimum	658.95	2.0	280,370
Normal Max	660.95	4.0	615,130
Maximum	661.95	5.0	804,240
Emergency Overflow	662.45		
Berm Top	663.45		

Normal freeboard: Elev 663.45 – 660.95 = 2.5 ft.

Detention Storage Days:
 Normal Dry Weather: 615,130 / 6,500 gpd = 94.6 days
 Design with 1-in-10 year flows: 804,240 / 6,800 gpd = 118.3 days
 Storage between 2 – 4 ft. elev: (615,130 – 280,370) / 2,000 gpd = 167 days

Land Application:
 Irrigation Volume/year: 1,803,000 gallons (including 1-in-10 year flows)
 Irrigation area: 2.65 acres (115,800 sq. ft.)
 Application rates: 0.20 inch/hour; 0.12 inch/day; 0.8 inch/week; 25.0 inches/year
 weekly application rate (based on 2-inches/week): 115,800 x 2/12 x 7.48 = 144,000 gallons/week (20,600 gpd)
 Field slopes: less than 2.0 percent
 Equipment type: Rainbird 70H spray heads; 240 gpm pumping rate.
 Vegetation: Mixed woods/grass
 Application rate based on: Hydraulic loading rate

Outfall #004 - Visitor Center mechanical treatment plant with overland flow disposal. To be closed and flows diverted to the campground lagoon. – SIC 4952

Legal Description: SE ¼, NE ¼, NE ¼, Sec 18, T45N, R3E, St. Louis Co.
Latitude/Longitude: +3837012/-09041226
Receiving Stream: Unnamed tributary to Bonhomme Creek (U)
First Classified Stream: Bonhomme Creek (C) (01701)
USGS Basin & Sub-watershed No. (10300200-130000)

Outfall #005 – Main (Pasture) lagoon

Legal Description: Land grant 1956, St. Louis Co.
Latitude/Longitude: +3838200/-09041340
Receiving Stream: Unnamed tributary to Wildhorse Creek (U)
First Classified Stream: Wildhorse Creek (C) (01700)
USGS Basin & Sub-watershed No. (10300200-130000)

Facility Description: No-discharge / domestic wastewater - SIC #4952
 Single cell storage lagoon/wastewater irrigation/sludge is retained in lagoon.
 Design population equivalent: **58**
 Annual Avg. design flow with 1-in-10 year rainfall minus evaporation: **4,300 gallons/day (gpd)**
 Est. Annual Average flow: Approx. 3,000 gpd
 Design sludge production: 0.9 dry tons per year.

<u>Design Basis:</u>	<u>April - Oct</u>	<u>Nov - Mar</u>
Design dry weather flows	5,000 gpd	3,000 gpd
Design with 1-in-10 year flows	4,860 gpd	3,500 gpd

<u>Storage Volumes:</u>	<u>Elevation</u>	<u>Depth (ft.)</u>	<u>Volume (gallons)</u>
Empty	503.8	0.0	0
Minimum	505.8	2.0	704,150
Normal Max	507.8	4.0	1,481,000
Maximum	508.8	5.0	1,897,810
Emergency Overflow	509.3		
Berm Top	510.3		

Normal freeboard: Elev 510.3 – 507.8 = 1.5 ft.

Detention Storage Days:
 Normal Dry Weather: 1,481,000 / 5,000 gpd = 296 days
 Design with 1-in-10 year flows: 1,897,810 / 4,860 gpd = 390 days
 Storage between 2 – 4 ft. elev: (1,481,000 – 704,150) / 3,000 gpd = 259 days

Land Application:
 Irrigation Volume/year: 1,568,000 gallons (including 1-in-10 year flows)
 Irrigation area: 3.7 acres (160,850 sq. ft.)
 Application rates: 0.19 inch/hour; 0.074 inch/day; 0.5 inch/week; 15.6 inches/year
 Max weekly application rate (based on 2-inches/week): 160,850 x 2/12 x 7.48 = 200,500 gallons/week (28,600 gpd)
 Field slopes: less than 2.0 percent
 Equipment type: Rainbird 70H spray heads; 310 gpm pumping rate.
 Vegetation: Mixed woods/grass
 Application rate based on: Hydraulic loading rate

Outfall #006: **Public swimming pool.** Pool is currently not in service but may eventually be placed back into service.

Legal Description: Land grant 1956, St. Louis Co.
Latitude/Longitude: +3837318/-09041528
Receiving Stream: Unnamed tributary to Wildhorse Creek (U)
First Classified Stream: Wildhorse Creek (C) (01700) (losing)
USGS Basin & Sub-watershed No. (10300200-130000)

Outfall #007: **Outdoor Education Center swimming pool.** End-of-season dewatering discharge.

Legal Description: USS 1958 (SE ¼, NE ¼, NE ¼, Sec. 20, proj.) T45N, R3E, St. Louis Co.
Latitude/Longitude: +3837012/-09041226
Receiving Stream: Unnamed tributary to Bonhomme Creek (U)
First Classified Stream: Bonhomme Creek (C) (01701)
USGS Basin & Sub-watershed No. (10300200-130000)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 5 of 9	
					PERMIT NUMBER MO-0034509	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfalls #001, #003, & #005 - Land Application Operational Monitoring (Notes 2 & 3)</u>						
Lagoon Freeboard	feet	*			once/month	Measured
Irrigation Period	hours	*			daily	total
Volume Irrigated	gallons	*			daily	total
Application Area	acres	*			daily	total
Application Rate	inches/day	*			daily	total
Rainfall	inches/day	*			daily	total
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>JULY 28, 2010</u> .						
<u>Outfalls #001, #003, & #005 – Irrigated wastewater (Notes 4 & 5)</u>						
Organic Nitrogen as N	mg/L	*			once/quarter	grab
Ammonia Nitrogen as N	mg/L	*			once/quarter	grab
Nitrite Nitrogen as N	mg/L	*			once/quarter	grab
Nitrate Nitrogen as N	mg/L	*			once/quarter	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>JULY 28, 2010</u> .						
<u>Outfalls #006 & #007 – End of season swimming pool dewatering water.</u>						
Flow	gallons	*		*	Once/event	Estimate
pH – Units	SU	***		***	Once/event	grab
Total Residual Chlorine (Note 6)	mg/L	ND		ND	Once/event	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>JULY 28, 2010</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)

- * Monitoring requirement only.
- ** Monitor only when discharge occurs. Report as no-discharge when a discharge does not occur during the report period.
- *** This facility is required to meet a removal efficiency of 65% or more.
- **** pH is measured in pH units and is not to be averaged. The pH shall be maintained above 6.0 pH units.

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

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

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

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

Note 4 - Wastewater that is irrigated shall be sampled at the irrigation pump or wet well.

Note 5 - Monitor once per month during the months of March through November (9 months/year).

Note 6 – There shall be no detectible concentration of Total Residual Chlorine (TRC) in the discharge. At the end of the season, the pool water shall be allowed to sit without any addition of chlorine until the TRC in the water has dissipated into the atmosphere.

C. SPECIAL CONDITIONS

1. Emergency Discharge. Discharges from the emergency spillways of any of the lagoon facilities (outfalls #001, #003, and/or #005) is allowed if (1) rainfall exceeds the 1 in 10 year (Data taken from the Missouri Climate Atlas) or the 24 hour, 25 year (Data taken from NRCS Urban Hydrology for Small Watersheds) rainfall events, and (2) if the lagoons are filled to the maximum level of the overflow structure and irrigation of the fields is not feasible or desirable. **Discharge for any other reason shall constitute a permit violation and shall be reported in accordance with Standard Conditions, Part 1, Section B.2.b.** Monitoring shall take place once per day while discharging. Test results are due on the 28th day of the month after the cessation of the discharge. Permittee shall monitor for the following constituents:

Constituent	Units
Flow	MGD
Biochemical Oxygen Demand ₅	mg/L
Total Suspended Solids	mg/l
Total Ammonia Nitrogen	mg/L
Temperature	°C
pH – Units	Standard Units

2. Report as no-discharge when a land application does not occur during the report period.
3. 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.
4. Outfalls must be marked in field and on the topographic site map submitted with the permit application.

C. SPECIAL CONDITIONS (continued)

5. 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.

6. Lagoons and earthen basins shall have a liner that is designed, constructed and maintained. If operating records indicate excessive percolation, the department may require corrective action as necessary to eliminate excess leakage.
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. 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 rainfall above the 1-in-10 year or 25-year-24 hour storm event. Wastewater shall be land applied whenever feasible based on soil and weather conditions and permit requirements. Storage lagoon(s) shall be lowered to the minimum operating level prior to each winter by November 30.
 - c. Emergency Spillway. Lagoons and earthen storage basins should have an emergency spillway to protect the structural integrity of earthen structures during operation at near full water levels and in the event of overflow conditions. The spillway shall be at least one foot below top of berm. The department may waive the requirement for overflow structures on small existing basins.
 - d. General Irrigation Requirements. The wastewater irrigation system shall be operated so as to provide uniform distribution of irrigated wastewater over the entire irrigation site. A complete ground cover of vegetation shall be maintained on the irrigation site. 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.

C. SPECIAL CONDITIONS (continued)

7. Wastewater Irrigation System (continued)

- e. Saturated/Frozen Conditions. There shall be no irrigation during frozen, snow covered, or saturated soil conditions.
- f. Buffer Zones. There shall be no irrigation within 300 feet of any down gradient pond, lake, sinkhole, losing stream or water supply withdrawal; 100 feet of gaining streams or tributaries; 150 feet of dwelling or public use areas; or 50 feet of the property line.
- g. Public Access Restrictions. Public access shall not be allowed to the irrigation site(s).
- h. Operation and Maintenance Manual.
The permittee shall develop, maintain and implement an Operation and Maintenance (O&M) Manual that includes all necessary items to ensure the operation and integrity of the waste handling and land application systems. Copies of the O&M Manual and subsequent revisions shall be submitted to Regional Office for review and approval. The O&M Manual shall be reviewed and updated at least every five years.
- i. Nitrogen Loading Rates. Wastewater irrigation rates shall not exceed a nitrogen application rate of 150 pounds total nitrogen per acre per year.
- j. Equipment Checks during Irrigation. The irrigation system and application site shall be visually inspected at least once/day during wastewater irrigation to check for equipment malfunctions and runoff from the irrigation site.

Missouri Department of Natural Resources

FACT SHEET
FOR THE PURPOSE OF RENEWAL AND MODIFICATION
OF
MO-0034509

MDNR, DR. EDMUND A. BABLER STATE PARK

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

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

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

This Factsheet is for a Major [], Minor [x], Industrial Facility []; Variance []; Master General Permit []; General Permit Covered Facility []; and/or permit with widespread public interest [].

Part I - Facility Information

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

Facility Description: Three no-discharge land application systems, each with lagoon pre-treatment and storage cells. The three land application systems are to be upgraded to allow for more storage in each of the three cells and also upgrades to the spray irrigation systems at each of the three sites. In addition, the existing mechanical treatment facility now serving the Visitor's Center is being eliminated and the flows diverted to the Main "Pasture" lagoon. An existing, but seldom used, outfall from an old Imhoff primary treatment system is also being eliminated. Outfalls #006 and #007 for two swimming pool discharges inside the Park are being retained although they are seldom used and will only discharge water at the end of the recreational season to empty the pools.

Application Date: November 26, 2008
Expiration Date: November 30, 2005

Last Inspection: August 14, 2008 In Compliance []; Non-Compliance [x]

OUTFALL(S) TABLE:

Table with 5 columns: OUTFALL, DESIGN FLOW (CFS), TREATMENT LEVEL, EFFLUENT TYPE, DISTANCE TO CLASSIFIED SEGMENT (MI). Rows include outfalls 001 through 007 with details on flow, treatment, and distance.

Outfall #001 – Outdoor Education Center lagoon

Legal Description: Land grant 1956, St. Louis Co.
Latitude/Longitude: +3836257/-09042339
Receiving Stream: Unnamed tributary to Wildhorse Creek (U)
First Classified Stream & ID: Wildhorse Creek (C) (01700)
USGS Basin & Sub-watershed No. (10300200-130000)

Outfall #002 – Imhoff Tank and Sand Filter - To be eliminated – SIC 4952

Legal Description: Land grant 1956, St. Louis Co.
Latitude/Longitude: +3837488/-09041545
Receiving Stream: Unnamed tributary to Wildhorse Creek (U)
First Classified Stream & ID: Wildhorse Creek (C) (01700)
USGS Basin & Sub-watershed No. (10300200-130000)

Outfall #003 – Campground lagoon

Legal Description: SE ¼, NE ¼, SW ¼, Sec. 28, T45N, R3E, St. Louis Co.
Latitude/Longitude: +3836407/-09041193
Receiving Stream: Unnamed tributary to Bonhomme Creek (U)
First Classified Stream & ID: Bonhomme Creek (C) (01701)
USGS Basin & Sub-watershed No. (10300200-130000)

Outfall #004 - Visitor Center mechanical treatment plant with overland flow disposal. To be closed and flows diverted to the campground lagoon. – SIC 4952

Legal Description: Land grant 1956, St. Louis Co.
Latitude/Longitude: +3837012/-09041226
Receiving Stream: Unnamed tributary to Bonhomme Creek (U)
First Classified Stream: Bonhomme Creek (C) (01701)
USGS Basin & Sub-watershed No. (10300200-130000)

Outfall #005 – Main (Pasture) lagoon

Legal Description: Land grant 1956, St. Louis Co.
Latitude/Longitude: +3838202/-09041343
Receiving Stream: Unnamed tributary to Wildhorse Creek (U)
First Classified Stream: Wildhorse Creek (C) (01700)
USGS Basin & Sub-watershed No. (10300200-130000)

Outfall #006: Public swimming pool. Pool is currently not in service but may eventually be placed back into service.

Legal Description: Land grant 1956, St. Louis Co.
Latitude/Longitude: +3837318/-09041528
Receiving Stream: Unnamed tributary to Wildhorse Creek (U)
First Classified Stream: Wildhorse Creek (C) (01700) (losing)
USGS Basin & Sub-watershed No. (10300200-130000)

Outfall #007: Outdoor Education Center swimming pool. End-of-season dewatering discharge.

Legal Description: Land grant 1956, St. Louis Co.
Latitude/Longitude: +3836242/-09042153
Receiving Stream: Unnamed tributary to Bonhomme Creek (U)
First Classified Stream: Bonhomme Creek (C) (01701)
USGS Basin & Sub-watershed No. (10300200-130000)

Water Quality History: Insufficient storage in the lagoons has been a recurring problem. The current application for a construction permit is for upgrades that should eliminate these problems and also upgrade the existing facilities in many other ways.

Comments: None

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

This facility is not required to have a certified operator.

Part III – Receiving Stream Information

APPLICABLE DESIGNATIONS OF WATERS OF THE STATE:

As per Missouri’s Effluent Regulations [10 CSR 20-7.015], the waters of the state are divided into the below listed seven (7) categories. Each category 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:

OUTFALL & WATERBODY NAME		CLASS	WBID	DESIGNATED USES*	8-DIGIT HUC	EDU**
001, 002, 005, 006	Unnamed tributary to Wildhorse Creek	U	01700	N/A	10300200	Ozark/Moreau/Loutre
001, 002, 005, 006	Wildhorse Creek	C		WBC***		
003, 004, 007	Unnamed tributary to Bonhomme Creek	U	01701	N/A		
003, 004, 007	Bonhomme Creek	C		WBC****		

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

** - Ecological Drainage Unit

*** - UAA conducted on July 5, 2005 and approved on DATE or disapproved on DATE.

**** - UAA has not been conducted.

RECEIVING STREAM(S) LOW-FLOW VALUES TABLE:

RECEIVING STREAM (U, C, P)	LOW-FLOW VALUES (CFS)		
	1Q10	7Q10	30Q10
Unnamed tributary to Wildhorse Creek (U)	0.0	0.0	0.0
Wildhorse Creek (C)	0.0	0.0	0.1
Unnamed tributary to Bonhomme Creek (U)	0.0	0.0	0.0
Bonhomme Creek (C)	0.0	0.0	0.1

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.

Outfall #006, which is end-of-season drainage water from the park public swimming pool, is not currently active since the swimming pool is not in service. But since if it may become active, effluent limits for the major parameters of concern are included in Table A of this permit.

ANTI-BACKSLIDING:

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

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

ANTIDegradation:

In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(2)], the department is to document by means of Antidegradation Review that the use of a water body's available assimilative capacity is justified. Degradation is justified by documenting the socio-economic importance of a discharging activity after determining the necessity of the discharge.

This action is for a permit renewal. No degradation is proposed and no further review is necessary.

BIO-SOLIDS, SLUDGE, & SEWAGE SLUDGE:

Bio-solids are solid materials resulting from wastewater treatment that meet federal and state criteria for beneficial uses (i.e. fertilizer). Sludge is any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect. Sewage sludge is solids, semi-solids, or liquid residue generated during the treatment of domestic sewage in a treatment works; including but not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screening generated during preliminary treatment of domestic sewage in a treatment works.

This facility has been approved to land apply as per Permit Standard Conditions III and a department approved bio-solids management plan.

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.

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

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.

Applicable ;

A RPA was conducted on appropriate parameters. Please see **APPENDIX # – RPA RESULTS**.

Not Applicable ;

A RPA was not conducted for this facility.

REMOVAL EFFICIENCY:

Removal efficiency is a method by which the Federal Regulations define Secondary Treatment and Equivalent to Secondary Treatment, which applies to Biochemical Oxygen Demand 5-day (BOD₅) and Total Suspended Solids (TSS) for Publicly Owned Treatment Works (POTWs)/municipals. Please see the United States Environmental Protection Agency's (EPA) website for interpretation of percent removal requirements for National Pollutant Discharge Elimination System Permit Application Requirements for Publicly Owned Treatment Works and Other Treatment Works Treating Domestic Sewage @ www.epa.gov/fedrgstr/EPA-WATER/1999/August/Day-04/w18866.htm.

Applicable ;

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

Applicable ;

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

Applicable ;

This wastewater treatment facility is not a POTW; however, influent monitoring is being required to determine percent removal.

Not Applicable ;

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

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

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

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.

This permit does not contain a SOC.

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.

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.

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.

Wasteload allocations were not calculated.

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.

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

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.

In accordance with the Clean Water Act (CWA) §101(a)(3), requiring WET testing is reasonably appropriate for site-specific Missouri State Operating Permits for discharges to waters of the state issued under the National Pollutant Discharge Elimination System. Furthermore, WET testing is a means by which the department determines that [10 CSR 20-7.031(3)(D, F, & G)] are being met by the permitted facility. In addition to justification for the WET testing, WET tests are required under [10 CSR 20-6.010(8)(A)4] to be performed by specialists who are properly trained in conducting the test according to the methods prescribed by the Federal

Government as referenced in [40 CFR Part 136]. WET test will be required by all facilities meeting the following criteria: At this time, the permittee is not required to conduct WET test for this facility.

This facility is not required to perform WET testing.

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

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

Part V – Effluent Limits & Monitoring Requirements

Outfalls 001, 002, & 003 - Operational Monitoring Requirements				
Parameter	Units	Daily Max	Measurement Frequency	Reporting Frequency
Lagoon Freeboard	feet	*	once/month	once/quarter
Irrigation Period	hours	*	daily	once/quarter
Volume Irrigated	gallons	*	daily	once/quarter
Application Area	acres	*	daily	once/quarter
Application Rate	inches/day	*	daily	once/quarter
Rainfall	inches/day	*	daily	once/quarter
Outfalls 001, 002, & 003 - Irrigated Wastewater Quality				
Organic Nitrogen as N	mg/L	*	once/quarter	once/quarter
Ammonia Nitrogen as N	mg/L	*	once/quarter	once/quarter
Nitrite Nitrogen as N	mg/L	*	once/quarter	once/quarter
Nitrate Nitrogen as N	mg/L	*	once/quarter	once/quarter

Outfalls 006 & 007 - End of Season swimming pool dewatering				
Parameter	Units	Daily Max	Measurement Frequency	Reporting Frequency
Flow	Gallons	*	once/event	once/quarter\
Discharge duration	Hours	*	once/event	once/quarter
pH – Units	SU	*	once/event	once/quarter
Total Residual Chlorine (TRC)	mg/L	ND	once/event	once/quarter

Notes:

* Monitoring only required

ND No Detectible concentrations of TRC shall be present in the discharge of swimming pool water.

Outfalls #001, 003, & 005 – Emergency Discharge Provision

Discharges from the emergency spillways of any of the lagoon facilities is allowed only if (1) rainfall exceeds the 1 in 10 year (Data taken from the Missouri Climate Atlas) or the 24 hour, 25 year (Data taken from NRCS Urban Hydrology for Small Watersheds) rainfall events, and (2) if the lagoons are filled to the maximum level of the overflow structure and irrigation of the fields is not feasible or desirable. Monitoring shall take place once per day while discharging. Test results are due on the 28th day of the month after the cessation of the discharge. Permittee shall monitor for the following constituents:

Parameter	Units
Flow	MGD
Biochemical Oxygen Demand ₅	mg/L
Total Suspended Solids	mg/l
pH - Units	Standard Units
Temperature	°C
Ammonia Nitrogen	mg/L

Outfalls #001, 003, & 005 – Discussion of Monitoring Parameters

- **Lagoon Freeboard** – The vertical distance between the water level in the storage cell and the lagoon berm shall be measured and reported in feet.
- **Irrigation Period** – A written log shall be maintained of the approximate number of hours and minutes each day that the irrigation is conducted.
- **Volume Irrigated** – The volume of water that is irrigated each day shall be monitored. This can either be a calculated or a measured volume. The method of determining the volume irrigated shall be reported.
- **Application Area** – The land area in acres that is used each day for irrigating wastewater shall be determined and recorded in the written log.

- **Application Rate** – The average rate of application in terms of inches per day shall be calculated and recorded. This can be determined by converting the gallons irrigated to cubic feet and then dividing that number by the number of square feet in the land application area.
- **Rainfall** – The daily rainfall in inches shall be determined and recorded either from a nearby weather station or from an on-site rain gauge, whichever is preferable.
- **Nitrogen** – The total nitrogen loading on the soil shall be determined as the sum of the organic nitrogen, the ammonia nitrogen, and the nitrite and nitrate forms of nitrogen.

Outfalls #006 & 007 – End of season swimming pool discharge

- **Flow** – The total volume discharged in gallons shall be reported. This may be the entire pool volume or a fraction of the pool volume.
- **pH** – The pH of the discharge in standard pH units shall be reported.
- **Total Residual Chlorine** – No detectible concentration of total residual chlorine shall be present. In general, this means that the TRC of the discharge shall be less than 0.13 mg/L as measured with standard test equipment. The pool water shall be allowed to stand until the TRC in the water has dissipated into the atmosphere before the discharge begins.

Outfalls #001, 003, & 005 – Emergency Discharge Monitoring Parameters

- **Flow** – The volume of water that is discharged shall be measured and reported in terms of Million Gallons per Day (MGD).
- **Biochemical Oxygen Demand (BOD₅)** – A representative sample of the discharge shall be collected once/day while the discharge is occurring and tested for five-day biochemical oxygen demand (BOD₅). BOD₅ is a measure of the capacity of the discharge to deoxygenate the receiving stream. Excessive concentrations of BOD₅ will contribute to deterioration of aquatic life habitat in the receiving stream and in extreme circumstances, can lead to the complete depletion of stream dissolved oxygen and anaerobic (septic) conditions. Such is considered a violation of the General Criteria as expressed in Special Condition 3b of this permit.
- **Total Suspended Solids (TSS)** - A representative sample of the discharge shall be collected once/day while the discharge is occurring and tested for total suspended solids (TSS). TSS is the dried non-filterable residue of the discharge and measures the solid contaminants of the discharge. It does not include the dissolved solids. Suspended solids will eventually settle out in the receiving stream and may contribute to the sediment oxygen demand. Excessive buildup of solids on the stream bottom will impair the functioning of aquatic life in the stream is a violation of the General Criteria as expressed in Special Condition 3b of this permit.
- **pH** – Monitoring for pH is included as excessively acidic or alkaline discharges will adversely affect aquatic life in the receiving stream. The pH of the discharge should be within the range of six to nine (6-9) standard pH units.
- **Ammonia Nitrogen** - Monitoring for ammonia is included due to the toxicity of ammonia to aquatic life forms.
- **Temperature** – The temperature of the discharge is related to the toxicity of any ammonia that may be present.

Part VI – Administrative Requirements

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

PUBLIC NOTICE:

As per the Missouri Clean Water Law, the Missouri Clean Water Commission, and the federal Clean Water Act, persons wishing to comment on Missouri State Operating Permits are directed to do so by a department approved Public Notice coversheet. This Public Notice coversheet is attached to a Missouri State Operating Permit during the Public Notice period.

The Public Notice period for this operating permit is tentatively schedule to begin on February 27, 2009.

DATE OF FACT SHEET: February 20, 2009

COMPLETED BY:

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