

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-0121878
Owner:	Burger's Ozark Country Cured Hams, Inc.
Address:	32819 Highway 87, California, MO 65018
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Burger's Ozark Country Cured Hams, Inc.
Address:	32819 Highway 87, California, MO 65018
Legal Description:	See Pages 2 & 3
UTM Coordinates:	See Pages 2 & 3
Receiving Stream:	See Pages 2 & 3
First Classified Stream and ID:	See Pages 2 & 3
USGS Basin & Sub-watershed No.:	See Pages 2 & 3

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

FACILITY DESCRIPTION

See Pages 2 & 3

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

November 1, 2015
Effective Date

Sara Parker Pauley, Director, Department of Natural Resources

September 30, 2019
Expiration Date

John Madras, Director, Water Protection Program

FACILITY DESCRIPTION (continued)

Receiving Stream Watershed: a gaining stream setting

Facility Type: No-discharge Storage and Irrigation System for year round flows into lagoon. Dissolved Air Flootation (DAF)/ DAF sludge disposal is by contract hauler

Permitted Feature #001 – Industrial Wastewater/Domestic Wastewater – No Discharge – SIC #2013/4952

Industrial wastewater - three pH equalization tanks / Domestic wastewater – Septic tank / Industrial and domestic wastewater discharge to two-cell aerated lagoon / wastewater irrigation / sludge is retained in lagoon

Design population equivalent is 6,250.

Design flow is 28,956 gallons per day. (1-in-10 year design including net rainfall minus evaporation.)

Average design flow is 30,000* gallons per day (dry weather flows) (* based on 312 days of production per year.)

Actual flow is 18,500 gallons per day.

Design sludge production is 228 dry tons/year.

Legal Description: SW ¼, NE, ¼, Sec. 9, T44N, R15W, Moniteau County
 UTM Coordinates: X = 537841, Y = 4271050
 Receiving Stream: Tributary to Tributary to North Moreau Creek
 First Classified Stream and ID: Tributary to North Moreau Creek (C) (00950)
 USGS Basin & Sub-watershed No.: (10300102-1107)

Storm Water Flows: (Moniteau County)

Average Annual Rainfall. 38.0 inches
 1-in-10 Year Annual Rainfall. 50.0 inches 25-year-24-hour storm: 5.2 inches

1-in-10 year Flows:	<u>Annual</u>
Runoff concrete and roof areas	0 ft.
Runoff earth areas (lagoon berm, lots, etc.)	0 ft.
Rainfall minus Evaporation (R-E) on lagoon water surface	1.4 ft.

Lagoon Dimensions:

	<u>Lagoon Cell 1</u>	<u>Lagoon Cell 2</u>
Upper operating level (ft. below spillway)	1	1
Lower operating level (ft. below spillway)	11	4.7
Total depth (ft. below spillway)	13	6.7
Storage volume (upper to lower operating levels)	3,634,828 gallons	1,026,825 gallons
Center Line Top Berm:	74,470 sq. ft.	40,960 sq. ft.
1-in-10 year Annual Storm water flows into lagoon (R-E):	104,258 cu. ft. (779,954 gal)	57,344 cu. ft. (428,990 gal.)

Storage Capacity: **Days of Storage**

Design for Dry weather flows: 182 days
 Design with 1-in 10 year flows: 155 days

Land Application:

Irrigation Volume /year: 10,568,944 gallons (including 1-in-10 year flows)
 Irrigation areas: 36 acres at design loading (219 acres total available)
 Application rates/acre: 0.5 inch/hour; 1.5 inch/day; 4.5 inches/week; 11.0 inches/year
 Field slopes: less than 20 percent
 Equipment type: traveling gun
 Vegetation: grass land
 Application rate is based on: hydraulic loading rate

Permitted Feature #002 – Stormwater Runoff from Land Application Field T931 Fields 9 & 23, 103 acres

Legal Description: NW ¼, NE ¼, Sec. 9, T44N, R15W, Moniteau County
 UTM Coordinates: X = 537419, Y = 4271281
 Receiving Stream: Tributary to Tributary to North Moreau Creek
 First Classified Stream and ID: Tributary to North Moreau Creek (C) (00950)
 USGS Basin & Sub-watershed No.: (10300102-1107)

Permitted Feature #003 – Stormwater Runoff from Land Application Field T931 Fields 9 & 23, 103 acres

Legal Description: SW¼, NW ¼, Sec. 10, T44N, R15W, Moniteau County
UTM Coordinates: X = 538053, Y = 4270865
Receiving Stream: Tributary to Tributary to North Moreau Creek
First Classified Stream and ID: Tributary to North Moreau Creek (C) (00950)
USGS Basin & Sub-watershed No.: (10300102-1107)

Permitted Feature #004 – Stormwater Runoff from Land Application Field T931 Fields 9 & 23, 103 acres

Legal Description: SW ¼, NW ¼, Sec. 10, T44N, R15W, Moniteau County
UTM Coordinates: X = 538126, Y = 4270677
Receiving Stream: Tributary to North Moreau Creek (C)
First Classified Stream and ID: Tributary to North Moreau Creek (C) (00950)
USGS Basin & Sub-watershed No.: (10300102-200004)

Permitted Feature #005 – Stormwater Runoff from Land Application Field T931 Fields 2 & 4, 16.3 acres

Legal Description: NE ¼, NE ¼, Sec. 9, T44N, R15W, Moniteau County
UTM Coordinates: X = 537794, Y = 4271143
Receiving Stream: Tributary to Tributary to North Moreau Creek
First Classified Stream and ID: Tributary to North Moreau Creek (C) (0950)
USGS Basin & Sub-watershed No.: (10300102-1107)

Permitted Feature #006 – Stormwater Runoff from Land Application Field T931 Fields 3 & 5, 24.7 acres

Legal Description: NE ¼, NE ¼, Sec. 9, T44N, R15W, Moniteau County
UTM Coordinates: X = 538911, Y = 4271121
Receiving Stream: Tributary to North Moreau Creek (C)
First Classified Stream and ID: Tributary to North Moreau Creek (C) (00950)
USGS Basin & Sub-watershed No.: (10300102-1107)

Permitted Feature #007 – Stormwater Runoff from Land Application Field T931 Fields 6 & 7, 28 acres

Legal Description: SW ¼, NW ¼, Sec. 10, T44N, R15W, Moniteau County
UTM Coordinates: X = 538126, Y = 4270767
Receiving Stream: Tributary to North Moreau Creek (C)
First Classified Stream and ID: Tributary to North Moreau Creek (C) (0950)
USGS Basin & Sub-watershed No.: (10300102-200004)

Permitted Feature #008 – Stormwater Runoff from Land Application Field T931 Field 8, 17 acres

Legal Description: NW ¼, NW ¼, Sec. 10, T44N, R15W, Moniteau County
UTM Coordinates: X = 538202, Y = 4271227
Receiving Stream: Tributary to Tributary to North Moreau Creek
First Classified Stream and ID: 8-20-13 MUDD V1.0 (C) (3960)
USGS Basin & Sub-watershed No.: (10300102-1107)

Permitted Feature #009 – Stormwater Runoff from Land Application Field T928 Field 1, 28 acres

Legal Description: SE ¼, SW ¼, Sec. 3, T44N, R15W, Moniteau County
UTM Coordinates: X = 538583, Y = 4271491
Receiving Stream: Tributary to North Moreau Creek
First Classified Stream and ID: North Moreau Creek (P) (0942)
USGS Basin & Sub-watershed No.: (10300102-1107)

PERMITTED FEATURE #001	TABLE A-1. IRRIGATION SYSTEM LIMITATIONS AND MONITORING REQUIREMENTS					
	The permittee is authorized to conduct land application of wastewater as specified in the application for this permit. The final limitations shall become effective November 1, 2015 , and remain in effect until expiration of the permit. The land application of wastewater shall be controlled, limited and monitored by the permittee as specified below:					
EFFLUENT PARAMETER(S)	UNITS	FINAL LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Storage Basin Operational Monitoring						
Lagoon Freeboard (See Note 1, Page 5)	Feet	*			twice/month	measured
Precipitation	Inches	*			daily	total
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2016</u> .						
Wastewater Land Applied (Note 2, Page 5)						
Chloride	mg/L	*			once/quarter**	grab
Ammonia Nitrogen as N	mg/L	*			once/quarter**	grab
Nitrate Nitrogen as N (See Note 3, Page 5)	mg/L	*			once/quarter**	grab
Total Kjeldahl Nitrogen as N	mg/L	*			once/quarter**	grab
Total Phosphorus as P	mg/L	*			once/quarter**	grab
Sodium, Total	mg/L	*			once/quarter**	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2016</u> .						

PERMITTED FEATURE #002- #009	TABLE A-2. LAND APPLICATION LIMITATIONS AND MONITORING REQUIREMENTS					
	The permittee is authorized to conduct land application of wastewater as specified in the application for this permit. The final limitations shall become effective November 1, 2015 , and remain in effect until expiration of the permit. The land application of wastewater shall be controlled, limited and monitored by the permittee as specified below:					
EFFLUENT PARAMETER(S)	UNITS	FINAL LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Wastewater Land Application Operational Monitoring						
Application Area	Acres	*			daily	total
Application Rate	Inches	*			daily	total
Irrigation Period	Hours	*			daily	total
Volume Irrigated	Gallons	*			daily	total
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2016</u> .						
Soil Monitoring (See Note 4, Page 5)						
Cation Exchange Capacity	CEC	*			once/5 years	composite
Chloride	mg/kg	*			once/5 years	composite
pH – Units	SU	*			once/5 years	composite
Available Phosphorus as P (Bray P-1 method)	mg/kg	*			once/5 years	composite
Sodium Absorption Rate	SAR	*			once/5 years	composite
Total Sodium	mg/kg	*			once/5 years	composite
MONITORING REPORTS SHALL BE SUBMITTED <u>PER ANNUAL REPORTING REQUIRMENTS</u> . (See Special Condition 20, Page 9)						

EFFLUENT PARAMETER(S)	UNITS	FINAL LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Stormwater runoff from land application fields. (See Note 5, page 5)						
Ammonia Nitrogen as N	mg/L	*		*	once/month	grab
Nitrate Nitrogen as N	mg/L	*		*	once/month	grab
Chloride	mg/L	377		188	once/month	grab
Phosphorus, Total	mg/L	*		*	once/month	grab
Total Sodium	mg/L	*		*	once/month	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>JANUARY 28, 2016</u> .						

* Monitoring requirement only

** See table below for quarterly sampling

Minimum Sampling Requirements			
Quarter	Months	Parameters	Report is Due
First	January, February, March	Sample at least once during any month of the quarter	April 28 th
Second	April, May, June	Sample at least once during any month of the quarter	July 28 th
Third	July, August, September	Sample at least once during any month of the quarter	October 28 th
Fourth	October, November, December	Sample at least once during any month of the quarter	January 28 th

Note 1- Storage Basin freeboard shall be reported as Storage Basin water level in feet below the overflow level.

Note 2- Wastewater that is applied shall be sampled at the irrigation pump, wet well, or application vehicle. If no land application occurred during the report period, report as “No Application.”

Note 3 - Monitor once per month during the months of March through November. Wastewater irrigation rates shall not exceed a nitrogen application rate of 150 pounds total nitrogen per acre per year, and the applied wastewater shall not exceed ten (10) mg/l of nitrate nitrogen as N. If the nitrogen application exceeds a rate of 150 pounds total nitrogen per acre per year, and/or the applied wastewater exceeds ten (10) mg/l of nitrate nitrogen as N, see Special Condition #18 for additional requirements.

Note 4 – Sample the upper 6 to 8 inches of soil. Composite samples shall be collected from each permitted land application site. See Special Condition 16e Soil Monitoring for additional guidance.

Note 5 – Samples shall be collected within 30 minutes of a precipitation event that causes a discharge from the land application sites.

B. STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Part I standard conditions dated August 1, 2014, and hereby incorporated as though fully set forth herein.

C. SPECIAL CONDITIONS

- Emergency and Unauthorized Discharge. Wastewater shall be stored and land applied during suitable conditions so that there is no discharge from the storage structure(s) or land application site. An emergency discharge from wastewater storage structure(s) may only occur if 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. **Discharge from the wastewater storage structure(s) for any other reason or from land application sites 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 following 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
Ammonia as N	mg/L
pH – Units	SU
Oil & Grease	mg/L
E. coli	#/100mL
Chloride	mg/L
Chemical Oxygen Demand	mg/L

2. 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.
 - d. Incorporate the requirement to develop a pretreatment program pursuant to 40 CFR 403.8(a) when the Director of the Water Protection Program determines that a pretreatment program is necessary due to any new introduction of pollutants into the Publically Owned Treatment Works or any substantial change in the volume or character of pollutants being introduced.

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

3. All permitted features s must be clearly marked in the field.
4. Water Quality Standards
 - a. To the extent required by law, 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.
5. Public access to storage areas and land application sites must be controlled by either positive barriers or remoteness of site.
6. Reporting of Non-Detects:
 - a. An analysis conducted by the permittee or their contracted laboratory shall be conducted in such a way that the precision and accuracy of the analyzed result can be enumerated.
 - b. The permittee shall not report a sample result as “Non-Detect” without also reporting the detection limit of the test. Reporting as “Non Detect” without also including the detection limit will be considered failure to report, which is a violation of this permit.

- c. The permittee shall provide the “Non-Detect” sample result using the less than sign and the minimum detection limit (e.g. <10).
 - d. Where the permit contains a Minimum Level (ML) and the permittee is granted authority in the permit to report zero in lieu of the < ML for a specified parameter (conventional, priority pollutants, metals, etc.), then zero (0) is to be reported for that parameter.
 - e. See Standard Conditions Part I, Section A, #4 regarding proper detection limits used for sample analysis.
7. 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, including key operating procedures, an aerial or topographic site map with the permitted features, land application fields, and irrigation buffer zones marked, and a brief summary of the operation of the facility. The O & M manual shall be made available to the operator and available to the department upon request. The O&M Manual shall be reviewed and updated at least every five years.
 8. The berms of the storage basin(s) shall be mowed and kept free of any deep-rooted vegetation, animal dens, or other potential sources of damage to the berms.
 9. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).
 10. Hazardous waste regulated under the Missouri Hazardous Waste Law and regulations shall not be land applied under this permit.
 11. All paint, solvents, petroleum products and petroleum waste products (except fuels), and storage containers (such as drums, cans, or cartons) shall be stored so that these materials are not exposed to stormwater. Spill prevention, control, and/or management shall be provided sufficient to prevent any spills of these pollutants from entering a water of the state. Any containment system used to implement this requirement shall be constructed of materials compatible with the substances contained and shall also prevent the contamination of groundwater.
 12. Good housekeeping practices shall be maintained on the site to keep solid waste from entry into waters of the state.
 13. Any pesticide discharge from any point source shall comply with the requirements of Federal Insecticide, Fungicide and Rodenticide Act, as amended (7 U.S.C. 136 et. seq.) and the use of such pesticides shall be in a manner consistent with its label.
 14. Release of a hazardous substance must be reported to the department in accordance with 10 CSR 24-3.010. A record of each reportable spill shall be retained and made available to the department upon request.
 15. The facility shall ensure that adequate provisions are provided to prevent surface water intrusion into the storage basin(s) and to divert stormwater runoff around the storage basin(s) and protect embankments from erosion.
 16. Land Application System.
 - a. This special condition does not apply to fertilizer products that are exempted under the Missouri Clean Water Law and regulations, 10 CSR 20-6.015(3)(B)8.
 - b. Permitted Sites. This permit authorizes land application of wastewater by the permittee to those sites listed in the “Facility Description” of this permit. Land application of wastewater by a contract hauler to sites owned, rented, or leased by the permittee must also be listed in the “Facility Description” unless, the contract hauler is permitted. Land applications by contract hauler to sites that are not owned, rented, or leased by the permittee are not required to be listed in this permit. Only those pollutants listed in the permit application may be land applied. Permittee requests for additional sites must follow permit modification procedures prior to land application. Additionally, the O&M Manual shall include all additional land application site(s) listed in this permit.
 - c. Storage Basins. The minimum and maximum operating water levels for the storage basin(s) shall be clearly marked. Each storage basin shall be operated so that the maximum water elevation does not exceed upper operating level. Storage basins shall be lowered to the minimum operating level prior to November 30 each year. Storage basins shall be inspected monthly for structural integrity and leaks.
 - d. Public Access Restrictions. This permit does not authorize application of wastewater to public use areas.
 - e. Soil Monitoring.
 - (1) Composite soil samples shall be collected every five years from each field listed in this permit where land application has occurred in the last 12 months. No land application shall occur on fields listed in this permit if soil sample results are more the five (5) years old.
 - (2) Soil sampling shall be in accordance with University of Missouri (MU) Guides G9215, Soil Sampling Pastures or G9217, Soil Sampling Hayfields and Row Crops or other methods approved by the department. The recommendation of one composite sample per 20 acres in G9215 and G9217 is not required by this permit, however, this is a useful method to identify soil fertility fluctuations in large fields due to past management practices, soil type, and variability

of crop yields. There shall be at least one composite sample per 80 acres.

- (3) Testing shall conform to Recommended Chemical Soil Testing Procedures for North Central Region (North Central Regional Research Publication 221 Revised), or Soil Testing in Missouri (MU Extension Guide EC923), or other methods approved by the department.

17. Land Application Requirements.

- a. No land application shall occur when the soil is frozen, snow covered, or saturated. There shall be no application during a precipitation event or if a precipitation event that is likely to create runoff is forecasted to occur within 24 hours of a planned application.
- b. Land application shall occur only during daylight hours unless prior authorization has been obtained from the Department.
- c. Land application fields shall be checked daily during land application for runoff. Sites that utilize spray irrigation shall monitor for the drifting of spray across property lines or public roads. If spray is observed crossing the property line or public roads, irrigation equipment is to be moved further away or cease operation until conditions are more favorable.
- d. Setback distances from sensitive features. There shall be no land application within:
 - (1) 300 feet of any well, sinkhole, losing stream, wetland, or cave entrance, water supply impoundment or stream intake;
 - (2) 150 feet of an occupied residence, public building, or public use area;
 - (3) 50 feet of gaining perennial or intermittent stream, public or privately owned pond or lake;
 - (4) 50 feet of property line or public road.
- e. For wastewater applications on slopes exceeding 10%, the hourly application rate shall not exceed one-half (1/2) the design sustained permeability and in no case shall exceed one-half (1/2) inch per hour.
- f. Land application equipment shall be visually inspected daily during land application to check for equipment malfunctions and leaks. The application system shall be operated so as to provide uniform distribution of wastes over the entire land application site and shall be capable of applying the annual design flow during an application period of less than 100 days or 800 hours per year. Land application equipment shall be calibrated at least once annually.

18. Hydraulic Loading Rate

- a. Wastewater application rates should not exceed a nitrogen application rate of 150 pounds total nitrogen per acre per year, and the applied wastewater should not exceed ten (10) mg/l of nitrate nitrogen as N. Hydraulic application rates exceeding 60 inches per acre per year shall calculate nitrogen loading rates and include results in the annual report. The calculation procedures are as follows: $(\text{Total N}) \times (0.226) \times (\text{inches per acre irrigated}) = \text{pounds total N per acre}$. Where Total N = $[\text{Total Kjeldahl Nitrogen (TKN) as N}] + [\text{Nitrate Nitrogen as N}]$.
- b. If the applied wastewater is expected to provide more than 150 pounds total nitrogen per acre/year or if the applied wastewater exceeds 10 mg/l of nitrate nitrogen as N, the permittee must reduce the application rates or use the Plant Available Nitrogen (PAN) method. The calculations to show the amount of plant-available nitrogen provided and the wastewater and amount of nitrogen that will be utilized by the vegetation shall be submitted with the annual report.

$$\text{PAN} = [\text{Ammonia Nitrogen} \times \text{volatilization factor}^*] + [\text{Organic Nitrogen} \times 0.2] + [\text{Nitrate Nitrogen}]$$

*Volatilization factor is 0.7 for surface application and 1 for subsurface application

19. Record Keeping

- a. A daily land application log shall be prepared and kept on file at the permittee office location for each application site showing dates of application, weather condition (sunny, overcast, raining, below freezing etc...), soil moisture condition, application method.
- b. A record of monthly visual storage structure inspections shall be maintained.
- c. A record of land application equipment inspections and calibrations as well as land application field inspections shall be maintained.
- d. A record of all PAN calculations.
- e. All records and monitoring results shall be maintained for at least five years and shall be made available to the department upon request.

20. Annual Report on Operation and Land Application.

An annual report is required in addition to other reporting requirements under Section A of this permit. The annual report shall be submitted by January 28 of each year. The report shall include, but is not limited to, a summary of the following:

- a. Record of maintenance and repairs 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 storage structure discharged during the year, the discharge flow, reason the discharge occurred and effluent analysis performed.
- c. A summary for each field used for land application showing number of acres used number of days application occurred, crop grown and yield, and total amount of wastewater applied (gal/acre).
- d. Any soil tests taken during the reporting period.
- e. For fields where the total nitrogen application exceeds 150 lbs/acre, submit PAN calculations to document that the applied nitrogen will be utilized.
- f. Narrative summary of any problems or deficiencies identified, corrective action taken and improvements planned.

**MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0121878
BURGERS OZARK COUNTRY CURED HAMS, INC.**

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 Industrial Land Application

Part I – Facility Information

No-discharge Storage and Irrigation System for year round flows into lagoon. Dissolved Air Flootation (DAF)/ DAF sludge disposal is by contract hauler. SIC #2013/4952

Facility Description:

Industrial wastewater - three pH equalization tanks / Domestic wastewater – Septic tank / Industrial and domestic wastewater discharge to two-cell aerated lagoon / wastewater irrigation / sludge is retained in lagoon

Have any changes occurred at this facility or in the receiving water body that effects effluent limit derivation?

- No.

Application Date: 12/10/2014

Expiration Date: 5/27/2015

PERMITTED FEATURE(S) TABLE:

PERMITTED FEATURE	TREATMENT LEVEL	EFFLUENT TYPE
ALL	Land Application	Industrial wastewater

Facility Performance History:

The facility was last inspected on September 16, 2009 and was found to be in compliance. Discharge monitoring reports (DMR) for the last 5 years were reviewed and showed several exceedances for chloride in stormwater runoff from land application fields.

Modifications with this Renewal

The facility is adding land application fields with this renewal. This will allow for the wastewater to be applied to more acres and reduce the potential of DMR violations for stormwater runoff. Stormwater monitoring requirements for the new land application fields are included in this permit. The stormwater monitoring requirements can be reevaluated at the next renewal based upon DMR data during this permit cycle. Permitted Feature #003 has been relocated due to grading of the field.

Part II – Receiving Stream Information

10 CSR 20-7.031 Missouri Water Quality Standards, the Department defines the Clean Water Commission water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The 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(4)].

RECEIVING STREAM(S) TABLE:

OUTFALL	WATERBODY NAME	CLASS	WBID	DESIGNATED USES	DISTANCE TO CLASSIFIED SEGMENT	12-DIGIT HUC
#001, #002, #003, #005	Tributary to Tributary to North Moreau Creek			GEN	0 – 0.05	10300102-1107
#009	Tributary to North Moreau Creek			GEN	0.73	
#004, #006, #007	Tributary to North Moreau Creek	C	0950	AQL, IRR, LWW, SCR, HHP	0	
ALL	North Moreau Creek	P	0942	AQL, IRR, LWW, SCR, WBCA, HHP		
#008	8-20-13 MUDD V1.0	C	3960	AQL, IRR, LWW, SCR, WBCB, HHP	0.05	

AQL= Protection of Warm Water Aquatic Life and Human Health-Fish Consumption; C= Streams may cease flow in dry periods; CDF= Cold Water Fishery; CLF= Cool Water Fishery; DWS= Drinking Water Supply; E= Ephemeral stream; GEN= General Criteria; GRW = Groundwater; HUC= Hydrologic Unit Code; IND= Industrial; IRR=Irrigation; LWW= Livestock & Wildlife Watering; N/A= Not Applicable; P= Permanent; SCR= Secondary Contact Recreation; W= Wetland; WBC= Whole Body Contact Recreation; WBID= Water Body Identification Number

RECEIVING STREAM MONITORING REQUIREMENTS:

No receiving water monitoring requirements recommended at this time.

Part III – 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.

- Limitations in this operating permit for the reissuance of this permit conform to the anti-backsliding provisions of Section 402(o) of the Clean Water Act, and 40 CFR Part 122.44.

- The Department determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b). The soil monitoring requirements for Organic Matter and Electrical Conductivity were removed with this renewal. In the permit writer's best professional judgment these monitoring requirements showed little or no benefit and are not required by Missouri's Effluent Regulation found at 10 CSR 20-7.015. The soil monitoring requirement of Total Phosphorous was removed and replaced with Available Phosphorous as it is a better indicator of phosphorous that is available for plant use. The stormwater monitoring requirement of Total Kjeldahl Nitrogen was removed as it is not required by 10 CSR 20-7.015.

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.

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://extension.missouri.edu/main/DisplayCategory.aspx?C=74>, items WQ422 through WQ449.

- Not applicable; This condition is not applicable to the permittee for this facility.

INDUSTRIAL SLUDGE:

Industrial sludge is solids, semi-solids, or liquid residue generated during the treatment of industrial process wastewater in a treatment works; including but not limited to, scum or solids removed in primary, secondary, or advanced wastewater treatment process; scum and solids filtered from water supplies and backwashed; and a material derived from industrial sludge.

Not Applicable;. This condition is not applicable to the permittee for this facility.

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.

NUTRIENT MANAGEMENT AND LAND APPLICATION

Land applications by a contract hauler on fields that the permittee has a spreading agreement on are not required to be in this permit. A spreading agreement does not constitute the field being rented or leased by the permittee as they do not have any control over management of the field.

Conversion Factors for laboratory testing results: [mg/L or mg/kg or ppm] x [conversion factor] = [pounds per Unit Volume]

<u>Unit Volume</u>	<u>Conversion Factors</u>
lbs./acre inch	0.226
lbs./1,000 gallons	0.0083
lbs./100 cubic feet	0.0062
lbs/ton (wet weight)	0.002

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)(1)(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.

Not applicable; a RPA was not conducted for this facility.

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.

Not Applicable; This permit does not contain a SOC.

SPILL REPORTING:

Per 10 CSR 24-3.010, any emergency involving a hazardous substance must be reported to the department's 24 hour Environmental Emergency Response hotline at (573) 634-2436 at the earliest practicable moment after discovery. The department may require the submittal of a written report detailing measures taken to clean up a spill. These reporting requirements apply whether or not the spill results in chemicals or materials leaving the permitted property or reaching waters of the state. This requirement is in addition to the Noncompliance Reporting requirement found in Standard Conditions Part I.

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.

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.

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 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(l)(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 anticipate bypassing.

303(d) List:

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.

Not applicable. This facility does not discharge to an impaired segment of a 303(d) listed stream.

Total Maximum Daily Load (TMDL):

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; hence, the purpose of a TMDL is to determine the pollutant loading a specific waterbody can assimilate without exceeding water quality standards. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation.

Applicable; North Moreau Creek is associated with the 1999 EPA Approved TMDL for Suspended Algae, Carbonaceous Biological Oxygen Demand and Ammonia (NH3).

AND

Applicable; This facility is not considered to be a source of the above listed pollutant(s) or considered to contribute to the impairment of North Moreau Creek.

Part IV – Permit Limits Determination

Permitted Feature #001-#009 – Emergency Discharge

There are no wastewater effluent limits associated with Permitted Features #001- #009 for the no-discharge facility. However, the following is required for an emergency discharge. Monitoring requirement only based on best professional judgment.

EMERGENCY DISCHARGE TABLE:

PARAMETER	UNIT	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
Flow	MGD	*			NO	*
Biochemical Oxygen Demand ₅	mg/L	*			NO	*
Total Suspended Solids	mg/L	*			NO	*
Ammonia as N	mg/L	*			NO	*
pH	SU	*			NO	*
Oil & Grease	mg/L	*			NO	*
E.coli	**	*			YES	Fecal Coliform
Chloride	mg/L	*			NO	*
Chemical Oxygen Demand	mg/L	*			NO	*
Temperature	°C	*			YES	Removed
Monitoring Frequency	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.					

* - Monitoring requirement only

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

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

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
Flow	once/day while discharging	Test results are due on the 28 th day of the month after the cessation of the discharge
Biochemical Oxygen Demand ₅	once/day while discharging	
Total Suspended Solids	once/day while discharging	
Ammonia as N	once/day while discharging	
pH	once/day while discharging	
Oil & Grease	once/day while discharging	
E.coli	once/day while discharging	
Chloride	once/day while discharging	
Chemical Oxygen Demand	once/day while discharging	

PERMITTED FEATURE #001 – STORAGE BASIN AND IRRIGATED WASTEWATER MONITORING

Irrigation limitations derived and established in the below Irrigation 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.

STORAGE BASIN OPERATIONAL MONITORING TABLE:

PARAMETER	UNIT	BASIS FOR LIMITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
STORAGE BASIN							
Freeboard	feet	1	*			NO	*
Precipitation	inches	1	*			NO	*
WASTEWATER							
Total Phosphorous	mg/L	1	*			NO	*
Total Kjeldahl Nitrogen	mg/L	1	*			NO	*
Ammonia Nitrogen as an	mg/L	1	*			NO	*
Nitrate Nitrogen as N	mg/L	1	*			NO	*
Chloride	mg/L	1	*			NO	*
Total Sodium	mg/L	1	*			NO	*
Monitoring Frequency	Please see Minimum Sampling and Reporting Frequency Requirements in the Derivation and Discussion Section below.						

* - Monitoring requirement only.

** - 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 | |

PERMITTED FEATURE #001– DERIVATION AND DISCUSSION OF LIMITS:

- **Freeboard.** Monitoring requirement only.
- **Precipitation.** Monitoring requirement only.
- **Total Phosphorous.** Monitoring requirement only. Monitoring for Total Phosphorous is included to determine nutrient loading rates on the land application fields. [10 CSR 20-8.020(15)(F)7.]
- **Total Kjeldahl Nitrogen.** Monitoring requirement only. Monitoring for Total Kjeldahl Nitrogen as N is included to determine nutrient loading rates on the land application fields. [10 CSR 20-8.020(15)(F)7.]
- **Ammonia Nitrogen as N.** Monitoring requirement only. Monitoring for Ammonia Nitrogen as N is included to determine nutrient loading rates on the land application fields. [10 CSR 20-8.020(15)(F)7.]
- **Nitrate Nitrogen as N.** Monitoring requirement only. Monitoring for Nitrate Nitrogen as N is included to determine nutrient loading rates on the land application fields. [10 CSR 20-8.020(15)(F)7.]
- **Chloride.** Monitoring requirement only. Monitoring for Nitrate Nitrogen as N is included to determine nutrient loading rates on the land application fields. [10 CSR 20-8.020(15)(F)7.]
- **Total Sodium.** Monitoring requirement only. Monitoring for Total Sodium is included to determine nutrient loading rates on the land application fields. [10 CSR 20-8.020(15)(F)7.]

Minimum Sampling and Reporting Frequency Requirements.

PARAMETER	SAMPLING FREQUENCY	REPORTING FREQUENCY
STORAGE BASIN		
Freeboard	twice/month	once/year
Precipitation	once/day	once/year
WASTEWATER		
Total Phosphorous	once/quarter	once/year
Total Kjeldahl Nitrogen	once/quarter	once/year
Ammonia Nitrogen as an	once/quarter	once/year
Nitrate Nitrogen as N	once/quarter	once/year
Chloride	once/quarter	once/year
Total Sodium	once/quarter	once/year

PERMITTED FEATURE #002 - #009 – LAND APPLICATION OF WASTEWATER AND/OR SLUDGE AND SOIL MONITORING

PARAMETER	UNIT	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MODIFIED	PREVIOUS PERMIT LIMITATIONS
WASTEWATER LAND APPLIED						
Irrigation Period	Hours	*			NO	
Volume Irrigated	Gallons	*			NO	
Application Area	Acres	*			NO	
Application Rate	inches	*			NO	
SOIL MONITORING						
Total Sodium	mg/kg	*			NO	
Chloride	mg/kg	*			NO	
pH - Units	SU	*			NO	
Available Phosphorus as P (Bray 1-P method)	mg/kg	*			NO	
Cation Exchange Capacity	CEC	*			NO	
Sodium Absorption Ration	SAR	*			NO	
Organic Matter	%	*			YES	Removed
Electrical Conductivity	µmhos/cm	*			YES	Removed

* - Monitoring requirement only.

PERMITTED FEATURE #002 - #009 – DERIVATION AND DISCUSSION OF LIMITS:

APPLIED WASTEWATER

- **Irrigation Period.** Monitoring requirement only. Monitoring for the Irrigation Period is included to determine if proper application is occurring on the land application fields.
- **Volume Irrigated.** Monitoring requirement only. Monitoring for the Volume Irrigated is included to determine if proper application is occurring on the land application fields.

- **Application Area.** Monitoring requirement only. Monitoring for the Application Area is included to determine if proper application is occurring on the land application fields.
- **Application Rate.** Monitoring requirement only. Monitoring for the Application Rate is included to determine if proper application is occurring on the land application fields.

SOIL MONITORING

- **Chloride.** Monitoring requirement only. Monitoring for Chloride is included to determine nutrient loading rates on the land application fields. [10 CSR 20-8.020(15)(F)7.]
- **Cation Exchange Capacity.** Monitoring requirement only. Monitoring for Cation Exchange Capacity is included to determine nutrient loading rates on the land application fields. [10 CSR 20-8.020(15)(F)7.]
- **pH.** Monitoring requirement only. Monitoring for pH is included to determine nutrient loading rates on the land application fields. [10 CSR 20-8.020(15)(F)7.]
- **Available Phosphorus as P.** Monitoring requirement only. Monitoring for Available Phosphorus as P is included to determine nutrient loading rates on the land application fields. [10 CSR 20-8.020(15)(F)7.]
- **Total Sodium.** Monitoring requirement only. Monitoring for Total Sodium is included to determine nutrient loading rates on the land application fields. [10 CSR 20-8.020(15)(F)8.]
- **Sodium Absorption Ration.** Monitoring requirement only. Monitoring for Sodium Absorption Ration is included to determine nutrient loading rates on the land application fields. [10 CSR 20-8.020(15)(F)8.]

Part V – 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 permit contains no new conditions or requirements that convey a new cost to the facility.

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.

PERMIT SYNCHRONIZATION:

The Department of Natural Resources is currently undergoing a synchronization process for operating permits. Permits are normally issued on a five-year term, but to achieve synchronization many permits will need to be issued for less than the full five years allowed by regulation. The intent is that all permits within a watershed will move through the Watershed Based Management (WBM) cycle together will all expire in the same fiscal year. This will allow further streamlining by placing multiple permits within a smaller geographic area on public notice simultaneously, thereby reducing repeated administrative efforts. This will also allow the department to explore a watershed based permitting effort at some point in the future. Renewal applications must continue to be submitted within 180 days of expiration, however, in instances where effluent data from the previous renewal is less than 4 years old, that data may be re-submitted to meet the requirements of the renewal application. If the permit provides a schedule of compliance for meeting new water quality based effluent limits beyond the expiration date of the permit, the time remaining in the schedule of compliance will be allotted in the renewed permit.

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 was from July 24, 2015 to August 24, 2015. No responses received.

DATE OF FACT SHEET: SEPTEMBER 1, 2015

COMPLETED BY:

GREG CALDWELL, ENVIRONMENTAL SPECIALIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION – INDUSTRIAL PERMITS UNIT
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STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
REVISED
AUGUST 1, 2014

These Standard Conditions incorporate permit conditions as required by 40 CFR 122.41 or other applicable state statutes or regulations. These minimum conditions apply unless superseded by requirements specified in the permit.

Part I – General Conditions

Section A – Sampling, Monitoring, and Recording

1. **Sampling Requirements.**
 - a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
 - b. All samples shall be taken at the outfall(s) or Missouri Department of Natural Resources (Department) approved sampling location(s), and unless specified, before the effluent joins or is diluted by any other body of water or substance.
2. **Monitoring Requirements.**
 - a. Records of monitoring information shall include:
 - i. The date, exact place, and time of sampling or measurements;
 - ii. The individual(s) who performed the sampling or measurements;
 - iii. The date(s) analyses were performed;
 - iv. The individual(s) who performed the analyses;
 - v. The analytical techniques or methods used; and
 - vi. The results of such analyses.
 - b. If the permittee monitors any pollutant more frequently than required by the permit at the location specified in the permit using test procedures approved under 40 CFR Part 136, or another method required for an industry-specific waste stream under 40 CFR subchapters N or O, the results of such monitoring shall be included in the calculation and reported to the Department with the discharge monitoring report data (DMR) submitted to the Department pursuant to Section B, paragraph 7.
3. **Sample and Monitoring Calculations.** Calculations for all sample and monitoring results which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in the permit.
4. **Test Procedures.** The analytical and sampling methods used shall conform to the reference methods listed in 10 CSR 20-7.015 unless alternates are approved by the Department. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. The facility shall ensure that the selected methods are able to quantify the presence of pollutants in a given discharge at concentrations that are low enough to determine compliance with Water Quality Standards in 10 CSR 20-7.031 or effluent limitations unless provisions in the permit allow for other alternatives. A method is “sufficiently sensitive” when; 1) the method minimum level is at or below the level of the applicable water quality criterion for the pollutant or, 2) the method minimum level is above the applicable water quality criterion, but the amount of pollutant in a facility’s discharge is high enough that the method detects and quantifies the level of pollutant in the discharge, or 3) the method has the lowest minimum level of the analytical methods approved under 10 CSR 20-7.015. These methods are also required for parameters that are listed as monitoring only, as the data collected may be used to determine if limitations need to be established. A permittee is responsible for working with their contractors to ensure that the analysis performed is sufficiently sensitive.
5. **Record Retention.** Except for records of monitoring information required by the permit related to the permittee’s sewage sludge use and disposal activities, which shall be retained for a period of at least five (5) years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

6. **Illegal Activities.**
 - a. The Federal Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under the permit shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than two (2) years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than four (4) years, or both.
 - b. The Missouri Clean Water Law provides that any person or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than six (6) months, or by both. Second and successive convictions for violation under this paragraph by any person shall be punished by a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.

Section B – Reporting Requirements

1. **Planned Changes.**
 - a. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility when:
 - i. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
 - ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42(a)(1);
 - iii. The alteration or addition results in a significant change in the permittee’s sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;
 - iv. Any facility expansions, production increases, or process modifications which will result in a new or substantially different discharge or sludge characteristics must be reported to the Department 60 days before the facility or process modification begins. Notification may be accomplished by application for a new permit. If the discharge does not violate effluent limitations specified in the permit, the facility is to submit a notice to the Department of the changed discharge at least 30 days before such changes. The Department may require a construction permit and/or permit modification as a result of the proposed changes at the facility.
2. **Non-compliance Reporting.**
 - a. The permittee shall report any noncompliance which may endanger health or the environment. Relevant information shall be provided orally or via the current electronic method approved by the Department, within 24 hours from the time the permittee becomes aware of the circumstances, and shall be reported to the appropriate Regional Office during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours. A written submission shall also be provided within five (5) business days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.



STANDARD CONDITIONS FOR NPDES PERMITS
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- b. The following shall be included as information which must be reported within 24 hours under this paragraph.
 - i. Any unanticipated bypass which exceeds any effluent limitation in the permit.
 - ii. Any upset which exceeds any effluent limitation in the permit.
 - iii. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit required to be reported within 24 hours.
 - c. The Department may waive the written report on a case-by-case basis for reports under paragraph 2. b. of this section if the oral report has been received within 24 hours.
3. **Anticipated Noncompliance.** The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The notice shall be submitted to the Department 60 days prior to such changes or activity.
 4. **Compliance Schedules.** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date. The report shall provide an explanation for the instance of noncompliance and a proposed schedule or anticipated date, for achieving compliance with the compliance schedule requirement.
 5. **Other Noncompliance.** The permittee shall report all instances of noncompliance not reported under paragraphs 2, 3, and 6 of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph 2. a. of this section.
 6. **Other Information.** Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.
 7. **Discharge Monitoring Reports.**
 - a. Monitoring results shall be reported at the intervals specified in the permit.
 - b. Monitoring results must be reported to the Department via the current method approved by the Department, unless the permittee has been granted a waiver from using the method. If the permittee has been granted a waiver, the permittee must use forms provided by the Department.
 - c. Monitoring results shall be reported to the Department no later than the 28th day of the month following the end of the reporting period.
- b. Notice.
 - i. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.
 - ii. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in Section B – Reporting Requirements, paragraph 5 (24-hour notice).
 - c. Prohibition of bypass.
 - i. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:
 1. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 2. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 3. The permittee submitted notices as required under paragraph 2. b. of this section.
 - ii. The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three (3) conditions listed above in paragraph 2. c. i. of this section.
3. **Upset Requirements.**
 - a. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph 3. b. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
 - b. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - i. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - ii. The permitted facility was at the time being properly operated; and
 - iii. The permittee submitted notice of the upset as required in Section B – Reporting Requirements, paragraph 2. b. ii. (24-hour notice).
 - iv. The permittee complied with any remedial measures required under Section D – Administrative Requirements, paragraph 4.
 - c. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

Section C – Bypass/Upset Requirements

1. **Definitions.**
 - a. *Bypass*: the intentional diversion of waste streams from any portion of a treatment facility, except in the case of blending.
 - b. *Severe Property Damage*: substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
 - c. *Upset*: an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
2. **Bypass Requirements.**
 - a. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs 2. b. and 2. c. of this section.

Section D – Administrative Requirements

1. **Duty to Comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Missouri Clean Water Law and Federal Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.
 - a. The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
 - b. The Federal Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any such sections in a permit issued under section 402, or any requirement imposed in a pretreatment program approved under sections 402(a)(3) or 402(b)(8) of the Act, is subject to a civil penalty not to exceed \$25,000 per day for each violation. The Federal Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, or any requirement



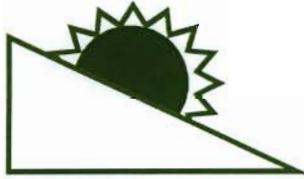
STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
REVISED
AUGUST 1, 2014

- imposed in a pretreatment program approved under section 402(a)(3) or 402(b)(8) of the Act, is subject to criminal penalties of \$2,500 to \$25,000 per day of violation, or imprisonment of not more than one (1) year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than \$50,000 per day of violation, or by imprisonment of not more than two (2) years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of \$5,000 to \$50,000 per day of violation, or imprisonment for not more than three (3) years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than \$100,000 per day of violation, or imprisonment of not more than six (6) years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of the Act, and who knows at that time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than \$250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than \$500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the CWA, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than \$1,000,000 and can be fined up to \$2,000,000 for second or subsequent convictions.
- c. Any person may be assessed an administrative penalty by the EPA Director for violating section 301, 302, 306, 307, 308, 318 or 405 of this Act, or any permit condition or limitation implementing any of such sections in a permit issued under section 402 of this Act. Administrative penalties for Class I violations are not to exceed \$10,000 per violation, with the maximum amount of any Class I penalty assessed not to exceed \$25,000. Penalties for Class II violations are not to exceed \$10,000 per day for each day during which the violation continues, with the maximum amount of any Class II penalty not to exceed \$125,000.
- d. It is unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri in violation of sections 644.006 to 644.141 of the Missouri Clean Water Law, or any standard, rule or regulation promulgated by the commission. In the event the commission or the director determines that any provision of sections 644.006 to 644.141 of the Missouri Clean Water Law or standard, rules, limitations or regulations promulgated pursuant thereto, or permits issued by, or any final abatement order, other order, or determination made by the commission or the director, or any filing requirement pursuant to sections 644.006 to 644.141 of the Missouri Clean Water Law or any other provision which this state is required to enforce pursuant to any federal water pollution control act, is being, was, or is in imminent danger of being violated, the commission or director may cause to have instituted a civil action in any court of competent jurisdiction for the injunctive relief to prevent any such violation or further violation or for the assessment of a penalty not to exceed \$10,000 per day for each day, or part thereof, the violation occurred and continues to occur, or both, as the court deems proper. Any person who willfully or negligently commits any violation in this paragraph shall, upon conviction, be punished by a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both. Second and successive convictions for violation of the same provision of this paragraph by any person shall be punished by a fine of not more than \$50,000 per day of violation, or by imprisonment for not more than two (2) years, or both.
2. **Duty to Reapply.**
- a. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.
- b. A permittee with a currently effective site-specific permit shall submit an application for renewal at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Department. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
- c. A permittee with currently effective general permit shall submit an application for renewal at least 30 days before the existing permit expires, unless the permittee has been notified by the Department that an earlier application must be made. The Department may grant permission for a later submission date. (The Department shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)
3. **Need to Halt or Reduce Activity Not a Defense.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
4. **Duty to Mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.
5. **Proper Operation and Maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
6. **Permit Actions.**
- a. Subject to compliance with statutory requirements of the Law and Regulations and applicable Court Order, this permit may be modified, suspended, or revoked in whole or in part during its term for cause including, but not limited to, the following:
- i. Violations of any terms or conditions of this permit or the law;
- ii. Having obtained this permit by misrepresentation or failure to disclose fully any relevant facts;
- iii. A change in any circumstances or conditions that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
- iv. Any reason set forth in the Law or Regulations.
- b. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.
7. **Permit Transfer.**
- a. Subject to 10 CSR 20-6.010, an operating permit may be transferred upon submission to the Department of an application to transfer signed by the existing owner and the new owner, unless prohibited by the terms of the permit. Until such time the permit is officially transferred, the original permittee remains responsible for complying with the terms and conditions of the existing permit.
- b. The Department may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Missouri Clean Water Law or the Federal Clean Water Act.
- c. The Department, within 30 days of receipt of the application, shall notify the new permittee of its intent to revoke or reissue or transfer the permit.
8. **Toxic Pollutants.** The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Federal Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the Federal Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.
9. **Property Rights.** This permit does not convey any property rights of any sort, or any exclusive privilege.



STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
REVISED
AUGUST 1, 2014

10. **Duty to Provide Information.** The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.
11. **Inspection and Entry.** The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the Department), upon presentation of credentials and other documents as may be required by law, to:
 - a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
 - d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Federal Clean Water Act or Missouri Clean Water Law, any substances or parameters at any location.
12. **Closure of Treatment Facilities.**
 - a. Persons who cease operation or plan to cease operation of waste, wastewater, and sludge handling and treatment facilities shall close the facilities in accordance with a closure plan approved by the Department.
 - b. Operating Permits under 10 CSR 20-6.010 or under 10 CSR 20-6.015 are required until all waste, wastewater, and sludges have been disposed of in accordance with the closure plan approved by the Department and any disturbed areas have been properly stabilized. Disturbed areas will be considered stabilized when perennial vegetation, pavement, or structures using permanent materials cover all areas that have been disturbed. Vegetative cover, if used, shall be at least 70% plant density over 100% of the disturbed area.
13. **Signatory Requirement.**
 - a. All permit applications, reports required by the permit, or information requested by the Department shall be signed and certified. (See 40 CFR 122.22 and 10 CSR 20-6.010)
 - b. The Federal Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six (6) months per violation, or by both.
 - c. The Missouri Clean Water Law provides that any person who knowingly makes any false statement, representation or certification in any application, record, report, plan, or other document filed or required to be maintained pursuant to sections 644.006 to 644.141 shall, upon conviction, be punished by a fine of not more than ten thousand dollars, or by imprisonment for not more than six months, or by both.
14. **Severability.** The provisions of the permit are severable, and if any provision of the permit, or the application of any provision of the permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of the permit, shall not be affected thereby.



TERRA TECHNOLOGIES

Leawood, Kansas • Columbia, Missouri • St. Louis, Missouri

Friday, November 14, 2014

Ms. Amanda Sappington, Chief
Industrial Permits Unit
Missouri Department of Natural Resources
PO Box 176
Jefferson City, MO 65102-0176

WATER PROTECTION PROGRAM

DEC 10 2014

RECEIVED

Dear Ms. Sappington:

Please find the attached application for permit MO0121878 renewal submitted within 6 months of permit expiration. We appreciate the assistance provided by your staff in organizing the required information. Likewise, we can revise the submittal based upon receipt of your guidance.

In order to reduce the occurrence of outfall discharge, the applicant proposes to utilize more of their agricultural property for irrigation use of leachate. Irrigation of such additional fields will be managed as no outfall sites. Numerous exhibits are provided with Form I for your use.

I am available to meet upon request as the permittee desires compliance with your jurisdictional authority. Please call me at 913-652-9210 with any questions.

Sincerely,
TERRA TECHNOLOGIES INC.

David L. Flick
Principal

Enclosure: MDNR Forms A, B, C and I with associated attachments

Cc: Mr. Phillip Burger, Burgers Country Cured Hams Inc.
Mr. Keith Fletcher, Burgers Country Cured Hams Inc.

RECEIVED

1705 N Stadium Drive, Suite B, Columbia, Missouri 65202

Phone: 573-445-3440 • Fax: 573-445-3414

<http://www.terratechnologies.com> • e-mail: terratech@terratechnologies.com

DEC 10 2014

WATER PROTECTION PROGRAM

RECEIVED



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH
(SEE MAP FOR APPROPRIATE REGIONAL OFFICE)
FORM A - APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT UNDER MISSOURI CLEAN WATER LAW

FOR AGENCY USE ONLY

CHECK NO.

DATE RECEIVED

FEE SUBMITTED

DEC 10 2014

AP 20211

12/10/14

OSB

NOTE ▶ PLEASE READ THE ACCOMPANYING INSTRUCTIONS BEFORE COMPLETING THIS FORM.

- 1.00 This application is for:
- a construction permit
 - an operating permit for a new or unpermitted facility
 - an operating permit modification
 - an operating permit renewal: permit # MO0121878
 - a site specific storm water permit
- Reason: _____
- Expiration date: 5/16/15
- (See instructions for appropriate fee to be submitted with application)

2.00 FACILITY

NAME BURGER'S SMOKEHOUSE		PHONE	800.203.4424
ADDRESS (PHYSICAL) 32819 HWY 87		FAX	573.796.3137
CITY CALIFORNIA	STATE MO	ZIP 65018	

2.10 Is this a new facility constructed under a Missouri Construction Permit? YES NO

If yes, please provide Missouri Construction Permit Number: _____

3.00 OWNER

NAME BURGER'S OZARK COUNTRY CURED HAMS, INC		EMAIL ADDRESS NA	PHONE	573.796.3134
ADDRESS (MAILING) 32819 HWY 87		FAX	573.796.3137	
CITY CALIFORNIA	STATE MO	ZIP 65018		

3.10 Request review of draft permit prior to Public Notice? YES NO

4.00 CONTINUING AUTHORITY

NAME BURGER'S OZARK COUNTRY CURED HAMS, INC		PHONE	573.796.3134
ADDRESS (MAILING) 32819 HWY 87		FAX	573.796.3137
CITY CALIFORNIA	STATE MO	ZIP 65018	

5.00 OPERATOR

NAME URGER'S OZARK COUNTRY CURED HAMS, INC		CERTIFICATE NUMBER	PHONE	573.796.3134
ADDRESS (PHYSICAL) 32819 HWY 87		FAX	573.796.3137	
CITY CALIFORNIA	STATE MO	ZIP 65018		

6.00 FACILITY CONTACT

NAME PHILLIP BURGER Keith Fletcher		TITLE VICE PRESIDENT S.R. V.P. Operations	PHONE	573.796.3134
			FAX	573.796.3137

7.00 ADDITIONAL FACILITY INFORMATION

7.10 Legal Description of Outfalls. (Attach additional sheets if necessary)

- 001 NW¼ NE¼ Sec 9 T 44N R 15W MONITEAU County
- 002 NE¼ NW¼ Sec 9 T 44N R 15W MONITEAU County
- 003 NE¼ NE¼ Sec 9 T 44N R 15W MONITEAU County
- 004 SW¼ NW¼ Sec 10 T 44N R 15W MONITEAU County

7.20 Primary Standard Industrial Classification (SIC) Code: 2013

8.0 ADDITIONAL FORMS AND MAPS NECESSARY TO COMPLETE THIS APPLICATION
(Complete all forms that are applicable)

- A. Is your facility a manufacturing, commercial, mining or silviculture waste treatment facility?
 If yes, complete Form C. YES NO
- B. Is your facility considered a "Primary Industry" under U.S. EPA guidelines:
 If yes, complete Forms C and D. YES NO
- C. Is application for storm water discharges only?
 If yes, complete U.S. EPA Form 2F. YES NO
- D. Attach a map showing all outfalls and the receiving stream at 1" = 2000' scale.
- E. Is wastewater land applied? YES NO
- F. Is sludge, biosolids, ash or residuals generated, treated, stored or land applied?
 If yes, complete Form R. YES NO

9.0 DOWNSTREAM LANDOWNER(S) Attach additional sheets as necessary. See Instructions. (PLEASE SHOW LOCATION ON MAP. SEE 8.00 D ABOVE).

NAME <i>As attached.</i>			
ADDRESS	CITY	STATE	ZIP

10.0 I certify that I am familiar with the information contained in the application, that to the best of my knowledge and belief such information is true, complete and accurate, and if granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders and decisions, subject to any legitimate appeal available to applicant under the Missouri Clean Water Law to the Missouri Clean Water Commission.

NAME AND OFFICIAL TITLE (TYPE OR PRINT) PHILLIP H. BURGER, VICE PRESIDENT		PHONE NO. (AREA CODE & NO.) 573.796.3134
SIGNATURE <i>Keith Fletcher</i>		DATE SIGNED <i>11/13/14</i>

MO 780-1479 (9-05)

BEFORE MAILING, PLEASE ENSURE ALL SECTIONS ARE COMPLETED AND ADDITIONAL FORMS, IF APPLICABLE, ARE INCLUDED.

HAVE YOU INCLUDED:

- Appropriate Fees?
- Map at 1" = 2000' scale?
- Signature?
- Form C, if applicable?
- Form D, if applicable?
- Form 2F, if applicable?
- Form I (Irrigation), if applicable?
- ~~Form R (Sludge), if applicable?~~

**INSTRUCTIONS FOR COMPLETING FORM A
APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT**

- 1.00 - Check which permit type is applicable. **DO NOT CHECK MORE THAN ONE ITEM.**
Operating permit refers to permits issued by the Department of Natural Resources, Water Protection Program, Water Pollution Branch.

CONSTRUCTION PERMIT FEES

- A. \$750 for a sewage treatment facility with a design flow of less than 500,000 gallons per day.
B. \$2,200 for a sewage treatment facility with a design flow of 500,000 gallons per day or more.
Different application and construction fees are applicable if only sewer and/or lift stations are to be constructed.

OPERATING PERMIT FEES

- A. Discharges covered by section 644.052.4 RSMo. (Primary or Categorical Facilities)
\$3500 for a design flow under 1 mgd
\$5000 for a design flow of 1 mgd or more
B. Discharges covered by section 644.052.5 RSMo. (Secondary or Non-Categorical Facilities)
\$1500 for a design flow under 1 mgd
\$2500 for a design flow of 1 mgd or more

IF THE APPLICATION IS FOR A SITE-SPECIFIC PERMIT RE-ISSUANCE, SEND NO FEES. YOU WILL BE INVOICED SEPARATELY BY THE DEPARTMENT.

SITE-SPECIFIC STORM WATER DISCHARGE FEES

- A. \$1350 for a design flow under 1 mgd
B. \$2350 for a design flow of 1 mgd or more

Permit modifications, including transfers, are subject to the following fees:

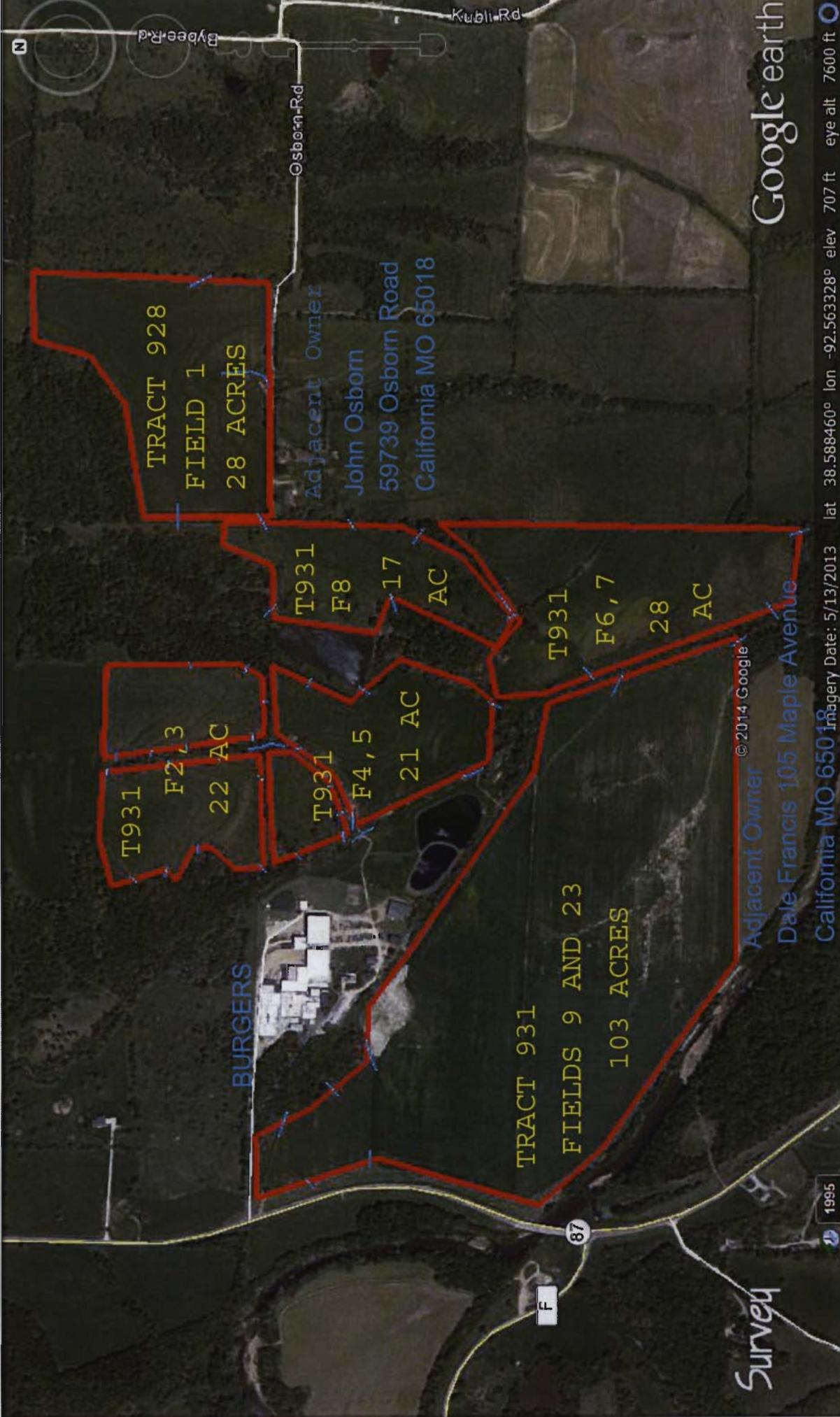
- A. Municipals - \$200 each
B. All others - 25% of annual fee

Note: Business name and address changes where owner, operator and continuing authority remain the same are not considered transfers.

Incomplete permit applications and/or related engineering documents will be returned by the department if they are not completed in the time frame established by the department in a comment letter to the owner. Permit fees for returned applications shall be forfeited. Permit fees for applications being processed by the department that are withdrawn by the applicant shall be forfeited.

- 2.0 Name and facility – by what name is this facility known locally? Example: Southwest Sewage Treatment Plant, Country Club Mobile Home Park, etc. Give the street address or location of the facility. If the facility lacks a street name or route number, give the names of the closest intersection, highway, county road, etc.
- 2.10 Construction permit refers to permits issued by the Department of Natural Resources, Water Protection Program, Water Pollution Branch.
- 3.0 Owner – legal name and address of owner.
- 3.10 If checked "YES", the statutory timeframe for issuing a final action on the permit application shall begin on the date the applicant's preliminary review comments are received by the department.
- 4.0 Continuing Authority – permanent organization which will serve as the continuing authority for the operation, maintenance and modernization of the facility.
- 5.0 Operator – name, certificate number and telephone number of the person operating the facility.
- 6.0 Give the name, title, and work telephone number of a person who is thoroughly familiar with the operation of the facility and with the facts reported in this application and who can be contacted by the department if necessary.
- 7.10 An outfall is the point at which wastewater is discharged. Outfalls should be given in terms of the legal description of the facility.
- 7.20 List only your primary Standard Industrial Classification (SIC) code. The SIC system was devised by the U.S. Office of Management and Budget to cover all economic activities. To find the correct SIC code, an applicant may check his or her unemployment insurance forms or contact the Missouri Division of Employment Security, (573) 751-3215. The primary SIC code is that of the operation that generates the most revenue. If this information is not available, the number of employees or, secondly, production rate may be used to determine your SIC code.
- 8.0 If you answer "yes" to A, B, C, D, E or F then you must complete and file the supplementary form(s) indicated. A USGS 1" = 2000' scale map must be submitted with the permit application showing all outfalls, the receiving stream, and the location of the downstream property owners.
- 9.0 Provide the name and address of the first downstream landowner, different from that of the permitted facility, through whose property the discharge will flow, and indicate location on map. For no discharge facilities, provide this information for the location where discharge would flow if there was one. For land application sites, include the owners of the land application sites and all adjacent landowners.
- 10.0 Signature – all applications must be signed as follows and the signature must be **original**:
- For a corporation, by an officer having responsibility for the overall operation of the regulated facility or activity or for environmental matters'
 - For a partnership or sole proprietorship, by a general partner or the proprietor;
 - For a municipal, state, federal, or other public facility, by either a principal executive officer or by an individual having overall responsibility for environmental matters at the facility.

This completed form, along with the applicable permit fees, should be returned to the appropriate Regional Office (see map). If there are any questions concerning this form, please contact the appropriate Regional Office or the Department of Natural Resources, Water Protection Program, Water Pollution Branch, NPDES Permits and Engineering Section at (573) 751-6825.



TRACT 928
FIELD 1
28 ACRES

Adjacent Owner
John Osborn
59739 Osborn Road
California MO 65018

T931
F2,3
22 AC

T931
F8
17 AC

T931
F6,7
28 AC

T931
F4,5
21 AC

Adjacent Owner
Dale Francis 105 Maple Avenue
California MO 65018

BURGERS

TRACT 931
FIELDS 9 AND 23
103 ACRES

Survey

Google earth

lat 38.588460° lon -92.563328° elev 707 ft eye alt 7600 ft

Imagery Date: 5/13/2013

© 2014 Google

1995

T931

F2, 3

22 AC

TRACT 928

FIELD 1

28 ACRES

T931

F8

17

AC

T931

F4, 5

21 AC

T931

F6, 7

28

AC

Osborn-Rd

Bybee-Rd

Kubli-Rd

Adjacent Owner

John Osborn

59739 Osborn Road

California MO 65018

RECEIVED

DEC 10 2014



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
FORM B: APPLICATION FOR OPERATING PERMIT FOR FACILITIES THAT RECEIVE
PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW LESS THAN OR
EQUAL TO 100,000 GALLONS PER DAY

FOR AGENCY USE ONLY
CHECK NUMBER
DATE RECEIVED FEE SUBMITTED

PLEASE READ THE ACCOMPANYING INSTRUCTIONS BEFORE COMPLETING THIS FORM

1. THIS APPLICATION IS FOR:

- An operating permit for a new or unpermitted facility. Construction Permit #
A site-specific operating permit renewal: Permit #MO- 0121878 Expiration Date 5/16/2015
A site-specific operating permit modification: Permit #MO- Reason:
General permit (MOGD - Non POTWs discharging < 50,000 GPD): Permit #MO- Expiration Date

1.1 Is the appropriate fee included with the application (see instructions for appropriate fee)? YES NO

2. FACILITY

NAME: Burger's Ozark Country Cured Hams, Inc. TELEPHONE NUMBER WITH AREA CODE: (800) 203-4424
ADDRESS (PHYSICAL): 32819 Highway 87 CITY: California STATE: MO ZIP CODE: 65018
2.1 Legal description: NE 1/4, 1/4, 1/4, Sec. 9, T 44n, R 15W County Monite
2.2 UTM Coordinates Easting (X): 38.590077 Northing (Y): 92.568535
2.3 Name of receiving stream: Unnamed tributary to Moreau Creek
2.4 Number of outfalls: 4 Wastewater outfalls: 0 Stormwater outfalls: 4 Instream monitoring sites: 0

3. OWNER

NAME: Same EMAIL ADDRESS: kfletcher@smokehouse.co TELEPHONE NUMBER WITH AREA CODE: (800) 203-4424
ADDRESS CITY STATE ZIP CODE
3.1 Request review of draft permit prior to public notice? YES NO
3.2 Are you a publicly owned treatment works? YES NO
3.3 Are you a privately owned treatment works? YES NO
3.4 Are you a privately owned treatment facility regulated by the Public Service Commission? YES NO

4. CONTINUING AUTHORITY: Permanent organization that will serve as the continuing authority for the operation, maintenance and modernization of the facility.

NAME: Same EMAIL ADDRESS TELEPHONE NUMBER WITH AREA CODE
ADDRESS CITY STATE ZIP CODE

If the continuing authority is different than the owner, please include a copy of the contract agreement between the two parties and a description of the responsibilities of both parties within the agreement.

5. OPERATOR

NAME: Same TITLE CERTIFICATE NUMBER
EMAIL ADDRESS TELEPHONE NUMBER WITH AREA CODE

6. FACILITY CONTACT

NAME: Phillip Burger Keith Fletcher TITLE: Vice President SR, V.P. Operations
EMAIL ADDRESS: kfletcher@smokehouse.com TELEPHONE NUMBER WITH AREA CODE: (800) 203-4424
ADDRESS: 32819 Highway 87 CITY: California STATE: MO ZIP CODE: 65018

7. DESCRIPTION OF FACILITY

7.1 Process Flow Diagram or Schematic: Provide a diagram showing the processes of the treatment plant. Show all of the treatment units, including disinfection (e.g. – chlorination and dechlorination), influents and outfalls. Indicate any treatment process changes in the routing of wastewater during dry weather and peak wet weather. Include a brief narrative description of the diagram. Attach sheets as necessary.

Same as previous permits.

7.2 Attach an aerial photograph or USGS topographic map showing the location of the facility and outfall.

8. ADDITIONAL FACILITY INFORMATION	
8.1	Facility SIC code: <u>2013</u> Discharge SIC code: _____
8.2	Number of people presently connected or population equivalent (P.E.) _____ Design P.E. _____
8.3	Connections to the facility: Number of units presently connected: Homes _____ Trailers _____ Apartments _____ Other (including industrial) _____ Number of commercial establishments: _____
8.4	Design flow: 30,000 Actual flow: 18,500
8.5	Will discharge be continuous through the year? <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If yes, explain.) Discharge will occur during the following months: January- December
	How many days of the week will discharge occur? <u>7</u>
8.6	Is industrial waste discharged to the facility? Yes <input checked="" type="checkbox"/> No
8.7	Does the facility accept or process leachate from landfills? Yes <input checked="" type="checkbox"/> No
8.8	Is wastewater land applied? <input checked="" type="checkbox"/> Yes No If yes, is Form I attached? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
8.9	Does the facility discharge to a losing stream or sinkhole? Yes <input checked="" type="checkbox"/> No
8.10	Has a wasteload allocation study been completed for this facility? Yes <input checked="" type="checkbox"/> No
9. LABORATORY CONTROL INFORMATION	
LABORATORY WORK CONDUCTED BY PLANT PERSONNEL	
	Lab work conducted outside of plant. <input checked="" type="checkbox"/> Yes No
	Push-button or visual methods for simple test such as pH, settleable solids. Yes <input checked="" type="checkbox"/> No
	Additional procedures such as dissolved oxygen, chemical oxygen demand, biological oxygen demand, titrations, solids, volatile content. <input checked="" type="checkbox"/> Yes No
	More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc. Yes <input checked="" type="checkbox"/> No
	Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph. Yes <input checked="" type="checkbox"/> No
10. COLLECTION SYSTEM	
10.1	Length of pipe in the sewer collection system? <u>600</u> Feet, or _____ Miles (either unit is appropriate)
10.2	Does significant infiltration occur in the collection system? Yes <input checked="" type="checkbox"/> No If yes, briefly explain any steps underway or planned to minimize inflow and infiltration:
11. BYPASSING	
Does any bypassing occur in the collection system or at the treatment facility? Yes <input checked="" type="checkbox"/> No	
If yes, explain:	

12. SLUDGE HANDLING, USE AND DISPOSAL

12.1 Is the sludge a hazardous waste as defined by 10 CSR 25? Yes No

12.2 Sludge production, including sludge received from others: _____ Design dry tons/year _____ Actual dry tons/year

12.3 Capacity of sludge holding structures:
 Sludge storage provided: _____ cubic feet; _____ days of storage; _____ average percent solids of sludge;
 No sludge storage is provided. Sludge is stored in lagoon.

12.4 Type of Storage: Holding tank Building
 Basin Lagoon
 Concrete Pad Other (Please describe) _____

12.5 Sludge Treatment:
 Anaerobic Digester Lagoon Composting
 Storage Tank Aerobic Digester Other (Attach description)
 Lime Stabilization Air or Heat Drying

12.6 Sludge Use or Disposal:
 Land Application Surface Disposal (Sludge Disposal Lagoon, Sludge held for more than two years)
 Contract Hauler Hauled to Another treatment facility
 Incineration Sludge Retained in Wastewater treatment lagoon
 Solid waste landfill

12.7 Person responsible for hauling sludge to disposal facility:
 By applicant By others (complete below)

NAME		EMAIL ADDRESS	
ADDRESS	CITY	STATE	ZIP CODE
CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO. MO-	

12.8 Sludge use or disposal facility
 By applicant By others (Please complete below.)

NAME		EMAIL ADDRESS	
ADDRESS	CITY	STATE	ZIP CODE
CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO. MO-	

12.9 Does the sludge or biosolids disposal comply with federal sludge regulations under 40 CFR 503?
 Yes No (Please explain)

13. CERTIFICATION

I certify that I am familiar with the information contained in the application, that to the best of my knowledge and belief such information is true, complete and accurate, and if granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders and decisions, subject to any legitimate appeal available to applicant under the Missouri Clean Water Law.

NAME (TYPE OR PRINT) Phillip Burger <i>Keith Fletcher</i>	OFFICIAL TITLE Vice President <i>SR.V.P. Ops</i>	TELEPHONE NUMBER WITH AREA CODE (800) 203-4424
SIGNATURE <i>Keith J. Fletcher</i>		DATE SIGNED <i>11/13/14</i>

INSTRUCTIONS FOR COMPLETING FORM B: APPLICATION FOR OPERATING PERMIT FOR FACILITIES THAT RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW LESS THAN OR EQUAL TO 100,000 GALLONS PER DAY
(Facilities over 100,000 gallons per day of domestic waste must use FORM B2)
(Facilities that receive wastes other than domestic please contact the department)

1. Check the appropriate box. **Do not check more than one item.** Operating permit refers to a permit issued by the Department of Natural Resources' Water Protection Program. If an Antidegradation Review has not been conducted, please submit the application located at the following link to the Missouri Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, MO 65102: dnr.mo.gov/forms/780-1893-f.pdf.

1.1 **Fees Information:**

DOMESTIC OPERATING PERMIT FEES – PRIVATE

Annual operating permit fees are based on flow.

Annual fee/Design flow	Annual fee/Design flow	Annual fee/Design flow
\$100..... <5,000 gpd	\$375..... 10,000-10,999 gpd	\$650..... 16,000-16,999 gpd
\$150..... 5,000-5,999 gpd	\$400..... 11,000-11,999 gpd	\$800..... 17,000-19,999 gpd
\$175..... 6,000-6,999 gpd	\$450..... 12,000-12,999 gpd	\$1,000..... 20,000-22,999 gpd
\$200..... 7,000-7,999 gpd	\$500..... 13,000-13,999 gpd	\$2,000..... 23,000-24,999 gpd
\$225..... 8,000-8,999 gpd	\$550..... 14,000-14,999 gpd	\$2,500..... 25,000-29,999 gpd
\$250..... 9,000-9,999 gpd	\$600..... 15,000-15,999 gpd	\$3,000..... 30,000 gpd -1 mgd

New domestic wastewater treatment facilities must submit the annual fee with the original application.

If the application is for a site-specific permit re-issuance, send no fees. You will be invoiced separately by the department on the anniversary date of the original permit. Permit fees must be current for the department to reissue the operating permit. Late fees of two percent per month are charged and added to outstanding annual fees.

PUBLIC SEWER SYSTEM OPERATING PERMIT FEES (city, public sewer district, public water district, or other publicly owned treatment works). Annual fee is based on number of service connections. The table of fees is in 10 CSR 20-6.011 and is available at www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf. New public sewer system facilities should not submit any fee as the department will invoice the permittee.

OPERATING PERMIT MODIFICATIONS, including transfers, are subject to the following fees:

- a. Municipals - \$200 each.
- b. All others – \$100 each.

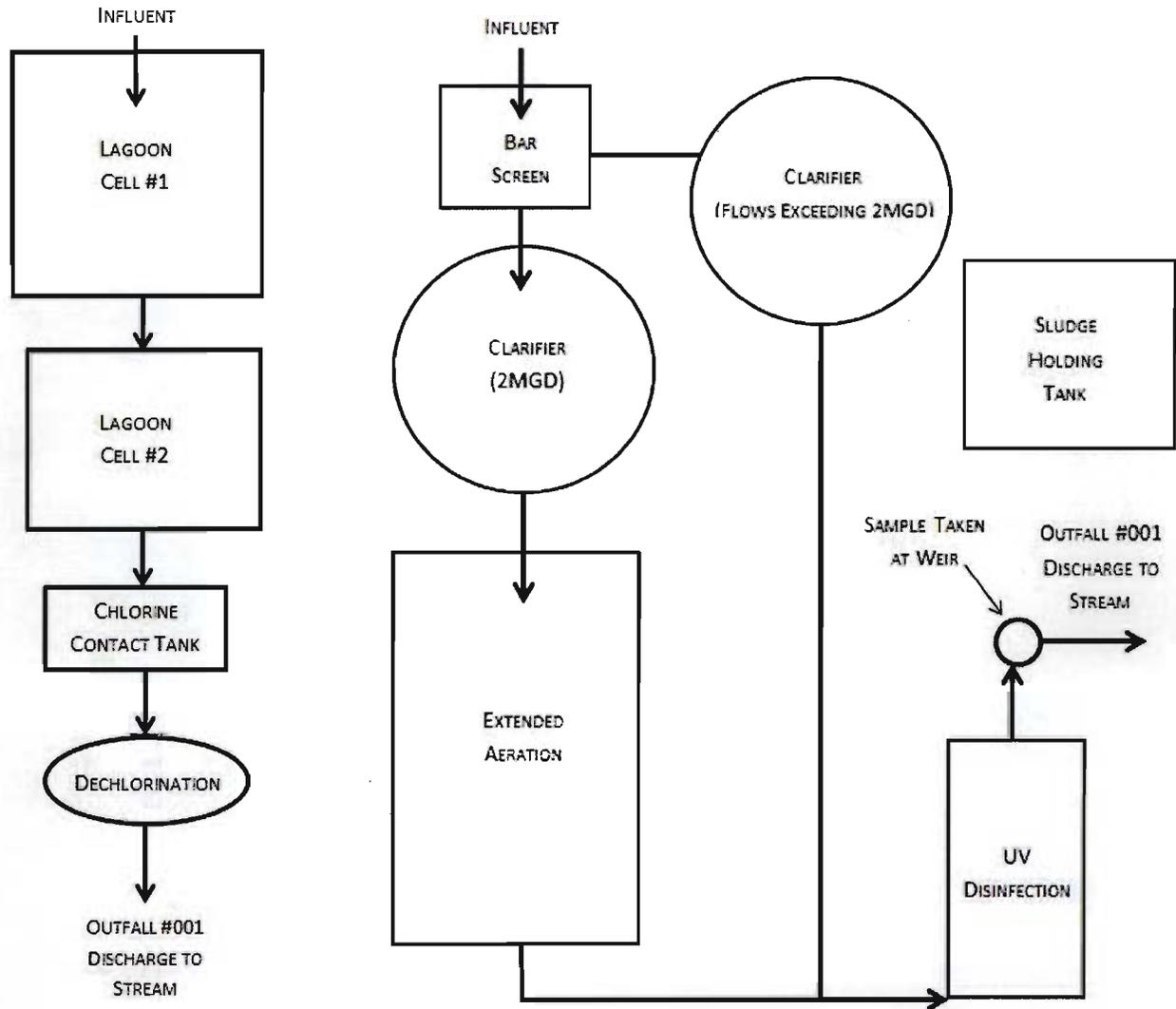
Note: Facility name or address changes where owner, operator and continuing authority remain the same are not considered transfers.

2. Name of Facility – Include the name by which this facility is locally known. Example: Southwest Sewage Treatment Plant, Country Club Mobile Home Park, etc. Provide the street address or location of the facility. If the facility lacks a street name or route number, provide the names of the closest intersection, highway, country road, etc.
- 2.1 Self-explanatory
- 2.2 Global Positioning System, or GPS, is a satellite-based navigation system. The department prefers that a GPS receiver is used at the outfall pipe and the displayed coordinates submitted. If access to a GPS receiver is not available, use a mapping system to approximate the coordinates; the department's mapping system is available at www.dnr.mo.gov/internetmapviewer/.
- 2.3-2.4 Self-explanatory
3. Owner – Provide the legal name, mailing address, phone number, and email address of the owner. Prior to submitting a permit to public notice, the Department of Natural Resources shall provide the permit applicant 15 days to review the draft permit for nonsubstantive drafting errors. In the interest of expediting permit issuance, permit applicants may waive the opportunity to review draft permits prior to public notice.
- 3.2-3.4 Self-explanatory.
4. Continuing Authority – Include the permanent organization that will serve as the continuing authority for the operation, maintenance and modernization of the facility. The regulatory requirement regarding continuing authority is available at www.sos.mo.gov/adrules/csr/current/10csr/10c20-6a.pdf or contact the Department of Natural Resources Water Protection Program (see contact information below).
5. Operator – Provide the name, certificate number, title, mailing address, phone number, and e-mail address of the operator of the facility.
6. Provide the name, title, mailing address, work phone number, and e-mail address of a person who is thoroughly familiar with the operation of the facility and with the facts reported in this application and who can be contacted by the department.

7.1 Process Flow Diagram Examples

WASTEWATER TREATMENT LAGOON

WASTEWATER TREATMENT FACILITY



7.2 A topographic map is available on the Web at www.dnr.mo.gov/internetmapviewer/ or from the Department of Natural Resources' Geological Survey Division in Rolla at 573-368-2125.

8.1 For Standard Industrial Codes visit www.osha.gov/pls/irnis/sic_manual.html or contact the Department of Natural Resources' Water Protection Program. For example, a family style restaurant has a Facility SIC code of 5812.

8.2-8.7 Self-explanatory.

8.8 If wastewater is land applied please submit for Form I: www.dnr.mo.gov/forms/780-1686-f.pdf.

8.9-8.10 Self-explanatory

**INSTRUCTIONS FOR COMPLETING FORM B: APPLICATION FOR OPERATING PERMIT FOR FACILITIES
THAT RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW
LESS THAN OR EQUAL TO 100,000 GALLONS PER DAY (continued)**

9. Self-explanatory.
- 10.1 Self-explanatory.
- 10.2 If Inflow and Infiltration (I&I) is a problem at the facility, list possible actions to be taken to repair the collection and treatment facility.
11. Include overflows of combined sewers and lift stations or bypassing of the wastewater treatment facility. Provide a detailed description of the circumstances that sewage bypassing occurs and the frequency of occurrence.
12. A copy of 10 CSR 25 is available on the Web at www.sos.mo.gov/adrules/csr/current/10csr/10csr.asp#10-25.
- 12.1-12.9 Self-explanatory.
- 12.9 Refer to University of Missouri Extension Environmental Quality publications about biosolids (WQ420-WQ426). The documents are available at extension.missouri.edu/main/DisplayCategory.aspx?C=74. In addition, the federal sludge regulations are available through the U.S. Government Printing Office at www.gpoaccess.gov/cfr/index.html.
13. **CERTIFICATION**
Signature - All applications must be signed as follows and the signatures must be **original**:
- For a corporation, by an officer having responsibility for the overall operation of the regulated facility or activity or for environmental matters.
 - For a partnership or sole proprietorship, by a general partner or the proprietor.
 - For a municipal, state, federal or other public facility, by either a principal executive officer or by an individual having overall responsibility for environmental matters at the facility.

Submittal of an incomplete application may result in the application being returned.

This completed form and any attachments along with the applicable permit fees, should be submitted to:

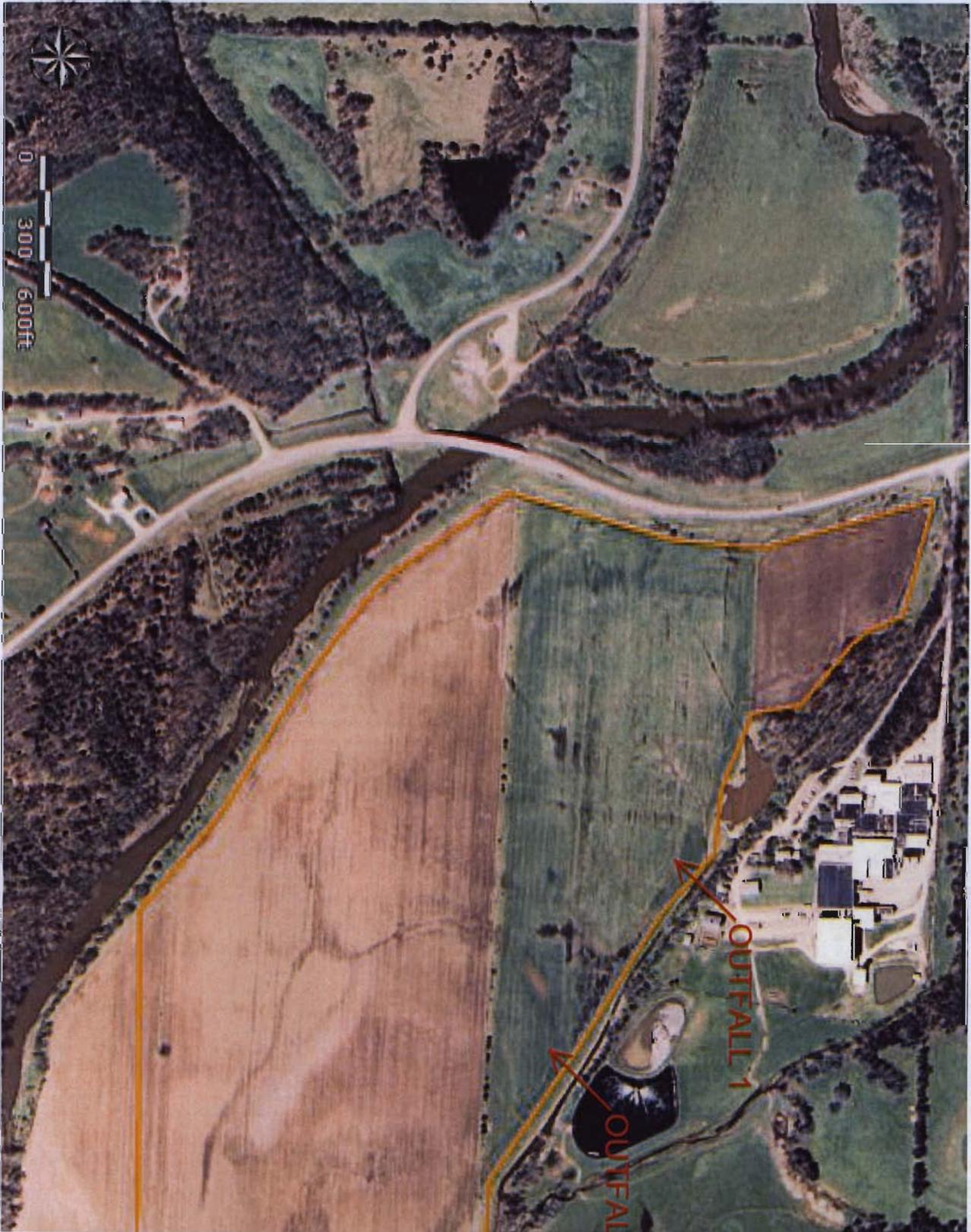
Department of Natural Resources
Water Protection Program
ATTN: NPDES Permits and Engineering Section
P.O. Box 176
Jefferson City, MO 65102

Map of regional offices with addresses and phone numbers are available on the Web at www.dnr.mo.gov/regions/ro-map.pdf. If there are any questions concerning this form, please contact the appropriate regional office or the Department of Natural Resources, Water Protection Program, NPDES Permits and Engineering Section at 800-361-4827 or 573-751-6825.

Aerial

NOTES: Tract 931 Fields 9 and 23 (103 Acres M/L)





0 300 600ft



OUTFALL 1

OUTFALL

RECEIVED



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH
FORM C - APPLICATION FOR DISCHARGE PERMIT
MANUFACTURING, COMMERCIAL, MINING,
SILVICULTURE OPERATIONS, PROCESS AND STORMWATER

PERMIT 0 2014

FOR AGENCY USE ONLY	
CHECK NO.	
DATE RECEIVED	FEE SUBMITTED

WATER PROTECTION PROGRAM

NOTE: DO NOT ATTEMPT TO COMPLETE THIS FORM BEFORE READING THE ACCOMPANYING INSTRUCTIONS

1.00 NAME OF FACILITY
BURGERS SMOKEHOUSE

1.10 THIS FACILITY IS NOW IN OPERATION UNDER MISSOURI OPERATING PERMIT NUMBER
MO-0121878

1.20 THIS IS A NEW FACILITY AND WAS CONSTRUCTED UNDER MISSOURI CONSTRUCTION PERMIT NUMBER (COMPLETE ONLY IF THIS FACILITY DOES NOT HAVE AN OPERATING PERMIT).

2.00 LIST THE STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODES APPLICABLE TO YOUR FACILITY (FOUR DIGIT CODE)
A. FIRST 2013 B. SECOND _____
C. THIRD _____ D. FOURTH _____

2.10 FOR EACH OUTFALL GIVE THE LEGAL DESCRIPTION.
OUTFALL NUMBER (LIST) _____ 1/4 _____ 1/4 SEC _____ T _____ R _____ COUNTY _____

2.20 FOR EACH OUTFALL LIST THE NAME OF THE RECEIVING WATER
OUTFALL NUMBER (LIST) _____ RECEIVING WATER
All outfalls are adjacent to an unnamed dry weather tributary to Moreau Creek

2.30 BRIEFLY DESCRIBE THE NATURE OF YOUR BUSINESS
Smoking curing, and preparing meat.

2.40 CONTINUED

C. EXCEPT FOR STORM RUNOFF, LEAKS OR SPILLS, ARE ANY OF THE DISCHARGES DESCRIBED IN ITEMS A OR B INTERMITTENT OR SEASONAL?

YES (COMPLETE THE FOLLOWING TABLE) NO (GO TO SECTION 2.50)

1. OUTFALL NUMBER <i>(list)</i>	2. OPERATION(S) CONTRIBUTING FLOW <i>(list)</i>	3. FREQUENCY		4. FLOW				C. DURATION <i>(in days)</i>
		A. DAYS PER WEEK <i>(specify average)</i>	B. MONTHS PER YEAR <i>(specify average)</i>	A. FLOW RATE <i>(in mgd)</i>		B. TOTAL VOLUME <i>(specify with units)</i>		
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	4. LONG TERM DAILY	3. MAXIMUM AVERAGE	

2.50 MAXIMUM PRODUCTION

A. DOES AN EFFLUENT GUIDELINE LIMITATION PROMULGATED BY EPA UNDER SECTION 304 OF THE CLEAN WATER ACT APPLY TO YOUR FACILITY?

YES (COMPLETE B.) NO (GO TO SECTION 2.60)

B. ARE THE LIMITATIONS IN THE APPLICABLE EFFLUENT GUIDELINES EXPRESSED IN TERMS OF PRODUCTION (OF OTHER MEASURE OF OPERATION)?

YES (COMPLETE C.) NO (GO TO SECTION 2.60)

C. IF YOU ANSWERED "YES" TO B. LIST THE QUANTITY THAT REPRESENTS AN ACTUAL MEASUREMENT OF YOUR MAXIMUM LEVEL OF PRODUCTION, EXPRESSED IN THE TERMS AND UNITS USED IN THE APPLICABLE EFFLUENT GUIDELINE AND INDICATE THE AFFECTED OUTFALLS.

1. MAXIMUM QUANTITY			2. AFFECTED OUTFALLS <i>(list outfall numbers)</i>
A. QUANTITY PER DAY	B. UNITS OF MEASURE	C. OPERATION, PRODUCT, MATERIAL, ETC. <i>(specify)</i>	
Land Applied	GPD	Effluent	2, 3, 4

2.60 IMPROVEMENTS

A. ARE YOU NOW REQUIRED BY ANY FEDERAL, STATE OR LOCAL AUTHORITY TO MEET, ANY IMPLEMENTATION SCHEDULE FOR THE CONSTRUCTION, UPGRADING OR OPERATION OF WASTEWATER TREATMENT EQUIPMENT OR PRACTICES OR ANY OTHER ENVIRONMENTAL PROGRAMS THAT MAY AFFECT THE DISCHARGES DESCRIBED IN THIS APPLICATION? THIS INCLUDES, BUT IS NOT LIMITED TO, PERMIT CONDITIONS, ADMINISTRATIVE OR ENFORCEMENT ORDERS, ENFORCEMENT COMPLIANCE SCHEDULE LETTERS, STIPULATIONS, COURT ORDERS AND GRANT OR LOAN CONDITIONS.

YES (COMPLETE THE FOLLOWING TABLE) NO (GO TO 3.00)

1. IDENTIFICATION OF CONDITION AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
				A. REQUIRED	B. PROJECTED

B. OPTIONAL: YOU MAY ATTACH ADDITIONAL SHEETS DESCRIBING ANY ADDITIONAL WATER POLLUTION CONTROL PROGRAMS (OR OTHER ENVIRONMENTAL PROJECTS WHICH MAY AFFECT YOUR DISCHARGES) YOU NOW HAVE UNDER WAY OR WHICH YOU PLAN. INDICATE WHETHER EACH PROGRAM IS NOW UNDER WAY OR PLANNED, AND INDICATE YOUR ACTUAL OR PLANNED SCHEDULES FOR CONSTRUCTION.

MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED.

3.10 BIOLOGICAL TOXICITY TESTING DATA

DO YOU HAVE ANY KNOWLEDGE OR REASON TO BELIEVE THAT ANY BIOLOGICAL TEST FOR ACUTE OR CHRONIC TOXICITY HAS BEEN MADE ON ANY OF YOUR DISCHARGES OR ON RECEIVING WATER IN RELATION TO YOUR DISCHARGE WITHIN THE LAST THREE YEARS?

YES (IDENTIFY THE TEST(S) AND DESCRIBE THEIR PURPOSES BELOW.) NO (GO TO 3.20)

Land Applied

3.20 CONTRACT ANALYSIS INFORMATION

WERE ANY OF THE ANALYSES REPORTED PERFORMED BY A CONTRACT LABORATORY OR CONSULTING FIRM?

YES (LIST THE NAME, ADDRESS AND TELEPHONE NUMBER OF AND POLLUTANTS ANALYZED BY EACH SUCH LABORATORY OR FIRM BELOW.) NO (GO TO 3.30)

A. NAME	B. ADDRESS	C. TELEPHONE (area code and number)	D. POLLUTANTS ANALYZED (list)

3.30 CERTIFICATION

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS APPLICATION AND ALL ATTACHMENTS AND THAT, BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

NAME AND OFFICIAL TITLE (TYPE OR PRINT) Phillip Burger, Vice-President <i>Keith Fletcher SR. U.P Ops.</i>	TELEPHONE NUMBER WITH AREA CODE (573) 796-3134
SIGNATURE (SEE INSTRUCTIONS) <i>Keith Fletcher</i>	DATE SIGNED 11/13/14

PLEASE PRINT OR TYPE. You may report some or all of this information on separate sheet
(Use the same format) instead of completing these pages.
SEE INSTRUCTIONS

FORM C
TABLE 1 FOR 3.00 ITEM A AND B

INTAKE AND EFFLUENT CHARACTERISTICS												OUTFALL NO.		
PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.														
1. POLLUTANT	2. EFFLUENT				3. UNITS (specify if blank)				4. INTAKE (optional)					
	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE (if available)		C. LONG TERM AVRG. VALUE (if available)		D. NO. OF ANALYSES	A. CONCENTRATION	B. MASS	A. LONG TERM AVRG. VALUE		B. NO. OF ANALYSES		
(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION				(2) MASS				
A. Biochemical Oxygen Demand (BOD)														
B. Chemical Oxygen Demand (COD)														
C. Total organic Carbon (TOC)														
D. Total Suspended Solids (TSS)														
E. Ammonia (as N)														
F. Flow	VALUE		VALUE		VALUE					VALUE				
G. Temperature (winter)	VALUE		VALUE		VALUE					VALUE				
H. Temperature (summer)	VALUE		VALUE		VALUE					VALUE				
I. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM										
PART B - Mark "X" in column 2A for each pollutant you know or have reason to believe is present. Mark "X" in column 2B for each pollutant you believe to be absent. If you mark column 2A for any pollutant, you must provide the results for at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.														
1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"		3. EFFLUENT				4. UNITS				5. INTAKE (optional)			
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	B. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	C. LONG TERM AVRG. VALUE (if available) (1) CONCENTRATION	(2) MASS	D. NO. OF ANALYSES	A. CONCENTRATION	B. MASS	A. LONG TERM AVRG. VALUE (1) CONCENTRATION	(2) MASS	B. NO. OF ANALYSES
CONVENTIONAL AND NONCONVENTIONAL POLLUTANTS														
A. Bromide (24959-67-9)														
B. Chlorine, Total Residual														
C. Color														
D. Fecal Coliform														
E. Fluoride (16984-48-8)														
F. Nitrate - Nitrate (as N)														

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"		3. EFFLUENT						4. UNITS			5. INTAKE (optional)		
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE (if available)		C. LONG TERM AVRG. VALUE (if available)		D. NO. OF ANALYSES	A. CONCEN- TRATION	B. MASS	A. LONG TERM AVRG. VALUE		B. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
G. Nitrogen, Total Organic (as N)														
H. Oil and Grease														
I. Phosphorus (as P), Total (7723-14-0)														
J. Sulfate (as SO ⁴) (14808-79-8)														
K. Sulfide (as S)														
L. Sulfite (as SO ³) (14265-45-3)														
M. Surfactants														
N. Aluminum, Total (7429-90-5)														
O. Barium, Total (7440-39-3)														
P. Boron, Total (7440-42-8)														
Q. Cobalt, Total (7440-48-4)														
R. Iron, Total (7439-89-6)														
S. Magnesium, Total (7439-95-4)														
T. Molybdenum, Total (7439-98-7)														
U. Manganese, Total (7439-96-5)														
V. Tin, Total (7440-31-5)														
W. Titanium, Total (7440-32-6)														

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X"		3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	A. BELIEVED PRESENT	B. BELIEVED ABSENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE (if available)		C. LONG TERM AVRG. VALUE (if available)		D. NO. OF ANALYSES	A. CONCEN- TRATION	B. MASS	A. LONG TERM AVRG. VALUE		B. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, AND TOTAL PHENOLS														
1M. Antimony, Total (7440-36-9)														
2M. Arsenic, Total (7440-38-2)														
3M. Beryllium, Total (7440-41-7)														
4M. Cadmium, Total (7440-43-9)														
5M. Chromium III (16065-83-1)														
6M. Chromium VI (18540-29-9)														
7M. Copper, Total (7440-50-8)														
8M. Lead, Total (7439-92-1)														
9M. Mercury, Total (7439-97-6)														
10M. Nickel, Total (7440-02-0)														
11M. Selenium, Total (7782-49-2)														
12M. Silver, Total (7440-22-4)														
13M. Thallium, Total (7440-28-0)														
14M. Zinc, Total (7440-66-6)														
15M. Cyanide, Amenable to Chlorination														
16M. Phenols, Total														
RADIOACTIVITY														
(1) Alpha Total														
(2) Beta Total														
(3) Radium Total														
(4) Radium 226 Total														

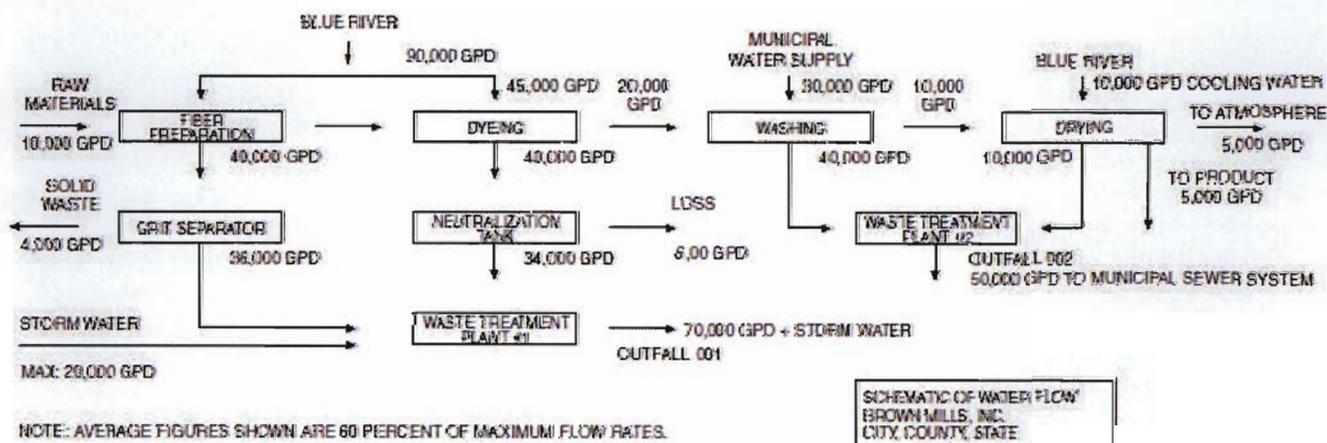
**INSTRUCTIONS FOR FILLING OUT APPLICATION FOR DISCHARGE
PERMIT FORM C – MANUFACTURING, COMMERCIAL,
MINING AND SILVICULTURE OPERATIONS.**

All blanks must be filled in when the application is submitted to the appropriate regional office (see map). The form must be signed as indicated.

This application is to be completed only for wastewater facilities with a discharge. Include any facility with possibility of discharge, even if normally there is no discharge. If this form is not adequate for you to describe your existing operation, then sufficient information should be attached so that an evaluation of the discharge can be made.

- 1.00 Name of Facility – By what title or name is this facility known locally?
- 1.10 and 1.20 Self-explanatory.
- 2.00 List in descending order of significance the four digit Standard Industrial Classification (SIC) codes that best describe your facility in terms of the principal products or services you produce or provide. Also, specify each classification in words.

SIC code numbers are descriptions that may be found in the "Standard Industrial Classification Manual" prepared by the Executive Office of the President, Office of Management and Budget, that is available from the Government Printing Office, Washington, D.C. Use the current edition of the manual. If you have any questions concerning the appropriate SIC code for your facility, contact the Missouri Department of Natural Resources Regional office in your area (see map).
- 2.10 Point of discharge should be given in terms of the legal description of the waste treatment plant, location or sufficient information so that it may be located.
- 2.20 Receiving Water – the name of the stream to which the discharge is directed and any subsequent tributary until a continuous flowing stream is reached.
- 2.30 Self-explanatory.
- 2.40 A. The line drawing should show generally the route taken by water in your facility from intake to discharge. Show all operations contributing wastewater, including process and production areas, sanitary flows, cooling water and storm water runoff. You may group similar operations into a single unit labeled to correspond to the more detailed listing. The water balance should show average and maximum flows. Show all significant losses of water to products, atmosphere, discharge and public sewer systems. You should use actual measurements whenever available; otherwise, use your best estimate. An example of any acceptable line drawing appears below.



B. List all sources of wastewater to each outfall. Operations may be described in general terms (for example, "dye-making reactor" or a distillation tower"). You may estimate the flow contributed by each source if no data is available, and for storm water, you may use any reasonable measure of duration, volume or frequency. For each treatment unit, indicate its size, flow rate and retention time, and describe the ultimate disposal of any solid or liquid wastes not discharged. Treatment units should be listed in order and you should select the proper code from Table A to fill in column 3B for each treatment unit. Insert "XX" into column 3B if no code corresponds to a treatment unit you list.

TABLE A – CODES FOR TREATMENT UNITS

PHYSICAL TREATMENT PROCESSES

1-A	..... Ammonia Stripping	1-M	..... Grit Removal
1-B	..... Dialysis	1-N	..... Microstraining
1-C	..... Diatomaceous Earth Filtration	1-O	..... Mixing
1-D	..... Distillation	1-P	..... Moving Bed Filters
1-E	..... Electrodialysis	1-Q	..... Multimedia Filtration
1-F	..... Evaporation	1-R	..... Rapid Sand Filtration
1-G	..... Flocculation	1-S	..... Reverse Osmosis (Hyperfiltration)
1-H	..... Flotation	1-T	..... Screening
1-I	..... Foam Fractionation	1-U	..... Sedimentation (Settling)
1-J	..... Freezing	1-V	..... Slow Sand Filtration
1-K	..... Gas-Phase Separation	1-W	..... Solvent Extraction
1-L	..... Grinding (Comminutors)	1-X	..... Sorption

CHEMICAL TREATMENT PROCESSES

2-A	..... Carbon Absorption	2-G	..... Disinfection (Ozone)
2-B	..... Chemical Oxidation	2-H	..... Disinfection (Other)
2-C	..... Chemical Precipitation	2-I	..... Electrochemical Treatment
2-D	..... Coagulation	2-J	..... Ion Exchange
2-E	..... Dechlorination	2-K	..... Neutralization
2-F	..... Disinfection (Chlorine)	2-L	..... Reduction

BIOLOGICAL TREATMENT PROCESSES

3-A	..... Activated Sludge	3-E	..... Pre-Aeration
3-B	..... Aerated Lagoons	3-F	..... Spray Irrigation/Land Application
3-C	..... Anaerobic Treatment	3-G	..... Stabilization Ponds
3-D	..... Nitrification-Denitrification	3-H	..... Trickling Filtration

OTHER PROCESSES

4-A	..... Discharge to Surface Water	4-C	..... Reuse/Recycle of Treated Effluent
4-B	..... Ocean Discharge Through Outfall	4-D	..... Underground Injection

SLUDGE TREATMENT AND DISPOSAL PROCESSES

5-A	..... Aerobic Digestion	5-M	..... Heat Drying
5-B	..... Anaerobic Digestion	5-N	..... Heat Treatment
5-C	..... Belt Filtration	5-O	..... Incineration
5-D	..... Centrifugation	5-P	..... Land Application
5-E	..... Chemical Conditioning	5-Q	..... Landfill
5-F	..... Chlorine Treatment	5-R	..... Pressure Filtration
5-G	..... Composting	5-S	..... Pyrolysis
5-H	..... Drying Beds	5-T	..... Sludge Lagoons
5-I	..... Elutriation	5-U	..... Vacuum Filtration
5-J	..... Flotation Thickening	5-V	..... Vibration
5-K	..... Freezing	5-W	..... Web Oxidation
5-L	..... Gravity Thickening		

2.40 C. A discharge is intermittent unless it occurs without interruption during the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes or other similar activities. A discharge is seasonal if it occurs only during certain parts of the year. Fill in every applicable column in this item for each source of intermittent or seasonal discharges. Base your answers on actual data whenever available; otherwise, provide your best estimate. Report the highest daily value for flow rate and total volume in the "Maximum Daily" columns. Report the average of all daily values measures during days when discharge occurred within the last year in the "Long Term Average" columns.

2.50 A. All effluent guidelines promulgated by EPA appear in the Federal Register and are published annually in 40 CFR Subchapter N. A guideline applies to you if you have any operations contributing process wastewater in any subcategory covered by BPT, BCT, or BAT guidelines. If you are unsure whether you are covered by a promulgated effluent guideline, check with your Missouri Department of Natural Resources' Regional Office. You must check yes if an applicable effluent guideline has been promulgated, even if the guideline limitations are being contested in court. If you believe that a promulgated effluent guideline has been remanded for reconsideration by a court and does not apply to your operations, you may check no.

B. An effluent guideline is expressed in terms of production (or other measure of operation) if the limitations are expressed as mass of pollutant per operational parameter; for example, "pounds of BOD per cubic foot of logs from which bark is removed," or "pounds of TSS per megawatt hour of electrical energy consumed by smelting furnace." An example of a guideline not expressed in terms of a measure of operation is one which limits the concentration of pollutants.

C. This item must be completed only if you checked yes to item B. The production information requested here is necessary to apply effluent guidelines to your facility and you may not claim it as confidential. However, you do not have to indicate how the reported information was calculated.

Report quantities in the units of measurement used in the applicable effluent guideline. The figures provided must be a measure of actual operation over a one month period, such as the production for the highest month during the last twelve months, or the monthly average production for the highest year of the last five years, or other reasonable measure of actual operation, but may not be based on design capacity or on predictions of future increases in operation.

2.60 A. If you check yes to this question, complete all parts of the chart, or attach a copy of any previous submission you have made containing the same information.

B. You are not required to submit a description of future pollution control projects if you do not wish to or if none is planned.

3.00 These items require you to collect and report data on the pollutants discharged from each of your outfalls. Each part of this item addresses a different set of pollutants and must be completed in accordance with the specific instructions for that part. The following general instructions apply to the entire item.

GENERAL INSTRUCTIONS. Part A requires you to report at least one analysis for each pollutant. Part B requires you to mark "X" in either the "Believe Present" column or the "Believe Absent" column (column 2A or 2B, Part B) based on you best estimate, and test for those which you believe to be present. Part C requires you to list any of a group of pollutants which you believe to be present, with a brief explanation of why you believe it to be present. (See specific instructions on the form and below Parts A through C).

Base your determination that a pollutant is present in or absent from your discharge on your knowledge of your raw materials, maintenance chemicals, intermediate and final products and byproducts, and any previous analyses known to you of your effluent or of any similar effluent. (For example, if you manufacture pesticides, you should expect those pesticides to be present in contaminated storm water runoff.) If you would expect a pollutant to be present solely as a result of its presence in your intake water, you must mark "Believe Present" but you are not required to analyze for that pollutant. Instead, mark an "X" in the "Intake" column.

REPORTING. All levels must be reported as a concentration and as total mass. You may report some or all of the required data by attaching separate sheets of paper. (Use the following abbreviations in the columns headed "Units" (column 3, Part A, and column 4, Part B).

CONCENTRATION

ppm	.....	parts per million
mg/L	.....	milligrams per liter
ppb	.....	parts per billion
ug/L	.....	micrograms per liter

MASS

lbs	.....	pounds
ton	.....	tons (English tons)
mg	.....	Milligrams
g	.....	grams
kg	.....	kilograms
T	.....	tonnes (metric tons)

If you measure only one daily value, complete only the "Maximum Daily Values" columns and insert "1" into the "number of analyses" columns (columns 2A and 2B, Part A, and columns 3A and 3D, Part B). The Missouri Department of Natural Resources may require you to conduct additional analyses to further characterize your discharges.

For composite samples, the daily value is the total mass or average concentration found in a complete sample taken over the operating hours of the facility during a 24 hour period; for grab samples, the daily value is the arithmetic or flow-weighted total mass or average concentration found in a series of at least four grab samples taken over the operating hours of the facility during a 24 hour period.

If you measure more than one daily value for a pollutant, determine the average of all values within the last year and report the concentration and mass under the "Long Term Average Values" columns (column 2C, Part A, and column 3C, Part B), and the total number of daily values under the "Number of Analyses" columns (column 2D, Part A, and column 3D, Part B). Also, determine the average of all daily values taken during each calendar month, and report the highest average of all daily values taken during each calendar month, and report the highest average under the "Maximum 30 Day Values" columns (column 2B, Part A, and column 3B, Part B).

SAMPLING. The collection of the samples for the reported analyses should be supervised by a person experienced in performing sampling of industrial wastewater. You may contact your Missouri Department of Natural Resources' Regional Office for detailed guidance on sampling techniques and for answers to specific questions. Any specific requirements contained in the applicable analytical methods should be followed for sample containers, sample preservation, holding times, the collection of duplicate samples, etc. The time when you sample should be representative of your normal operation, to the extent feasible, with all processes which contribute wastewater in normal operation and with your treatment system operating properly with no system upsets. Samples should be collected from the center of the flow channel, where turbulence is at a maximum, at a site specified in your present permit or at any site adequate for the collection of a representative sample.

Grab and composite samples are defined as follows:

GRAB SAMPLE. An individual sample of at least 100 milliliters collected at a randomly selected time over a period not exceeding 15 minutes.

COMPOSITE SAMPLE. A combination of at least eight sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24 hour period. For volatile pollutants, aliquots must be combined in the laboratory immediately before analysis. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically.

ANALYSIS. You must use test methods promulgated in 40 CFR Part 136; however, if none has been promulgated for a particular pollutant, you may use any suitable method for measuring the level of the pollutant in your discharge provided that you submit a description of the method or a reference to a published method. Your description should include the sample holding times, preservation techniques and the quality control measures which you used.

If you have two or more substantially identical outfalls, you may request permission from the Missouri Department of Natural Resources to sample and analyze only one outfall and submit the results of the analysis for other substantially identical outfalls. If your request is granted by the Missouri Department of Natural Resources, on a separate sheet attached to the application form, identify which outfall you did test and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

REPORTING OF INTAKE DATA. You are not required to report data under the "Intake" columns unless you wish to demonstrate your eligibility for a "net" effluent limitation for one or more pollutants, that is, an effluent limitation adjusted by subtracting the average level of the pollutant(s) present in your intake water. National Pollutant Discharge Elimination System (NPDES) regulations allow net limitations only in certain circumstances. To demonstrate your eligibility, under the Intake columns report the average of the results of analyses on your intake water (if your water is treated before use, test the water after it is treated), and attach a separate sheet containing the following for each pollutant:

1. A statement that the intake water is drawn from the body of water into which the discharge is made. (Otherwise, you are not eligible for net limitations.)
2. A statement of the extent to which the level of the pollutant is reduced by treatment of your wastewater. (Your limitations will be adjusted only to the extent that the pollutant is not removed.)
3. When applicable, a demonstration of the extent to which the pollutants in the intake vary physically, chemically, or biologically from the pollutants contained in your discharge. For example, when the pollutant represents a class of compounds. Your limitations will be adjusted only to the extent that the intake pollutants do not vary from the discharged pollutants.

3.00 Part A must be completed by all applicants for all outfalls, including outfalls containing only noncontact cooling water or storm runoff. However, at your request, the Missouri Department of Natural Resources may waive the requirements to test for one or more of these pollutants, upon a determination that testing for the pollutant(s) is not appropriate for your effluent.

Use composite samples for all pollutants in this part, except use grab samples for pH and temperature. See discussion in instructions above for definitions of the columns in Part A. The "Long Term Average Values" column (column 2C) and "Maximum 30 Day Values" column (column 2B) are not compulsory but should be filled out if data is available.

3.00 Part B must be completed by all applicants for all outfalls, including outfalls containing only noncontact cooling water or storm runoff.

Use composite samples for all pollutants you analyze for in this part, except use grab samples for residual chlorine, oil and grease and fecal coliform. The Long Term Average Values column (column 3C) and Maximum 30 Day Values column (column 3B) are not compulsory but should be filled out if data is available.

3.00 List any pollutants in Table B that you believe to be present and explain why you believe them to be present in part C. No analysis is required, but you have analytical, you must report it.

TABLE B – TOXIC POLLUTANTS AND HAZARDOUS SUBSTANCES REQUIRED TO BE IDENTIFIED BY APPLICANTS IF EXPECTED TO BE PRESENT

TOXIC POLLUTANT	HAZARDOUS SUBSTANCES	HAZARDOUS SUBSTANCES
Asbestos	Dichlorvos	Nalad
	Diethylamine	Napthenic acid
HAZARDOUS SUBSTANCES	Dimethylamine	Nitrotoluene
	Dintrobenzene	Parathion
Acetaldehyde	Diquat	Phenolsulfonate
Allyl alcohol	Disulfoton	Phosgene
Allyl chloride	Diuron	Propargite
Amyl acetate	Epichlorohydrin	Propylene oxide
Aniline	Ethion	Pyrethrins
Benzonitrile	Ethylene diamine	Quinoline
Benzyl chloride	Ethylene dibromide	Resorcinol
Butyl acetate	Formaldehyde	Strontium
Butylamine	Furfural	Strychnine
Captan	Guthion	Sytrene

TABLE B – (continued)

HAZARDOUS SUBSTANCES	HAZARDOUS SUBSTANCES	HAZARDOUS SUBSTANCES
Carbaryl	Isoprene	2, 4, 5-T (2,4,5-Trichloro-phenoxyacetic acid)
Carbofuran	Isopropanolamine	TDE (Tetrachlorodiphenyl ethane)
Carbon disulfide	Kelthane	2, 4, 5-TP (2-(2,4,5-Trichloro-phenoxy) propanoic acid)
Chlorpyrifos	Kepone	Trichlorofon
Coumaphos	Malathion	Triethanolamine
Cresol	Mercaptodimethur	Triethylamine
Crotonaldehyde	Methoxychlor	Uranium
2,4-D (2,4-Dichloro-Phenoxyacetic acid)	Methyl mercaptan	Vanadium
Diazinon	Methyl parathion	Vinyl acetate
Dicamba	Mevinphos	Xylene
Dichlobenil	Mexacarbate	Xylenol
2,2-Dichloropropionic acid	Monethyl amine	Zirconium
	Monomethyl amine	

3.10 Self-explanatory. Additional information may be requested by the Missouri Department of Natural Resources.

3.20 Self-explanatory.

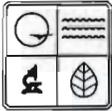
3.30 The Clean Water Act provides for severe penalties for submitting false information on this application form.

Section 309(c)(2) of the Clean Water Act provides that "Any person who knowingly makes any false statement, representation, or certification in any application . . . shall upon conviction, be punished by a fine of no more \$10,000 or by imprisonment for not more than six months, or both.

All applications must be signed as follows and the signature must be original.

- A. For a corporation, by an officer having responsibility for the overall operation of the regulated facility or activity or for environmental matters.
- B. For a partnership or sole proprietorship, by a general partner or the proprietor.
- C. For a municipal, state, federal or other public facility, by either a principal executive officer or by an individual having overall responsibility for environmental matters at the facility.

RECEIVED



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION BRANCH
(SEE MAP FOR APPROPRIATE REGIONAL OFFICE)
**FORM I - PERMIT APPLICATION FOR CONSTRUCTION AND
OPERATION OF WASTEWATER IRRIGATION SYSTEMS**

DEC 10 2014

FOR AGENCY USE ONLY

PERMIT NUMBER

MO -

DATE RECEIVED

INSTRUCTIONS: The following forms must be submitted with Form I: FORM B for domestic wastewater. Submit FORMS E and G for land disturbance permit if construction areas total one acre or more.

1.00 FACILITY INFORMATION

1.10 Facility Name

BURGER'S SMOKEHOUSE

1.20 Application for: Construction Permit (attach Engineering report, Plans and Specifications per 10 CSR 20-8)
 Operating Permit (if no construction permit, attach engineering documents)
Date Irrigation System Began Operation: _____
 Operating Permit Renewal

1.30 Type of wastewater to be irrigated: Domestic Municipal State/National Park Seasonal business
 Municipal with Pretreatment Program or Significant Industrial Users Other (explain) LIGHT INDUSTRIAL, FOOD PREP
SIC Codes (list all that apply, in order of importance) 2013, 4952

1.40 Months when the business or enterprise will operate or generate wastewater:
 12 months per year Part of year (list Months): _____

1.50 This system is designed for:
 No-discharge Partial irrigation when feasible and discharge rest of time.
 Irrigation during recreation season (April - October) and discharge during November - March.
 Other (explain) _____

1.60 List the Facility outfalls which will be applicable to the irrigation system from outfalls listed on Form B.
Outfall Nos. 01 02 03 04 _ _ _

2.00 STORAGE BASINS

2.10 Number of storage basins: 2 Type of basin: Steel Concrete Fiberglass Earthen
 Earthen with membrane liner

2.20 Storage basin dimensions at inside top of berm (feet): Report freeboard as feet from top of berm to emergency spillway or overflow pipe.
(Complete Attachment A: Profile Sketch)
Basin #1: Length 330 Width 240 Depth 15 Freeboard 2 Berm Width 7 % Slope 20
Basin #2: Length 270 Width 130 Depth 8.7 Freeboard 2 Berm Width 7 % Slope 20

2.30 Storage Basin operating levels (report as feet below emergency overflow level)
Basin #1: Maximum water level 1 ft. Minimum operating water level 11 ft.
Basin #2: Maximum water level 1 ft. Minimum operating water level 4.7 ft.

2.40 Depth of sludge in lagoons and storage basins 2FT ft.
Total sludge stored _____ dry tons _____ cu. ft.

3.00 LAND APPLICATION SYSTEM

3.10 Number of irrigation sites 8 Total Acres 219 Maximum % field slopes <12
Location: NE 1/4, _____ 1/4, _____ 1/4, 9 Sec. 44N T 15W R MONITEAU County 103 Acres **SITE 1**
Location: SW 1/4, NW 1/4, _____ 1/4, 10 Sec. 44N T 152 R MONITEAU County 28 Acres **SITE 2**

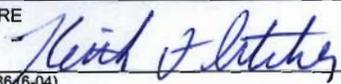
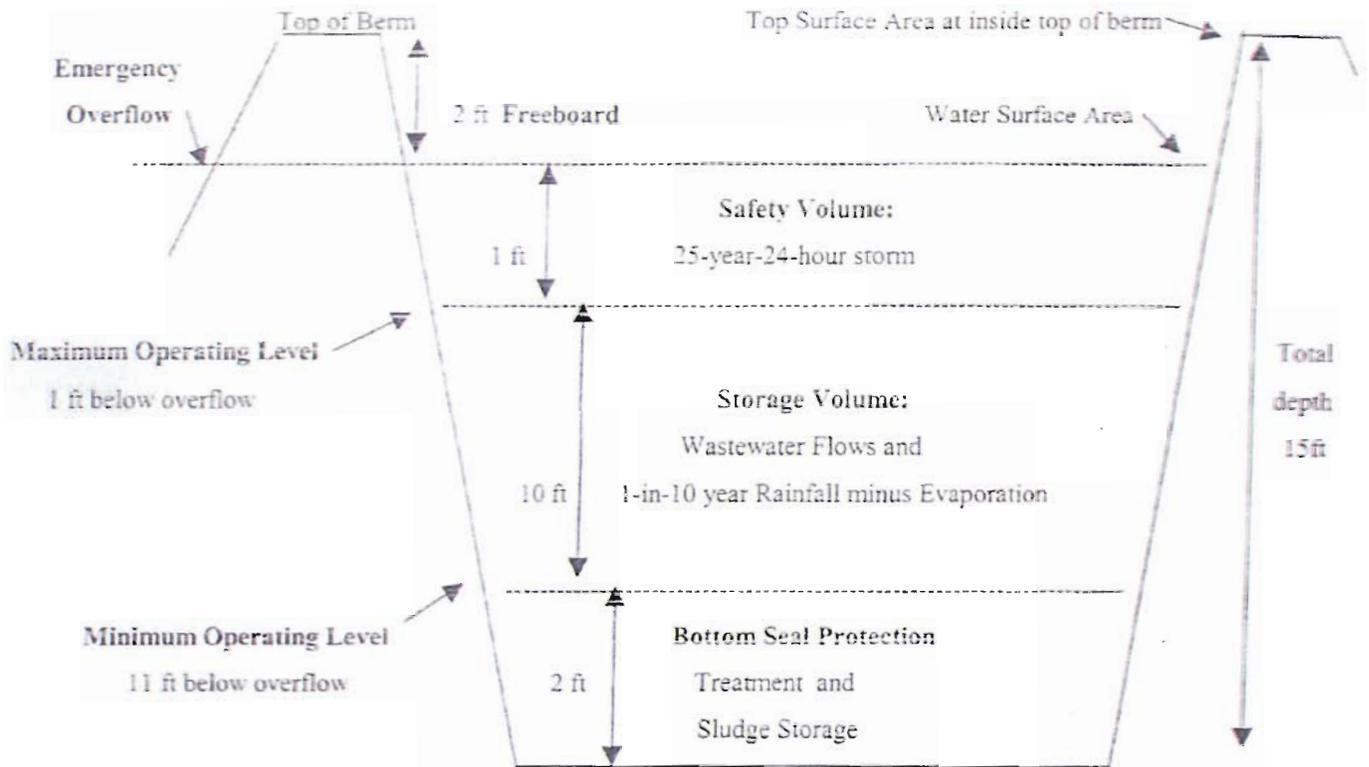
3.11 Type of vegetation: <input checked="" type="checkbox"/> Grass hay <input checked="" type="checkbox"/> Pasture <input type="checkbox"/> Timber <input checked="" type="checkbox"/> Row crops <input type="checkbox"/> Other (describe) _____	
3.20 Wastewater flow (dry weather) gallons/day: Average annual: <u>30000</u> Seasonal _____ Off-season _____ Months of seasonal flow: <u>6</u> Human Population Equivalent: <u>6250</u>	
3.21 Land Application rate per acre (design flow including 1 in 10 year storm water flows): Design: <u>11</u> inches/year <u>0.5</u> inches/hour <u>1.5</u> inches/day <u>4.5</u> inches/week Actual: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week Total Irrigation per year (gallons): <u>30000</u> Design <u>18500</u> Actual Actual months used for Irrigation (check): <input type="checkbox"/> Jan <input type="checkbox"/> Feb <input checked="" type="checkbox"/> Mar <input checked="" type="checkbox"/> Apr <input checked="" type="checkbox"/> May <input checked="" type="checkbox"/> Jun <input checked="" type="checkbox"/> Jul <input checked="" type="checkbox"/> Aug <input type="checkbox"/> Sep <input checked="" type="checkbox"/> Oct <input checked="" type="checkbox"/> Nov <input type="checkbox"/> Dec	
3.22 Land Application Rate is based on: <input type="checkbox"/> Nutrient Management Plan (N&P) <input checked="" type="checkbox"/> Hydraulic Loading <input type="checkbox"/> Other (describe) _____	
3.30 Equipment type: <input type="checkbox"/> Sprinklers <input type="checkbox"/> Gated pipe <input type="checkbox"/> Center pivot <input checked="" type="checkbox"/> Traveling gun <input checked="" type="checkbox"/> Other (describe) <u>HONEY WAGON</u> Equipment Flow Capacity: _____ Gallons per hour _____ Total hours of operation per year	
3.40 Public Access Restrictions for irrigation sites: <input type="checkbox"/> Site is Fenced <input type="checkbox"/> Wastewater disinfection prior to irrigation <input checked="" type="checkbox"/> Other (describe): <u>Private Property w/ no public access points</u>	
3.50 Separation distance (in feet) from the outside edge of the wetted irrigation area to down gradient features: <u>1000</u> Permanent flowing stream <u>0</u> Losing Stream <u>2100</u> Intermittent (wet weather) stream <u>100</u> Lake or pond <u>50</u> Property boundary <u>150</u> Dwellings <u>0</u> Water supply well _____ Other (describe) _____	
3.60 SOILS INFORMATION: Use information from the County Soil Survey, NRCS, or professional soil scientist. Soil Series Name _____ Depth of bedrock _____ Feet Depth of water table _____ Feet <u>SEE ATTACHED MAPS</u> Soil Infiltration rate in inches/hour (in/hr) for most restrictive layer within the following soil depth ranges: _____ In/hr for 0-12 in soil depth _____ In/hr for 12-24 inch soil depth _____ In/hr for 24-60 inch soil depth	
3.70 Include a recent Geologic Report by the Department's Geological Survey and Resource Assessment Division with your construction permit.	
3.80 Attach a current copy of the Operation and Maintenance (O&M) Plan for the irrigation system. Date of O&M Plan: <u>11-2014</u>	
3.81 Attach a site map showing topography, storage basins, irrigation sites, property boundary, streams, wells, roads, dwellings and other pertinent features. <u>SEE ATTACHED USGS MAPS FOR EACH IRRIGATION SITE</u>	
3.82 Attach a facility sketch showing treatment units, storage basins, pipelines, irrigation equipment, application sites and other features.	
4.00 CERTIFICATION I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine or imprisonment.	
CONSULTING ENGINEER - Name, Official Title and Engineering Firm (TYPE OR PRINT) DAVID FLICK, PRINCIPAL, TERRA TECHNOLOGIES INC.	TELEPHONE NUMBER (area code and number) 913-385-9560 OR 816-810-8
SIGNATURE 	DATE SIGNED <u>11-11-2014</u>
OWNER OR AUTHORIZED REPRESENTATIVE - Name and Official Title (TYPE OR PRINT) PHILLIP BURGER, PRESIDENT Keith Fletcher GR.V.P O P s	TELEPHONE NUMBER (area code and number) 573-796-3134
SIGNATURE 	DATE SIGNED <u>11/13/14</u>

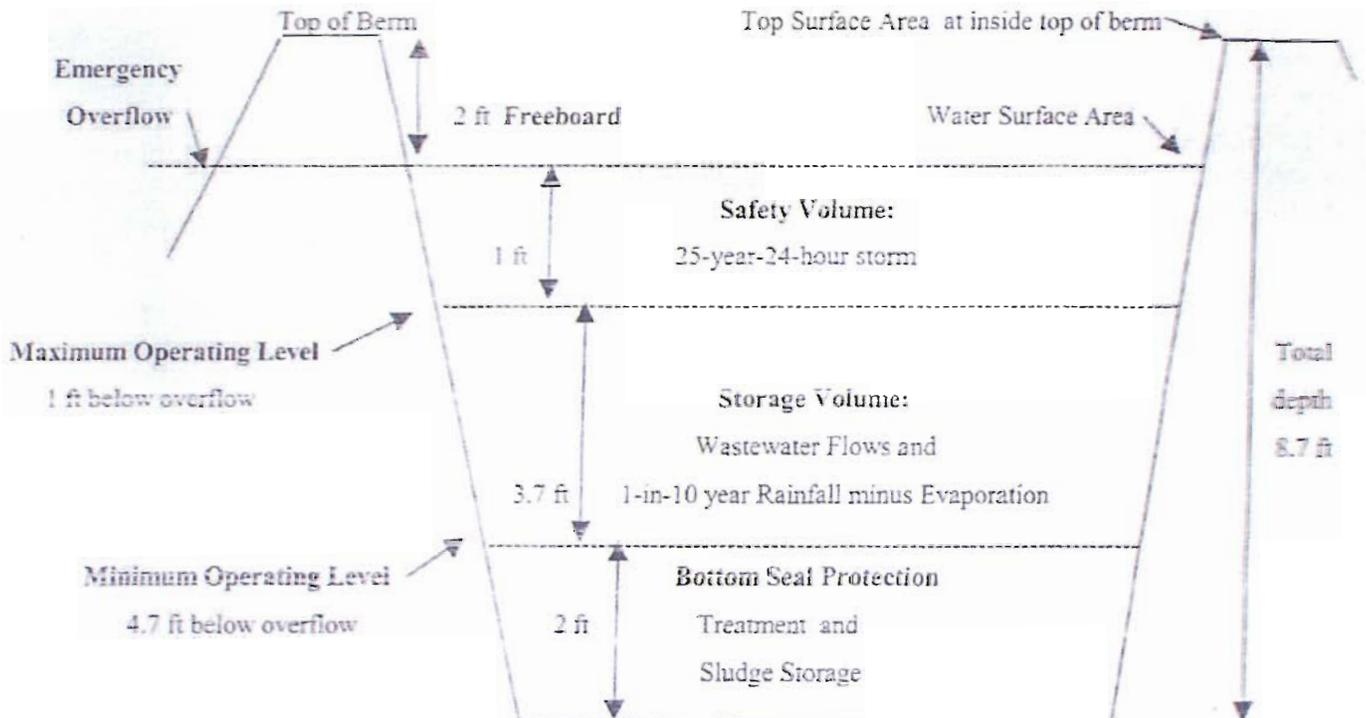
FIGURE 2 BASIN DIMENSIONS

Additional comments:

LAGOON Cell 1 PROFILE



LAGOON Cell 2 PROFILE





TRACT 928
FIELD 1
28 ACRES

T931
F8
17
AC

T931
F2, 3
22 AC

T931
F4, 5
21 AC

T931
F6, 7
28
AC

TRACT 931
FIELDS 9 AND 23
103 ACRES

Google earth

Survey

Imagery Date: 5/13/2013 lat 38.588460° lon -92.563328° elev 707 ft eye alt 7600 ft

1995

2

Bybee Rd

Osborn Rd

Kubli Rd

67

F

© 2014 Google

T931

F2,3

22 AC

T931

F4,5

21 AC

T931

F8

17

AC

T931

F6,7

28

AC

TRACT 928

FIELD 1

28 ACRES

Bybee Rd

Osborn Rd

Kubli Rd

Irrigation Site 1 (103 Acres)



Irrigation Site 2 (28 Acres)



Irrigation Site 3 (17 Acres)



Irrigation Site 4 (10 Acres)



Irrigation Site 5 (12 Acres)



Irrigation Site 6 (11 Acres)



Irrigation Site 7 (11 Acres)



Irrigation Site 8 (28 Acres)





TRACT 928
FIELD 1
28 ACRES

T931
F2, 3
22 AC

T931
F8
17
AC

T931
F4, 5
21 AC

T931
F6, 7
28
AC

TRACT 931
FIELDS 9 AND 23
103 ACRES

Google earth

Imagery Date: 5/13/2013 lat 38.588460° lon -92.563328° elev 707 ft eye alt 7600 ft

Survey

1995

N

Byebee Rd

Osborn Rd

Kubli Rd

F

87

© 2014 Google

T931

F2,3

22 AC

T931

F4,5

21 AC

T931

F8

17

AC

T931

F6,7

28

AC

TRACT 928

FIELD 1

28 ACRES

X

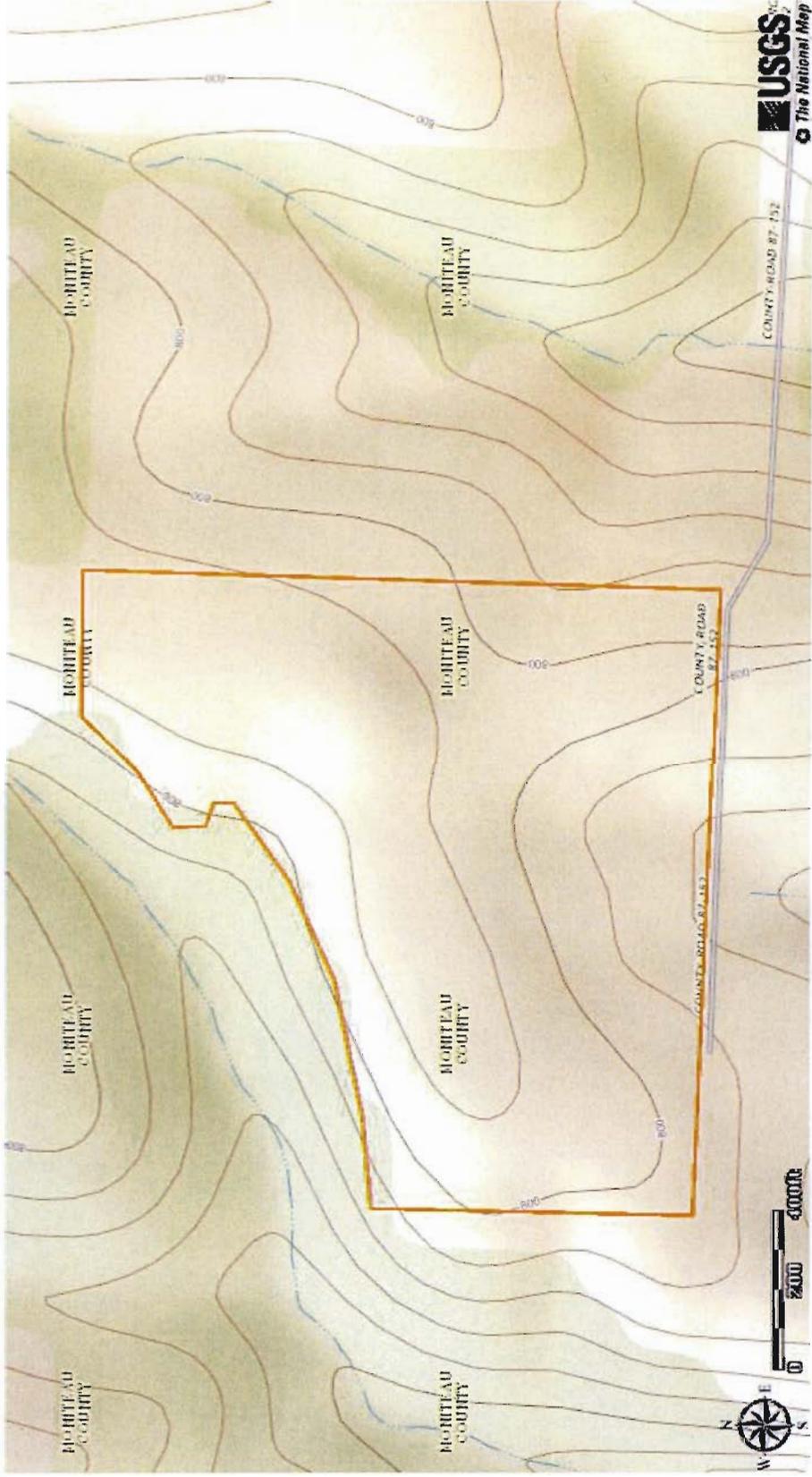
Bybee Rd

Osborn Rd

Kubli Rd

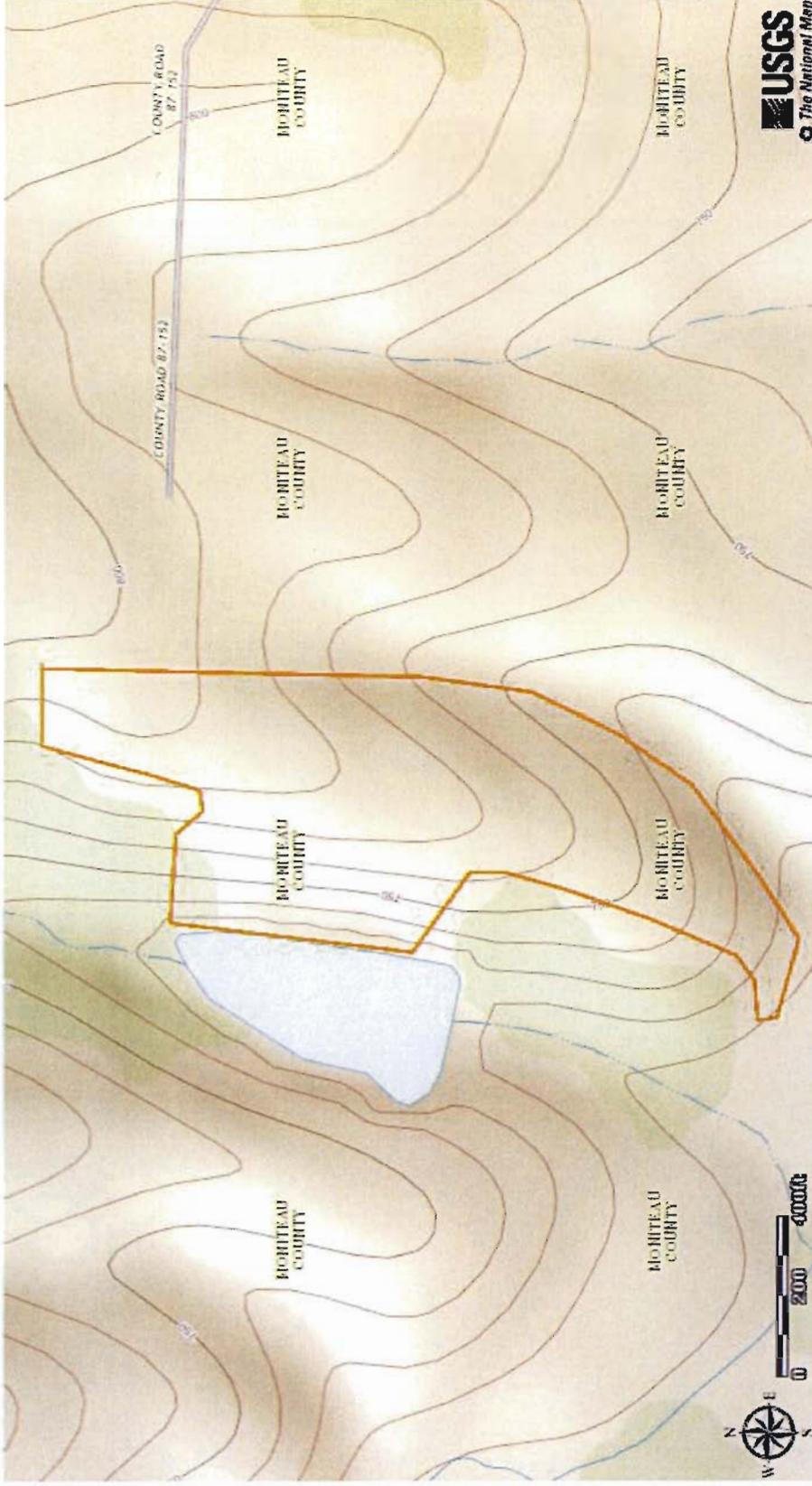
USGS

NOTES: Tract 928 Field 1 (28 Acres ML)



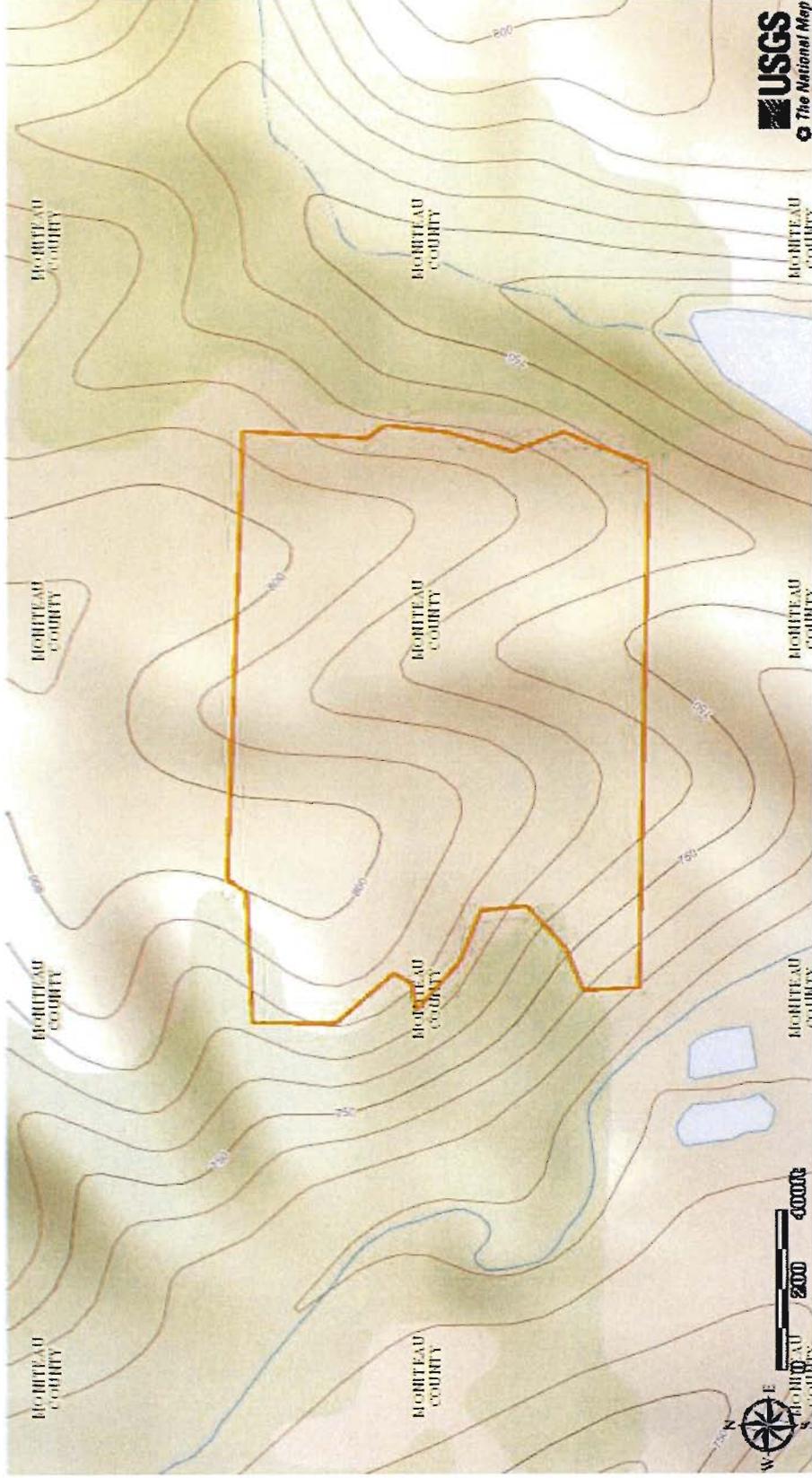
USGS

NOTES: Tract 931 Field 8 (17 Acres M/L)



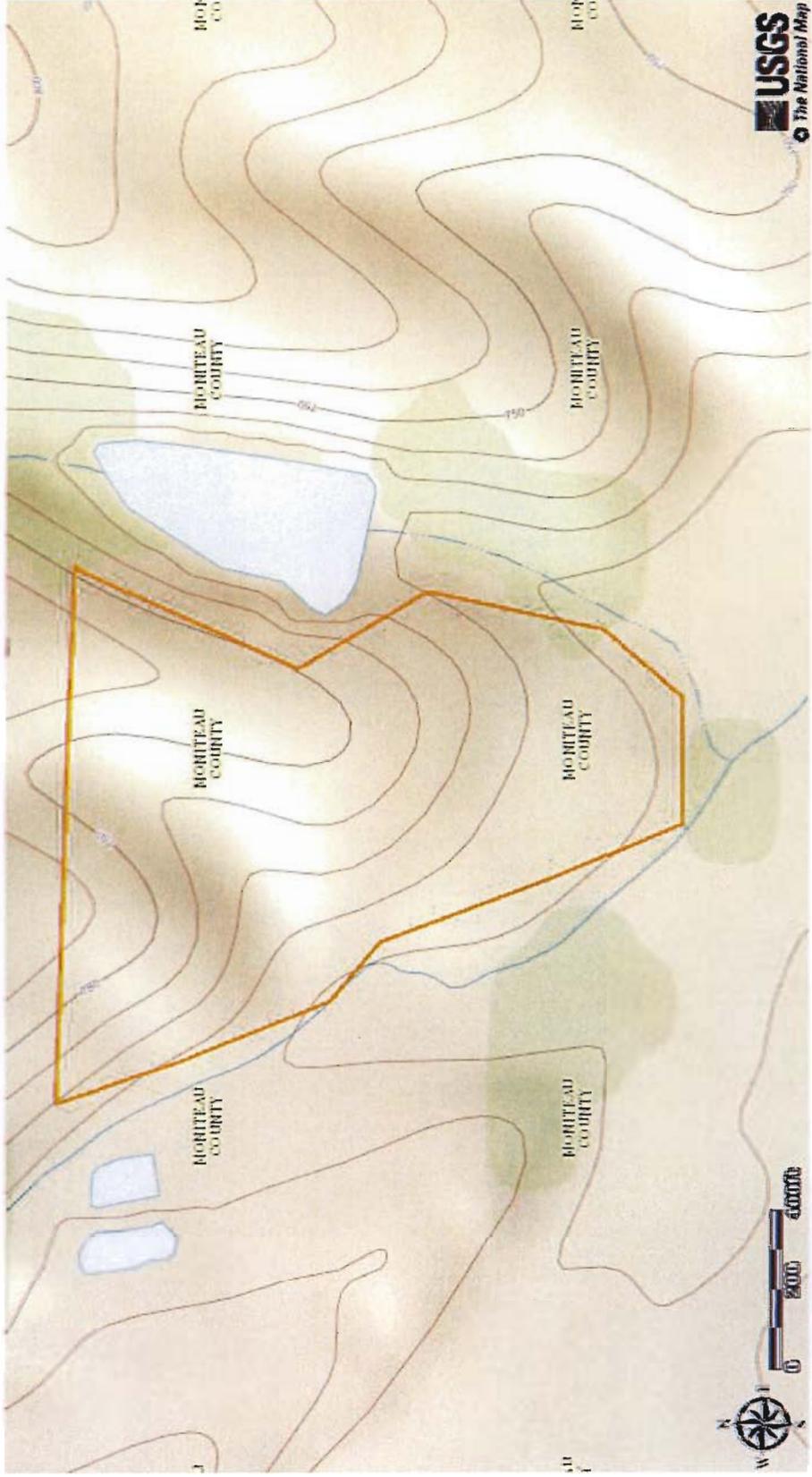
USGS

NOTES: Tract 931 Fields 2 and 3 (22 Acres ML)



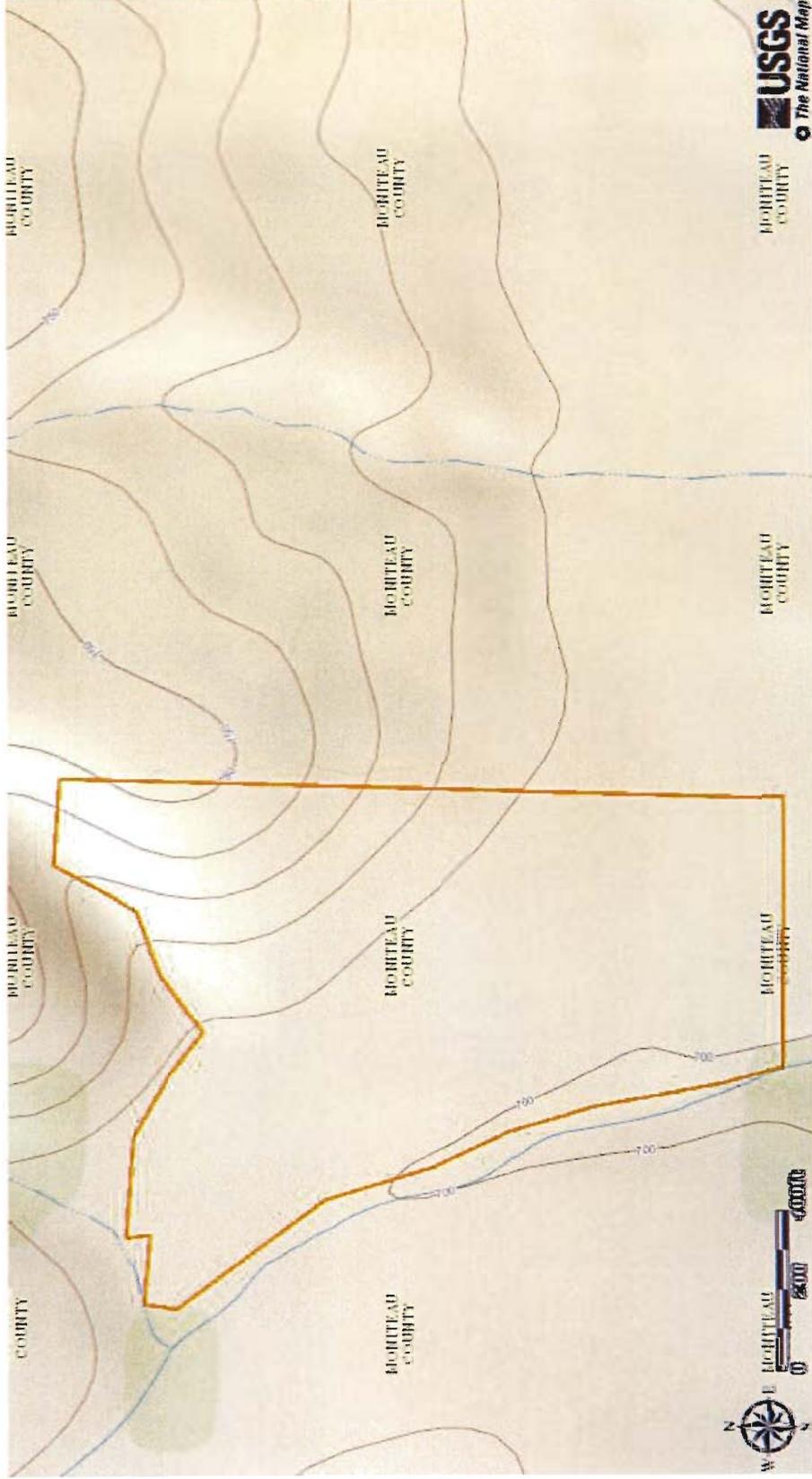
USGS

NOTES: Tract 931 Fields 4 and 5 (21 Acres M/L)



USGS

NOTES: Tract 931 Fields 6 and 7 (28 Acres M/L)



USGS

NOTES: Tract 931 Fields 9 and 23 (103 Acres M/L)



FIGURE 5 FACILITY DESCRIPTION



FACILITY DESCRIPTION (continued)

Outfall #001 - Irrigation System Design

Receiving Stream Watershed: a gaining stream setting that flows to a 303(d) listed stream.

Facility Type: No-discharge Storage and Irrigation System for year round flows into lagoon.

<u>Design Basis:</u>	<u>Avg Annual</u>	
Design dry weather flows	30,000 *	gpd
Design with 1-in-10 year flows	28,956	gpd
Design PE	6,250	

*312 days of production per year

Storm Water Flows: (Moniteau County)

Average Annual Rainfall.	38.0 inches	
1-in-10 Year Annual Rainfall.	50.0 inches	25-year-24-hour storm: 5.2 inches

<u>1-in-10 year Flows:</u>	<u>Annual</u>
Runoff concrete and roof areas	0 ft.
Runoff earth areas (lagoon berm, lots, etc)	0 ft.
Rainfall minus Evaporation (R-E) on lagoon water surface	1.4 ft.

Lagoon Dimensions:

	<u>Lagoon Cell 1</u>	<u>Lagoon Cell 2</u>
Center Line Top Berm:	74,470 sq. ft. 15 feet depth	40,960 sq. ft. 8.7 feet depth
Storage volume (minimum to maximum water levels)	3,634,828 gallons	1,026,825 gallons
1-in-10 year Annual Storm water flows into lagoon (R-E):	104,258 cu. ft (779,954 gal)	57,344 cu. ft (428,990 gal.)

<u>Storage Capacity:</u>	<u>Days of Storage</u>
	<u>Avg Annual</u>
Design for Dry weather Flows:	182 days
Design with 1-in 10 year flows:	155 days

Land Application:

Irrigation Volume /year:	10,568,944 gallons (including 1-in-10 year flows)			
Irrigation areas:	36 acres at design loading (85 acres total available)			
Application rates/acre:	0.5 inch/hour;	1.5 inch/day;	4.5 inches/week;	11.0 inches/year
Field slopes:	less than 12 .0 percent			
Equipment type:	traveling gun			
Vegetation:	grass land			
Application rate is based on:	hydraulic loading rate			



TRACT 928
FIELD 1
28 ACRES

T931
F2, 3
22 AC

T931
F8
17
AC

T931
F4, 5
21 AC

T931
F6, 7
28
AC

TRACT 931
FIELDS 9 AND 23
103 ACRES

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Google earth

Imagery Date: 5/13/2013 lat 38.588460° lon -92.563328° elev 707 ft eye alt 7600 ft

1995

Survey

67

F

Osborn-Rd

Kubli-Rd

Bybee-Rd



F

87

Survey

TRACT 931
FIELDS 9 AND 23
103 ACRES

T931

F2, 3

22 AC

T931

F4, 5

21 AC

T931

F8

17

AC

T931

F6, 7

28

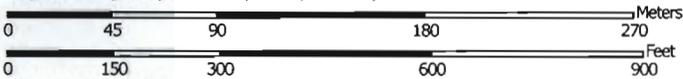
AC

© 2014 Google

Soil Map—Moniteau County, Missouri
(Tract 928 Field 1 (28 Acres M/L))



Map Scale: 1:3,120 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge ticks: UTM Zone 15N WGS84



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

9/30/2014
Page 1 of 3

MAP LEGEND

 Area of Interest (AOI)	 Spoil Area
 Soils	 Stony Spot
 Soil Map Unit Polygons	 Very Stony Spot
 Soil Map Unit Lines	 Wet Spot
 Soil Map Unit Points	 Other
 Special Point Features	 Special Line Features
 Blowout	 Water Features
 Borrow Pit	 Streams and Canals
 Clay Spot	 Transportation
 Closed Depression	 Rails
 Gravel Pit	 Interstate Highways
 Gravelly Spot	 US Routes
 Landfill	 Major Roads
 Lava Flow	 Local Roads
 Marsh or swamp	 Background
 Mine or Quarry	 Aerial Photography
 Miscellaneous Water	
 Perennial Water	
 Rock Outcrop	
 Saline Spot	
Sandy Spot	
Severely Eroded Spot	
Sinkhole	
Slide or Slip	
Sodic Spot	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

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Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Moniteau County, Missouri
Survey Area Data: Version 12, Dec 13, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 5, 2011—Aug 25, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

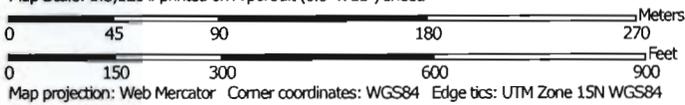
Map Unit Legend

Moniteau County, Missouri (MO135)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
73592	Wrengart silt loam, 3 to 8 percent slopes	22.3	77.4%
73977	Wrengart silt loam, 8 to 15 percent slopes, eroded	6.5	22.6%
Totals for Area of Interest		28.8	100.0%

Irrigation, General—Moniteau County, Missouri
(Tract 928 Field 1 (28 Acres M/L))



Map Scale: 1:3,120 if printed on A portrait (8.5" x 11") sheet.



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

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Page 1 of 5

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

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Survey Area Data: Version 12, Dec 13, 2013

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MAP LEGEND

Area of Interest (AOI)  Area of Interest (AOI)  Background  Aerial Photography

Soils

- Soil Rating Polygons**
-  Very limited
 -  Somewhat limited
 -  Not limited
 -  Not rated or not available
- Soil Rating Lines**
-  Very limited
 -  Somewhat limited
 -  Not limited
 -  Not rated or not available

Soil Rating Points

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Irrigation, General

Irrigation, General— Summary by Map Unit — Moniteau County, Missouri (MO135)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
73592	Wrengart silt loam, 3 to 8 percent slopes	Somewhat limited	Wrengart (95%)	Slope (0.26)	22.3	77.4%
				Rapid water movement (0.16)		
73977	Wrengart silt loam, 8 to 15 percent slopes, eroded	Somewhat limited	Wrengart (80%)	Slope (0.91)	6.5	22.6%
				Rapid water movement (0.03)		
Totals for Area of Interest					28.8	100.0%

Irrigation, General— Summary by Rating Value		
Rating	Acres in AOI	Percent of AOI
Somewhat limited	28.8	100.0%
Totals for Area of Interest	28.8	100.0%

Description

This interpretation evaluates a soil's limitation(s) for installation and use of irrigation systems. This interpretation is for non-specific irrigation methods and is intended to provide initial planning information. If the type of irrigation system has been determined, additional interpretations provide more specific information. This interpretation does not apply if the crop planned for irrigation is rice or other crops (such as cranberries) with unique plant physiological characteristics. The ratings are for soils in their natural condition and do not consider present land use.

Irrigation systems are used to provide supplemental water to crops, orchards, vineyards, and vegetables in areas where natural precipitation will not support desired production of crops being grown.

The soil properties and qualities important in design and management of irrigation systems are sodium adsorption ratio, depth to high water table, available water holding capacity, saturated hydraulic conductivity (Ksat), slope, calcium carbonate content, ponding, and flooding. Soil properties and qualities that influence installation are stones, depth to bedrock or cemented pan, and depth to a high water table. The properties and qualities that affect performance of the irrigation system are depth to bedrock or to a cemented pan, the sodium adsorption ratio, salinity, and soil reaction.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the interpretation. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms indicate the extent to which the soils are limited by the soil features that affect the soil interpretation. Verbal soil rating classes are based on the highest numerical rating for the most limiting soil feature(s) considered in the rating process. "Not limited" (numerical value for the most restrictive feature = 0.00) indicates that the soil has no limiting features for the specified use. "Somewhat limited" (numerical value for the most restrictive feature = .01 to .99) indicates that the soil has limiting features for the specified use that can be overcome with proper planning, design, installation, and management. The effort required to overcome a soil limitation increases as the numerical rating increases. "Very limited" (numerical value for the most restrictive feature = 1.00) indicates that the soil has one or more

very limiting features that can only be overcome with special planning, major soil modification, special design, or significant management practices.

Lesser soil restrictive features have a lower numerical value than the maximum used to rate the soil, and they are identified to provide the user with additional information about soil limitations for the specific use. Lesser soil restrictive features also need to be considered in planning, design, installation, and management.

The results of this interpretation are not designed or intended to be used in a regulatory manner.

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

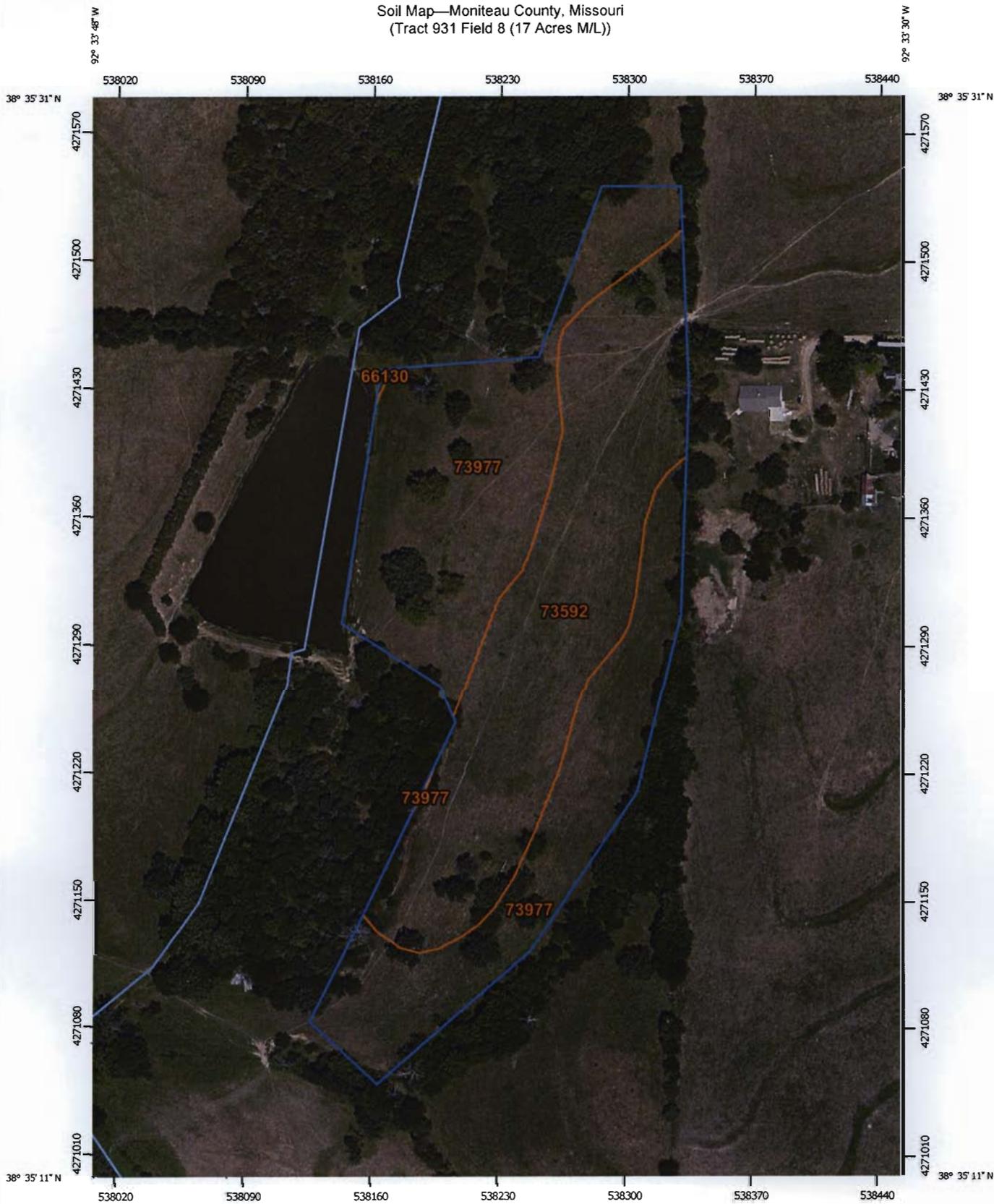
Rating Options

Aggregation Method: Dominant Condition

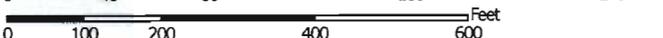
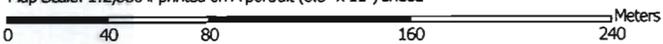
Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Soil Map—Moniteau County, Missouri
(Tract 931 Field 8 (17 Acres ML))



Map Scale: 1:2,880 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge ties: UTM Zone 15N WGS84



Natural Resources
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MAP LEGEND

-  Area of Interest (AOI)
-  Area of Interest (AOI)
-  Soils
-  Soil Map Unit Polygons
-  Soil Map Unit Lines
-  Soil Map Unit Points
- Special Point Features**
-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
- Special Line Features**
-  Water Features
-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

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Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

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Soil Survey Area: Moniteau County, Missouri
Survey Area Data: Version 12, Dec 13, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 5, 2011—Aug 25, 2011

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Map Unit Legend

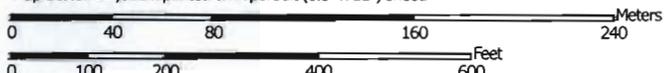
Moniteau County, Missouri (MO135)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
66130	Moniteau silt loam, 1 to 3 percent slopes, rarely flooded	0.0	0.1%
73592	Wrengart silt loam, 3 to 8 percent slopes	6.2	43.0%
73977	Wrengart silt loam, 8 to 15 percent slopes, eroded	8.2	56.9%
Totals for Area of Interest		14.4	100.0%



Irrigation, General—Moniteau County, Missouri
(Tract 931 Field 8 (17 Acres M/L))



Map Scale: 1:2,880 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP INFORMATION

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MAP LEGEND

Area of Interest (AOI)
Area of Interest (AOI)  Background  Aerial Photography 

Soils

Soil Rating Polygons

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available

Soil Rating Lines

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available

Soil Rating Points

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Irrigation, General

Irrigation, General— Summary by Map Unit — Moniteau County, Missouri (MO135)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
66130	Moniteau silt loam, 1 to 3 percent slopes, rarely flooded	Somewhat limited	Moniteau (90%)	Too acid (0.22)	0.0	0.1%
				Rapid water movement (0.03)		
				Slope (0.01)		
			Arbela (2%)	Occasional flooding (0.40)		
				Too acid (0.08)		
				Rapid water movement (0.03)		
73592	Wrengart silt loam, 3 to 8 percent slopes	Somewhat limited	Wrengart (95%)	Slope (0.26)	6.2	43.0%
				Rapid water movement (0.16)		
73977	Wrengart silt loam, 8 to 15 percent slopes, eroded	Somewhat limited	Wrengart (80%)	Slope (0.91)	8.2	56.9%
				Rapid water movement (0.03)		
Totals for Area of Interest					14.4	100.0%

Irrigation, General— Summary by Rating Value		
Rating	Acres in AOI	Percent of AOI
Somewhat limited	14.4	100.0%
Totals for Area of Interest		14.4 100.0%

Description

This interpretation evaluates a soil's limitation(s) for installation and use of irrigation systems. This interpretation is for non-specific irrigation methods and is intended to provide initial planning information. If the type of irrigation system has been determined, additional interpretations provide more specific information. This interpretation does not apply if the crop planned for irrigation is rice or other crops (such as cranberries) with unique plant physiological characteristics. The ratings are for soils in their natural condition and do not consider present land use.

Irrigation systems are used to provide supplemental water to crops, orchards, vineyards, and vegetables in areas where natural precipitation will not support desired production of crops being grown.

The soil properties and qualities important in design and management of irrigation systems are sodium adsorption ratio, depth to high water table, available water holding capacity, saturated hydraulic conductivity (Ksat), slope, calcium carbonate content, ponding, and flooding. Soil properties and qualities that influence installation are stones, depth to bedrock or cemented pan, and depth to a high water table. The properties and qualities that affect performance of the irrigation system are depth to bedrock or to a cemented pan, the sodium adsorption ratio, salinity, and soil reaction.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the interpretation. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

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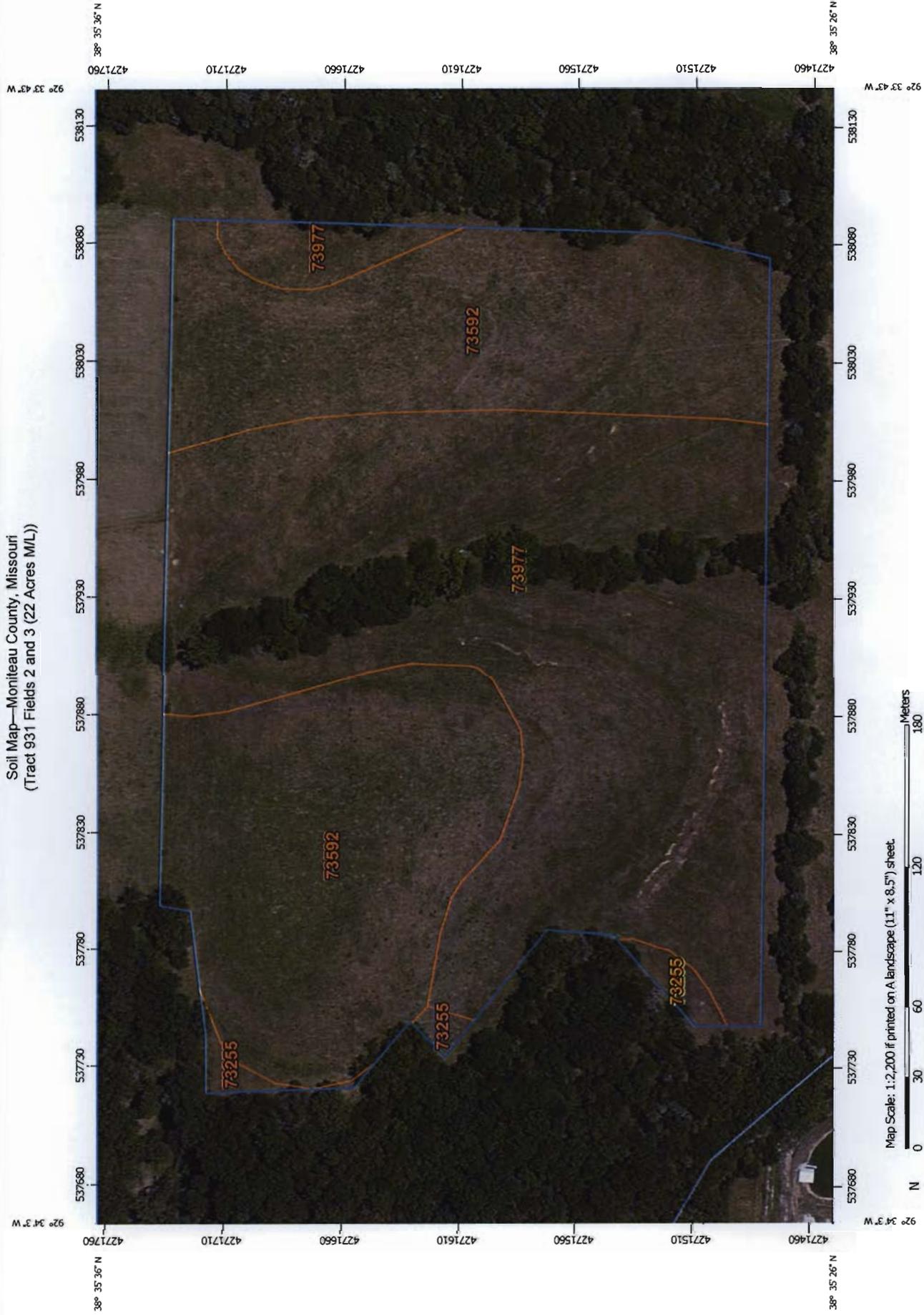
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Soil Map—Moniteau County, Missouri
(Tract 931 Fields 2 and 3 (22 Acres M/L))



Map Scale: 1:2,200 if printed on A landscape (11" x 8.5") sheet.

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

 Area of Interest (AOI)	 Spoil Area
 Soils	 Stony Spot
 Soil Map Unit Polygons	 Very Stony Spot
 Soil Map Unit Lines	 Wet Spot
 Soil Map Unit Points	 Other
 Special Point Features	 Special Line Features
 Blowout	 Streams and Canals
 Borrow Pit	 Transportation
 Clay Spot	 Rails
 Closed Depression	 Interstate Highways
 Gravel Pit	 US Routes
 Gravelly Spot	 Major Roads
 Landfill	 Local Roads
 Lava Flow	 Background
 Marsh or swamp	 Aerial Photography
 Mine or Quarry	
 Miscellaneous Water	
 Perennial Water	
 Rock Outcrop	
 Saline Spot	
 Sandy Spot	
 Severely Eroded Spot	
 Sinkhole	
 Slide or Slip	
 Sodic Spot	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

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Soil Survey Area: Moniteau County, Missouri
Survey Area Data: Version 12, Dec 13, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 5, 2011—Aug 25, 2011

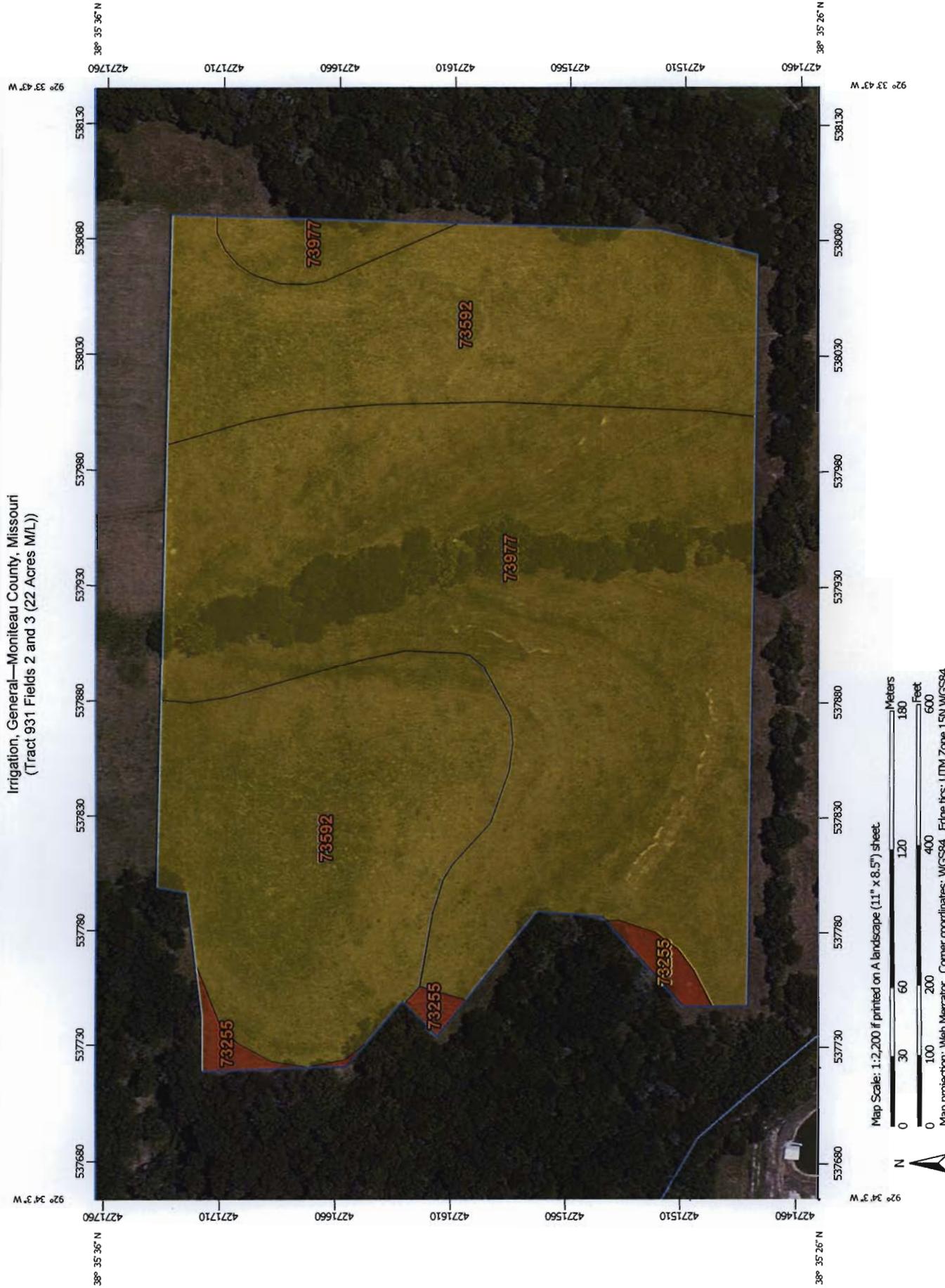
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Map Unit Legend

Moniteau County, Missouri (MO135)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
73255	Ocie very gravelly silt loam, 15 to 35 percent slopes, extremely stony	0.4	1.7%
73592	Wrengart silt loam, 3 to 8 percent slopes	9.6	45.2%
73977	Wrengart silt loam, 8 to 15 percent slopes, eroded	11.2	53.1%
Totals for Area of Interest		21.2	100.0%



Irrigation, General—Moniteau County, Missouri
(Tract 931 Fields 2 and 3 (22 Acres M/L))



MAP LEGEND

- Area of Interest (AOI)**
 - Area of Interest (AOI) 
 - Background  Aerial Photography
- Soils**
 - Soil Rating Polygons
 - Very limited 
 - Somewhat limited 
 - Not limited 
 - Not rated or not available 
 - Soil Rating Lines
 - Very limited 
 - Somewhat limited 
 - Not limited 
 - Not rated or not available 
- Soil Rating Points**
 - Very limited 
 - Somewhat limited 
 - Not limited 
 - Not rated or not available 
- Water Features**
 - Streams and Canals 
- Transportation**
 - Rails 
 - Interstate Highways 
 - US Routes 
 - Major Roads 
 - Local Roads 

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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Soil Survey Area: Moniteau County, Missouri
Survey Area Data: Version 12, Dec 13, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 5, 2011—Aug 25, 2011

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Irrigation, General

Irrigation, General— Summary by Map Unit — Moniteau County, Missouri (MO135)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
73255	Ocie very gravelly silt loam, 15 to 35 percent slopes, extremely stony	Very limited	Ocie (85%)	Slope (1.00)	0.4	1.7%
				Large surface stones (1.00)		
				Rapid water movement (0.69)		
				Low water holding capacity (0.15)		
				Depth to hard bedrock (0.00)		
73592	Wrengart silt loam, 3 to 8 percent slopes	Somewhat limited	Wrengart (95%)	Slope (0.26)	9.6	45.2%
				Rapid water movement (0.16)		
73977	Wrengart silt loam, 8 to 15 percent slopes, eroded	Somewhat limited	Wrengart (80%)	Slope (0.91)	11.2	53.1%
				Rapid water movement (0.03)		
Totals for Area of Interest					21.2	100.0%

Irrigation, General— Summary by Rating Value		
Rating	Acres in AOI	Percent of AOI
Somewhat limited	20.8	98.3%
Very limited	0.4	1.7%
Totals for Area of Interest	21.2	100.0%

Description

This interpretation evaluates a soil's limitation(s) for installation and use of irrigation systems. This interpretation is for non-specific irrigation methods and is intended to provide initial planning information. If the type of irrigation system has been determined, additional interpretations provide more specific information. This interpretation does not apply if the crop planned for irrigation is rice or other crops (such as cranberries) with unique plant physiological characteristics. The ratings are for soils in their natural condition and do not consider present land use.

Irrigation systems are used to provide supplemental water to crops, orchards, vineyards, and vegetables in areas where natural precipitation will not support desired production of crops being grown.

The soil properties and qualities important in design and management of irrigation systems are sodium adsorption ratio, depth to high water table, available water holding capacity, saturated hydraulic conductivity (Ksat), slope, calcium carbonate content, ponding, and flooding. Soil properties and qualities that influence installation are stones, depth to bedrock or cemented pan, and depth to a high water table. The properties and qualities that affect performance of the irrigation system are depth to bedrock or to a cemented pan, the sodium adsorption ratio, salinity, and soil reaction.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the interpretation. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms indicate the extent to which the soils are limited by the soil features that affect the soil interpretation. Verbal soil rating classes are based on the highest numerical rating for the most limiting soil feature(s) considered in the rating process. "Not limited" (numerical value for the most restrictive feature = 0.00) indicates that the soil has no limiting features for the specified use. "Somewhat limited" (numerical value for the most restrictive feature = .01 to .99) indicates that the soil has limiting features for the specified use that can be overcome with proper planning, design, installation, and management. The effort required to overcome a soil limitation increases as the numerical rating increases. "Very limited" (numerical value for the most restrictive feature = 1.00) indicates that the soil has one or more

very limiting features that can only be overcome with special planning, major soil modification, special design, or significant management practices.

Lesser soil restrictive features have a lower numerical value than the maximum used to rate the soil, and they are identified to provide the user with additional information about soil limitations for the specific use. Lesser soil restrictive features also need to be considered in planning, design, installation, and management.

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Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Soil Map—Moniteau County, Missouri
(Tract 931 Fields 4 and 5 (21 Acres ML))



Map Scale: 1:2,740 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

9/30/2014
Page 1 of 3

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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Soil Survey Area: Moniteau County, Missouri
Survey Area Data: Version 12, Dec 13, 2013

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Date(s) aerial images were photographed: Apr 5, 2011—Aug 25, 2011

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MAP LEGEND

- Area of Interest (AOI)
- Area of Interest (AOI)
- Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points
- Special Point Features**
 - Blowout
 - Borrow Pit
 - Clay Spot
 - Closed Depression
 - Gravel Pit
 - Gravelly Spot
 - Landfill
 - Lava Flow
 - Marsh or swamp
 - Mine or Quarry
 - Miscellaneous Water
 - Perennial Water
 - Rock Outcrop
 - Saline Spot
 - Sandy Spot
 - Severely Eroded Spot
 - Sinkhole
 - Slide or Slip
 - Sodic Spot
- Water Features**
 - Streams and Canals
- Transportation**
 - Rails
 - Interstate Highways
 - US Routes
 - Major Roads
 - Local Roads
- Background**
 - Aerial Photography
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features**

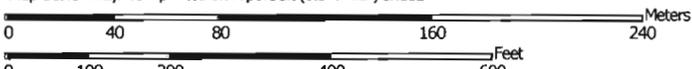
Map Unit Legend

Moniteau County, Missouri (MO135)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
66130	Moniteau silt loam, 1 to 3 percent slopes, rarely flooded	0.1	0.3%
73592	Wrengart silt loam, 3 to 8 percent slopes	4.4	22.0%
73977	Wrengart silt loam, 8 to 15 percent slopes, eroded	13.2	65.6%
75378	Sturkie silt loam, 0 to 2 percent slopes, frequently flooded	2.4	12.1%
Totals for Area of Interest		20.2	100.0%

Irrigation, General—Moniteau County, Missouri
(Tract 931 Fields 4 and 5 (21 Acres M/L))



Map Scale: 1:2,740 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

9/30/2014
Page 1 of 5

MAP INFORMATION

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MAP LEGEND

Area of Interest (AOI)
 Area of Interest (AOI)
  Background
  Aerial Photography

Soils

- Soil Rating Polygons**
-  Very limited
 -  Somewhat limited
 -  Not limited
 -  Not rated or not available

Soil Rating Lines

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available

Soil Rating Points

-  Very limited
-  Somewhat limited
-  Not limited
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Irrigation, General

Irrigation, General— Summary by Map Unit — Moniteau County, Missouri (MO135)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
66130	Moniteau silt loam, 1 to 3 percent slopes, rarely flooded	Somewhat limited	Moniteau (90%)	Too acid (0.22)	0.1	0.3%
				Rapid water movement (0.03)		
				Slope (0.01)		
			Arbela (2%)	Occasional flooding (0.40)		
				Too acid (0.08)		
73592	Wrengart silt loam, 3 to 8 percent slopes	Somewhat limited	Wrengart (95%)	Slope (0.26)	4.4	22.0%
				Rapid water movement (0.16)		
73977	Wrengart silt loam, 8 to 15 percent slopes, eroded	Somewhat limited	Wrengart (80%)	Slope (0.91)	13.2	65.6%
				Rapid water movement (0.03)		
75378	Sturkie silt loam, 0 to 2 percent slopes, frequently flooded	Somewhat limited	Sturkie (90%)	Frequent or very frequent flooding (0.70)	2.4	12.1%
				Rapid water movement (0.69)		
			Raccoon (5%)	Rapid water movement (0.69)		
				Occasional flooding (0.40)		
Totals for Area of Interest					20.2	100.0%

Irrigation, General— Summary by Rating Value		
Rating	Acres in AOI	Percent of AOI
Somewhat limited	20.2	100.0%
Totals for Area of Interest		20.2

Description

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Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Soil Map—Moniteau County, Missouri
(Tract 932 Fields 6 and 7 (28 Acres M/L))



Map Scale: 1:3,230 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge ticks: UTM Zone 15N WGS84



MAP LEGEND

 Area of Interest (AOI)	 Spoil Area
 Soils	 Stony Spot
 Soil Map Unit Polygons	 Very Stony Spot
 Soil Map Unit Lines	 Wet Spot
 Soil Map Unit Points	 Other
 Special Point Features	 Special Line Features
 Blowout	 Water Features
 Borrow Pit	 Streams and Canals
 Clay Spot	 Transportation
 Closed Depression	 Rails
 Gravel Pit	 Interstate Highways
 Gravelly Spot	 US Routes
 Landfill	 Major Roads
 Lava Flow	 Local Roads
 Marsh or swamp	 Background
 Mine or Quarry	 Aerial Photography
 Miscellaneous Water	
 Perennial Water	
 Rock Outcrop	
 Saline Spot	
Sandy Spot	
Severely Eroded Spot	
Sinkhole	
Slide or Slip	
Sodic Spot	

MAP INFORMATION

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Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

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Survey Area Data: Version 12, Dec 13, 2013

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Map Unit Legend

Moniteau County, Missouri (MO135)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
66000	Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded	8.5	32.0%
73591	Pomme silt loam, 3 to 8 percent slopes, eroded	3.9	14.5%
73977	Wrengart silt loam, 8 to 15 percent slopes, eroded	1.5	5.5%
75378	Sturkie silt loam, 0 to 2 percent slopes, frequently flooded	12.7	48.0%
Totals for Area of Interest		26.5	100.0%

Irrigation, General—Moniteau County, Missouri
(Tract 932 Fields 6 and 7 (28 Acres M/L))



Map Scale: 1:3,230 if printed on A portrait (8.5" x 11") sheet.

Meters				
0	45	90	180	270
Feet				
0	150	300	600	900

Map projection: Web Mercator Corner coordinates: WGS84 Edge ticks: UTM Zone 15N WGS84

MAP LEGEND

- Area of Interest (AOI)**
 Area of Interest (AOI)
- Background**
 Aerial Photography
- Soils**
- Soil Rating Polygons**
-  Very limited
 -  Somewhat limited
 -  Not limited
 -  Not rated or not available
- Soil Rating Lines**
-  Very limited
 -  Somewhat limited
 -  Not limited
 -  Not rated or not available
- Soil Rating Points**
-  Very limited
 -  Somewhat limited
 -  Not limited
 -  Not rated or not available
- Water Features**
-  Streams and Canals
- Transportation**
-  Rails
 -  Interstate Highways
 -  US Routes
 -  Major Roads
 -  Local Roads

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Irrigation, General

Irrigation, General— Summary by Map Unit — Moniteau County, Missouri (MO135)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
66000	Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded	Somewhat limited	Moniteau (90%)	Occasional flooding (0.40)	8.5	32.0%
				Too acid (0.22)		
				Rapid water movement (0.03)		
73591	Pomme silt loam, 3 to 8 percent slopes, eroded	Somewhat limited	Pomme (90%)	Slope (0.26)	3.9	14.5%
				Rapid water movement (0.02)		
73977	Wrengart silt loam, 8 to 15 percent slopes, eroded	Somewhat limited	Wrengart (80%)	Slope (0.91)	1.5	5.5%
				Rapid water movement (0.03)		
75378	Sturkie silt loam, 0 to 2 percent slopes, frequently flooded	Somewhat limited	Sturkie (90%)	Frequent or very frequent flooding (0.70)	12.7	48.0%
				Rapid water movement (0.69)		
			Raccoon (5%)	Rapid water movement (0.69)		
				Occasional flooding (0.40)		
				Too acid (0.08)		
Totals for Area of Interest					26.5	100.0%

Irrigation, General— Summary by Rating Value		
Rating	Acres in AOI	Percent of AOI
Somewhat limited	26.5	100.0%
Totals for Area of Interest	26.5	100.0%

Description

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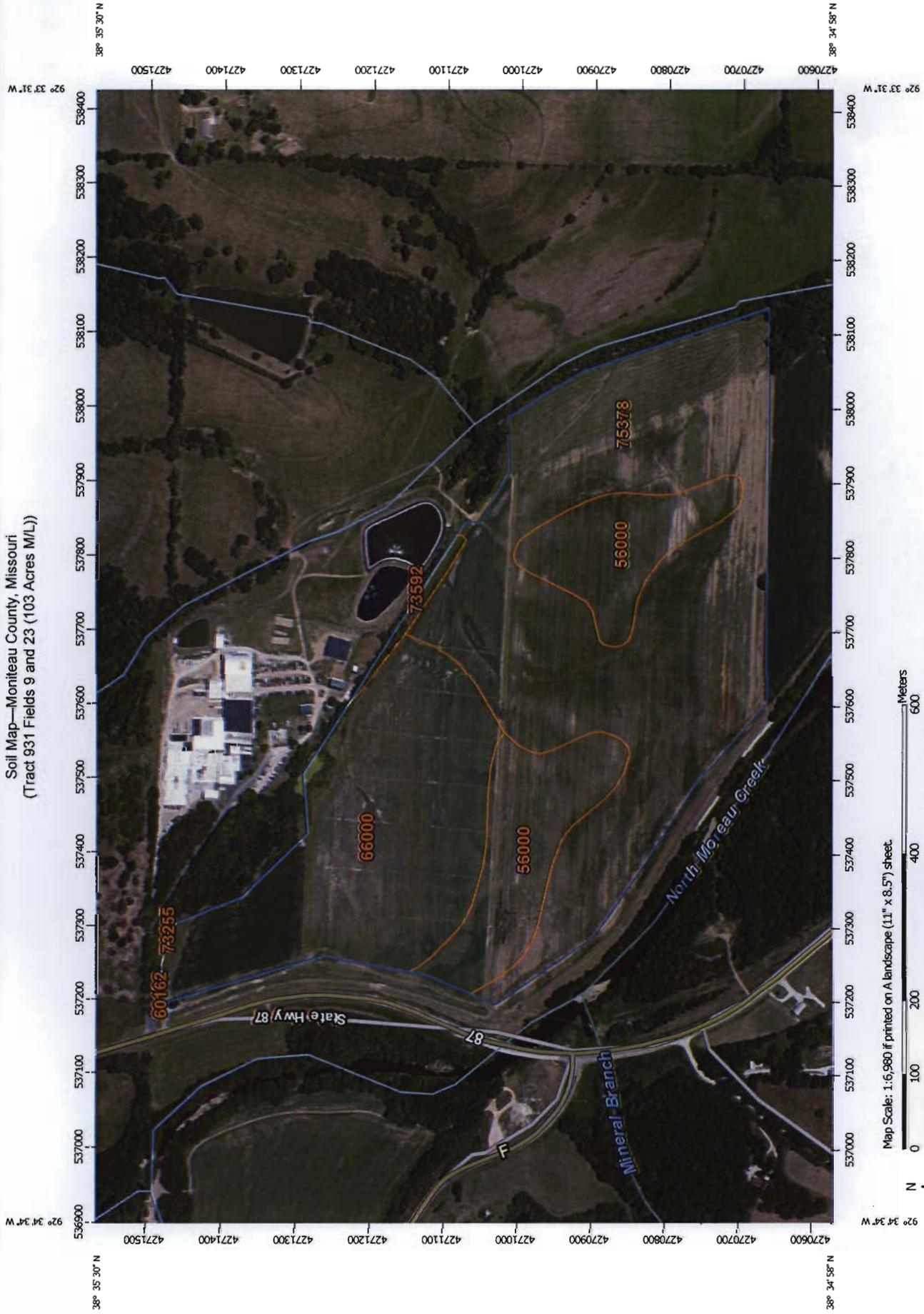
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Soil Map—Moniteau County, Missouri
(Tract 931 Fields 9 and 23 (103 Acres M/L))



Map Scale: 1:6,980 if printed on A landscape (11" x 8.5") sheet.

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84



0 100 200 400 600
0 300 600 1200 1800
Meters
Feet

MAP LEGEND

 Area of Interest (AOI)	 Spoil Area
 Soils	 Stony Spot
 Soil Map Unit Polygons	 Very Stony Spot
 Soil Map Unit Lines	 Wet Spot
 Soil Map Unit Points	 Other
 Special Point Features	 Special Line Features
 Blowout	 Water Features
 Borrow Pit	 Streams and Canals
 Clay Spot	 Transportation
 Closed Depression	 Rails
 Gravel Pit	 Interstate Highways
 Gravelly Spot	 US Routes
 Landfill	 Major Roads
 Lava Flow	 Local Roads
 Marsh or swamp	 Background
 Mine or Quarry	 Aerial Photography
 Miscellaneous Water	
 Perennial Water	
 Rock Outcrop	
 Saline Spot	
Sandy Spot	
Severely Eroded Spot	
Sinkhole	
Slide or Slip	
Sodic Spot	

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Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Monteau County, Missouri
Survey Area Data: Version 12, Dec 13, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 5, 2011—Aug 25, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Moniteau County, Missouri (MO135)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
56000	Moniteau silt loam, 0 to 2 percent slopes, frequently flooded	17.9	18.1%
60162	McGirk silt loam, 2 to 5 percent slopes, eroded	0.0	0.0%
66000	Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded	28.1	28.6%
73255	Ocie very gravelly silt loam, 15 to 35 percent slopes, extremely stony	0.1	0.1%
73592	Wrengart silt loam, 3 to 8 percent slopes	0.9	0.9%
75378	Sturkie silt loam, 0 to 2 percent slopes, frequently flooded	51.4	52.2%
Totals for Area of Interest		98.4	100.0%

Irrigation, General—Moniteau County, Missouri
 (Tract 931 Fields 9 and 23 (103 Acres M/L))



Map Scale: 1:6,980 if printed on A landscape (11" x 8.5") sheet

Map projection: Web Mercator Corner coordinates: WGS84 Edge lbs: UTM Zone 15N WGS84

MAP LEGEND

 Area of Interest (AOI)	 Background
 Area of Interest (AOI)	 Aerial Photography
Soils	
Soil Rating Polygons	
 Very limited	
 Somewhat limited	
 Not limited	
 Not rated or not available	
Soil Rating Lines	
 Very limited	
 Somewhat limited	
 Not limited	
 Not rated or not available	
Soil Rating Points	
 Very limited	
 Somewhat limited	
 Not limited	
 Not rated or not available	
Water Features	
 Streams and Canals	
Transportation	
 Rails	
 Interstate Highways	
 US Routes	
 Major Roads	
 Local Roads	

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Moniteau County, Missouri
Survey Area Data: Version 12, Dec 13, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 5, 2011—Aug 25, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Irrigation, General

Irrigation, General— Summary by Map Unit — Moniteau County, Missouri (MO135)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
56000	Moniteau silt loam, 0 to 2 percent slopes, frequently flooded	Somewhat limited	Moniteau (90%)	Frequent or very frequent flooding (0.70)	17.9	18.1%
				Too acid (0.22)		
				Rapid water movement (0.03)		
			Arbela (2%)	Occasional flooding (0.40)		
				Too acid (0.08)		
				Rapid water movement (0.03)		
			Piopolis (2%)	Occasional flooding (0.40)		
				Rapid water movement (0.03)		
				Too acid (0.01)		
60162	McGirk silt loam, 2 to 5 percent slopes, eroded	Somewhat limited	McGirk (90%)	Slope (0.09)	0.0	0.0%
66000	Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded	Somewhat limited	Moniteau (90%)	Occasional flooding (0.40)	28.1	28.6%
				Too acid (0.22)		
				Rapid water movement (0.03)		
73255	Ocie very gravelly silt loam, 15 to 35 percent slopes, extremely stony	Very limited	Ocie (85%)	Slope (1.00)	0.1	0.1%
				Large surface stones (1.00)		
				Rapid water movement (0.69)		
				Low water holding capacity (0.15)		
				Depth to hard bedrock (0.00)		
73592	Wrengart silt loam, 3 to 8 percent slopes	Somewhat limited	Wrengart (95%)	Slope (0.26)	0.9	0.9%

Irrigation, General— Summary by Map Unit — Moniteau County, Missouri (MO135)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Rapid water movement (0.16)		
75378	Sturkie silt loam, 0 to 2 percent slopes, frequently flooded	Somewhat limited	Sturkie (90%)	Frequent or very frequent flooding (0.70)	51.4	52.2%
				Rapid water movement (0.69)		
			Racoon (5%)	Rapid water movement (0.69)		
				Occasional flooding (0.40)		
				Too acid (0.08)		
Totals for Area of Interest					98.4	100.0%

Irrigation, General— Summary by Rating Value		
Rating	Acres in AOI	Percent of AOI
Somewhat limited	98.2	99.9%
Very limited	0.1	0.1%
Totals for Area of Interest	98.4	100.0%

Description

This interpretation evaluates a soil's limitation(s) for installation and use of irrigation systems. This interpretation is for non-specific irrigation methods and is intended to provide initial planning information. If the type of irrigation system has been determined, additional interpretations provide more specific information. This interpretation does not apply if the crop planned for irrigation is rice or other crops (such as cranberries) with unique plant physiological characteristics. The ratings are for soils in their natural condition and do not consider present land use.

Irrigation systems are used to provide supplemental water to crops, orchards, vineyards, and vegetables in areas where natural precipitation will not support desired production of crops being grown.

The soil properties and qualities important in design and management of irrigation systems are sodium adsorption ratio, depth to high water table, available water holding capacity, saturated hydraulic conductivity (Ksat), slope, calcium carbonate content, ponding, and flooding. Soil properties and qualities that influence installation are stones, depth to bedrock or cemented pan, and depth to a high water table. The properties and qualities that affect performance of the irrigation system are depth to bedrock or to a cemented pan, the sodium adsorption ratio, salinity, and soil reaction.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the interpretation. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms indicate the extent to which the soils are limited by the soil features that affect the soil interpretation. Verbal soil rating classes are based on the highest numerical rating for the most limiting soil feature(s) considered in the rating process. "Not limited" (numerical value for the most restrictive feature = 0.00) indicates that the soil has no limiting features for the specified use. "Somewhat limited" (numerical value for the most restrictive feature = .01 to .99) indicates that the soil has limiting features for the specified use that can be overcome with proper planning, design, installation, and management. The effort required to overcome a soil limitation increases as the numerical rating increases. "Very limited" (numerical value for the most restrictive feature = 1.00) indicates that the soil has one or more

very limiting features that can only be overcome with special planning, major soil modification, special design, or significant management practices.

Lesser soil restrictive features have a lower numerical value than the maximum used to rate the soil, and they are identified to provide the user with additional information about soil limitations for the specific use. Lesser soil restrictive features also need to be considered in planning, design, installation, and management.

The results of this interpretation are not designed or intended to be used in a regulatory manner.

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

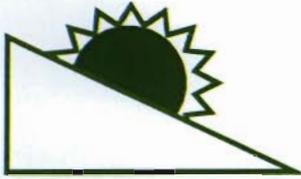
Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



TERRA TECHNOLOGIES

Environmental Engineers and Scientists

Wednesday, November 05, 2014

TO: State of Missouri Department of Natural Resources

RE: Maintenance of Irrigation Systems

The irrigation systems used by Burger's Smokehouse requires minimal maintenance.

Operators use a traveling gun with hose reel to connect to a central header pipe in the hay and crop field. A mechanical pump delivers effluent to the header pipe, proving pressurized discharge through the traveling gun. Typical maintenance includes quarterly preventive maintenance on the mechanical pump, and daily use inspection of the traveling gun and associated irrigation lines.

For irrigation of pasture not piped for the traveling gun, operators utilize a standard agricultural water distribution truck and/or trailer with an irrigation boom to spread effluent. A mechanical pump delivers effluent to the boom pipe, proving pressurized discharge through spray nozzles. Typical maintenance includes quarterly preventive maintenance on the mechanical pump, and daily use inspection of the boom and spray nozzles.

Submitted by,
TERRA TECHNOLOGIES INC.
David L. Flick
David L. Flick
Principal and Agent for Permittee

1705 North Stadium Drive, Suite B • Columbia, MO 65202

Phone: 573-445-3440 • Fax: 573-445-3414

<http://www.terratechnologies.com> • [e-mail: terratech@terratechnologies.com](mailto:terratech@terratechnologies.com)

**BASELINE SOIL TEST
DATA
NEW IRRIGATION
FIELDS**

November 18, 2014

Report for:

Burger's Smokehouse
32819 Hwy 87
California, MO 65018

Lab Number	Sample ID	SAR	
C1418863	C	2.18	F 6, 7
C1418864	D	0.18	F 8
C1418865	E	0.19	F 1
C1418866	F	0.31	F 4, 5
C1418867	G	0.19	F 3
C1418868	H	0.19	F 2

UNIVERSITY OF MISSOURI **Soil Test Report**
Extension Field Crops

Soil & Plant Testing Laboratory
 23 Mumford Hall, MU
 Columbia, MO 65211
 Phone: 573-882-0623
 E-mail: SoilTestingServices@missouri.edu
<http://soltest.psu.missouri.edu>

Soil Testing Laboratory
 P.O. Box 160
 Portageville, MO 63873
 Phone: 573-379-5431
 E-mail: drstl@missouri.edu

FIELD INFORMATION			
Field ID	C	Sample no.	1
Acres	10	Last limed	unknown
		Irrigated	no
Last crop	19 COOL SEASON GR PAST		

Bill: Moniteau
 FSA Copy: N

Serial no.	S82649-1	Lab no.	C1416944
County	Moniteau	Region	5
Submitted	10/17/2014	Processed	10/28/2014
Soil sample submitted by: Firm		77	Outlet 535

This report is for:
BURGERS SMOKEHOUSE
 32819 HIGHWAY 87
 CALIFORNIA MO 65018

MFA FERTILIZER PLANT
 61312 CLARKSBURG
 CALIFORNIA MO 65018

SOIL TEST INFORMATION		RATING						
		Very low	Low	Medium	High	Very high	Excess	
pH _s	(salt pH)	5.7	*****					
Phosphorus	(P)	37 lbs/a	*****					
Potassium	(K)	241 lbs/a	*****					
Calcium	(Ca)	1557 lbs/a	*****					
Magnesium	(Mg)	377 lbs/a	*****					
Sulfur	(SO ₄ -S)	3.4 ppm	*****					
Zinc	(Zn)	1.9 ppm	*****					
Manganese	(Mn)	31.3 ppm	*****					
Iron	(Fe)	64.2 ppm	*****					
Copper	(Cu)	0.94 ppm	*****					
Organic matter	2.0 %	Neutralizable acidity	2.5 meq/100g	Cation exchange capacity	8.3 meq/100g			
pH in water	6.6	Electrical conductivity	0.6 mmho/cm	Sodium (Na)	1931.0 lb/a			
Nitrate (NO ₃ -N)	Topsoil 2.3 ppm	Subsoil	ppm	Sampling depth	Top 6 inches	Subsoil	inches	
Cropping options	Yield goal	NUTRIENT REQUIREMENTS					LIMESTONE SUGGESTIONS	
		Pounds per acre						
		N	P ₂ O ₅	K ₂ O	Zn	S		
19 COOL SEASON GR PAST	200 CD/A	120	20	20	0	0	Effective neutralizing material (ENM)	
19 COOL SEASON GR PAST	250 CD/A	150	20	25	0	0	0	
18 COOL SEASON GRASS HAY	3 T/A	120	30	60	0	0	Effective magnesium (EMg)	
18 COOL SEASON GRASS HAY	2 T/A	80	20	40	0	0	0	

Comments:

For cool season grass pasture and bluegrass pasture split nitrogen applications between late Spring after first grazing and mid August, applying 60% before the season of greatest need. The cation exchange capacity of this soil would suggest very low potential for sulfur response. Monitor the crop by plant analyses for potential need for sulfur. For hay production apply nitrogen just before spring growth begins (typically March). Consider splitting nitrogen applications if the rate exceeds 90 lbs N/acre, applying 60% in March and the balance in mid August.
 Boron is 0.26 ppm.
 Ammonium is 1.82 ppm.
 Particle Size Analysis: Texture: Silt loam ; % Sand: 12.5, % Silt: 70 and % Clay: 17.5.

Regional Agronomy Specialist Joni Harper

Phone (573) 378-5358

White - Farmer, Yellow - FSA, Blue - Firm, Pink - Extension

MP 189 Revised 9/05, Reprinted 10/14

Signature

Columbia

FIELD INFORMATION			
Field ID	D	Sample no.	2
Acres	10	Last limed	unknown
		Irrigated	no
Last crop	19 COOL SEASON GR PAST		

Bill: Moniteau
FSA Copy: N

Serial no.	S82649-2	Lab no.	C1416945
County	Moniteau	Region	5
Submitted	10/17/2014	Processed	10/28/2014
Soil sample submitted by: Firm		77	Outlet 535

This report is for:
BURGERS SMOKEHOUSE
32819 HIGHWAY 87
CALIFORNIA MO 65018

MFA FERTILIZER PLANT
61312 CLARKSBURG
CALIFORNIA MO 65018

SOIL TEST INFORMATION		RATING						
		Very low	Low	Medium	High	Very high	Excess	
pH _s (salt pH)	5.1	*****						
Phosphorus (P)	6 lbs/a	****						
Potassium (K)	220 lbs/a	*****						
Calcium (Ca)	2227 lbs/a	*****						
Magnesium (Mg)	523 lbs/a	*****						
Sulfur (SO ₄ -S)	2.8 ppm	*****						
Zinc (Zn)	1.8 ppm	*****						
Manganese (Mn)	29.8 ppm	*****						
Iron (Fe)	51.9 ppm	*****						
Copper (Cu)	0.73 ppm	*****						
Organic matter	2.6 %	Neutralizable acidity	4.0 meq/100g	Cation exchange capacity		12.0 meq/100g		
pH in water	6.0	Electrical conductivity	0.1 mmho/cm	Sodium (Na)		14.0 lb/a		
Nitrate (NO ₃ -N)	Topsoil 5.9 ppm	Subsoil	ppm	Sampling depth	Top 6 inches	Subsoil	inches	
Cropping options	Yield goal	NUTRIENT REQUIREMENTS					LIMESTONE SUGGESTIONS	
		Pounds per acre						
		N	P ₂ O ₅	K ₂ O	Zn	S		
19 COOL SEASON GR PAST	200 CD/A	120	65	35	0	0	Effective neutralizing material (ENM)	915
19 COOL SEASON GR PAST	250 CD/A	150	65	45	0	0	Effective magnesium (EMg)	
18 COOL SEASON GRASS HAY	3 T/A	120	80	100	0	0		
18 COOL SEASON GRASS HAY	2 T/A	80	70	70	0	0		

Comments:

For cool season grass pasture and bluegrass pasture split nitrogen applications between late Spring after first grazing and mid August, applying 60% before the season of greatest need. The cation exchange capacity of this soil would suggest very low potential for sulfur response. Monitor the crop by plant analyses for potential need for sulfur. For hay production apply nitrogen just before spring growth begins (typically March). Consider splitting nitrogen applications if the rate exceeds 90 lbs N/acre, applying 60% in March and the balance in mid August. To determine limestone needed in tons/acre, divide your ENM requirement by the guarantee of your limestone dealer.
Boron is 0.14 ppm.
Ammonium is 2.27 ppm.
Particle Size Analysis: Texture: Silt loam ; % Sand: 10, % Silt: 70 and % Clay: 20.

Regional Agronomy Specialist Joni Harper

Phone (573) 378-5358

White - Farmer, Yellow - FSA, Blue - Firm, Pink - Extension

MP 189 Revised 9/05, Reprinted 10/14

Signature Columbia

FIELD INFORMATION			
Field ID	E	Sample no.	3
Acres	10	Last limed	unknown
		Irrigated	no
Last crop	19 COOL SEASON GR PAST		

Bill: Moniteau
FSA Copy: N

Serial no.	S82649-3	Lab no.	C1416946
County	Moniteau	Region	5
Submitted	10/17/2014	Processed	10/28/2014
Soil sample submitted by: Firm		77	Outlet 535

This report is for:
BURGERS SMOKEHOUSE
32819 HIGHWAY 87
CALIFORNIA MO 65018

MFA FERTILIZER PLANT
61312 CLARKSBURG
CALIFORNIA MO 65018

SOIL TEST INFORMATION		RATING						
		Very low	Low	Medium	High	Very high	Excess	
pH _s (salt pH)	5.3	*****						
Phosphorus (P)	3 lbs/a	**						
Potassium (K)	295 lbs/a	*****						
Calcium (Ca)	2715 lbs/a	*****						
Magnesium (Mg)	411 lbs/a	*****						
Sulfur (SO ₄ -S)	2.5 ppm	*****						
Zinc (Zn)	1.2 ppm	*****						
Manganese (Mn)	28.7 ppm	*****						
Iron (Fe)	31.8 ppm	*****						
Copper (Cu)	0.56 ppm	*****						
Organic matter	2.0 %	Neutralizable acidity	3.0 meq/100g	Cation exchange capacity		11.9 meq/100g		
pH in water	6.0	Electrical conductivity	0.2 mmho/cm	Sodium (Na)		29.0 lb/a		
Nitrate (NO ₃ -N)	Topsoil 17.0 ppm	Subsoil	ppm	Sampling depth	Top 6 inches	Subsoil	inches	
Cropping options	Yield goal	NUTRIENT REQUIREMENTS					LIMESTONE SUGGESTIONS	
		Pounds per acre						
		N	P ₂ O ₅	K ₂ O	Zn	S		
19 COOL SEASON GR PAST	200 CD/A	120	75	20	0	0	Effective neutralizing material (ENM)	600
19 COOL SEASON GR PAST	250 CD/A	150	75	20	0	0	Effective magnesium (EMg)	0
18 COOL SEASON GRASS HAY	3 T/A	120	90	30	0	0		
18 COOL SEASON GRASS HAY	2 T/A	80	80	20	0	0		

Comments:

For cool season grass pasture and bluegrass pasture split nitrogen applications between late Spring after first grazing and mid August, applying 60% before the season of greatest need. The cation exchange capacity of this soil would suggest very low potential for sulfur response. Monitor the crop by plant analyses for potential need for sulfur.

For hay production apply nitrogen just before spring growth begins (typically March). Consider splitting nitrogen applications if the rate exceeds 90 lbs N/acre, applying 60% in March and the balance in mid August.

To determine limestone needed in tons/acre, divide your ENM requirement by the guarantee of your limestone dealer.

Boron is 0.21 ppm.
Ammonium is 5.49 ppm.
Particle Size Analysis: Texture: Silt loam ; % Sand: 7.5, % Silt: 70 and % Clay: 22.5.

Regional Agronomy Specialist Joni Harper
White - Farmer, Yellow - FSA, Blue - Firm, Pink - Extension

Phone (573) 378-5358
MP 189 Revised 9/05, Reprinted 10/14
Signature Columbia

FIELD INFORMATION			
Field ID	F	Sample no.	4
Acres	10	Last limed	unknown
		Irrigated	no
Last crop	19 COOL SEASON GR PAST		

Bill: Moniteau
FSA Copy: N

Serial no.	S82649-4	Lab no.	C1416947
County	Moniteau	Region	5
Submitted	10/17/2014	Processed	10/28/2014
Soil sample submitted by: Firm 77 Outlet 535			

This report is for:
BURGERS SMOKEHOUSE
32819 HIGHWAY 87
CALIFORNIA MO 65018

MFA FERTILIZER PLANT
61312 CLARKSBURG
CALIFORNIA MO 65018

SOIL TEST INFORMATION		RATING					
		Very low	Low	Medium	High	Very high	Excess
pH _s (salt pH)	5.6	*****					
Phosphorus (P)	7 lbs/a	*****					
Potassium (K)	175 lbs/a	*****					
Calcium (Ca)	2310 lbs/a	*****					
Magnesium (Mg)	453 lbs/a	*****					
Sulfur (SO ₄ -S)	2.4 ppm	*****					
Zinc (Zn)	2.1 ppm	*****					
Manganese (Mn)	28.3 ppm	*****					
Iron (Fe)	40.0 ppm	*****					
Copper (Cu)	0.68 ppm	*****					
Organic matter	3.1 %	Neutralizable acidity	2.5 meq/100g	Cation exchange capacity			10.4 meq/100g
pH in water	6.4	Electrical conductivity	0.1 mmho/cm	Sodium (Na)			6.0 lb/a
Nitrate (NO ₃ -N)	Topsoil 5.8 ppm	Subsoil	ppm	Sampling depth	Top 6 inches	Subsoil	inches
Cropping options	Yield goal	NUTRIENT REQUIREMENTS					LIMESTONE SUGGESTIONS
		Pounds per acre					
		N	P ₂ O ₅	K ₂ O	Zn	S	
19 COOL SEASON GR PAST	200 CD/A	120	60	45	0	0	Effective neutralizing material (ENM)
19 COOL SEASON GR PAST	250 CD/A	150	65	55	0	0	
18 COOL SEASON GRASS HAY	3 T/A	120	80	115	0	0	Effective magnesium (EMg)
18 COOL SEASON GRASS HAY	2 T/A	80	70	80	0	0	

Comments:

For cool season grass pasture and bluegrass pasture split nitrogen applications between late Spring after first grazing and mid August, applying 60% before the season of greatest need. The cation exchange capacity of this soil would suggest very low potential for sulfur response. Monitor the crop by plant analyses for potential need for sulfur.

For hay production apply nitrogen just before spring growth begins (typically March). Consider splitting nitrogen applications if the rate exceeds 90 lbs N/acre, applying 60% in March and the balance in mid August.

Boron is 0.26 ppm.

Ammonium is 1.67 ppm.

Particle Size Analysis: Texture: Silt loam ; % Sand: 10, % Silt: 72.5 and % Clay: 17.5.

Regional Agronomy Specialist Joni Harper

Phone (573) 378-5358

White - Farmer, Yellow - FSA, Blue - Firm, Pink - Extension

MP 189 Revised 9/05, Reprinted 10/14

Signature Columbia

FIELD INFORMATION			
Field ID	G	Sample no.	5
Acres	10	Last limed	unknown
		Irrigated	no
Last crop	19 COOL SEASON GR PAST		

Bill: Moniteau
FSA Copy: N

Serial no.	S82649-4	Lab no.	C1416948
County	Moniteau	Region	5
Submitted	10/17/2014	Processed	10/28/2014
Soil sample submitted by: Firm 77 Outlet 535			

This report is for:
BURGERS SMOKEHOUSE
32819 HIGHWAY 87
CALIFORNIA MO 65018

MFA FERTILIZER PLANT
61312 CLARKSBURG
CALIFORNIA MO 65018

SOIL TEST INFORMATION		RATING						
		Very low	Low	Medium	High	Very high	Excess	
pH _s	(salt pH) 5.4	*****						
Phosphorus	(P) 19 lbs/a	*****						
Potassium	(K) 480 lbs/a	*****						
Calcium	(Ca) 2467 lbs/a	*****						
Magnesium	(Mg) 562 lbs/a	*****						
Sulfur	(SO ₄ -S) 5.7 ppm	*****						
Zinc	(Zn) 2.3 ppm	*****						
Manganese	(Mn) 28.2 ppm	*****						
Iron	(Fe) 39.6 ppm	*****						
Copper	(Cu) 0.57 ppm	*****						
Organic matter	3.3 %	Neutralizable acidity	3.0 meq/100g	Cation exchange capacity	12.1 meq/100g			
pH in water	6.0	Electrical conductivity	0.3 mmho/cm	Sodium (Na)	11.0 lb/a			
Nitrate (NO ₃ -N)	Topsoil 25.0 ppm	Subsoil	ppm	Sampling depth	Top 6 inches	Subsoil	inches	
Cropping options	Yield goal	NUTRIENT REQUIREMENTS					LIMESTONE SUGGESTIONS	
		Pounds per acre						
		N	P ₂ O ₅	K ₂ O	Zn	S		
19 COOL SEASON GR PAST	200 CD/A	120	35	0	0	0	Effective neutralizing material (ENM)	545
19 COOL SEASON GR PAST	250 CD/A	150	40	0	0	0	Effective magnesium (EMg)	0
18 COOL SEASON GRASS HAY	3 T/A	120	55	0	0	0		
18 COOL SEASON GRASS HAY	2 T/A	80	45	0	0	0		

Comments:

For cool season grass pasture and bluegrass pasture split nitrogen applications between late Spring after first grazing and mid August, applying 60% before the season of greatest need. The cation exchange capacity of this soil would suggest very low potential for sulfur response. Monitor the crop by plant analyses for potential need for sulfur. If no P205 or no K20 is recommended retest annually to determine when maintenance fertilizer should be applied. For hay production apply nitrogen just before spring growth begins (typically March). Consider splitting nitrogen applications if the rate exceeds 90 lbs N/acre, applying 60% in March and the balance in mid August. To determine limestone needed in tons/acre, divide your ENM requirement by the guarantee of your limestone dealer. Boron is 0.27 ppm. Ammonium is 3.06 ppm. Particle Size Analysis: Texture: Silt loam ; % Sand: 12.5, % Silt: 67.5 and % Clay: 20.

Regional Agronomy Specialist Joni Harper

Phone (573) 378-5358

White - Farmer, Yellow - FSA, Blue - Firm, Pink - Extension

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Signature

Columbia

FIELD INFORMATION			
Field ID	H	Sample no.	6
Acres	10	Last limed	unknown
		Irrigated	no
Last crop	19 COOL SEASON GR PAST		

Bill: Moniteau
FSA Copy: N

Serial no.	S82649-6	Lab no.	C1416949
County	Moniteau	Region	5
Submitted	10/17/2012	Processed	10/28/2014
Soil sample submitted by: Firm		77	Outlet 535

This report is for:
BURGERS SMOKEHOUSE
32819 HIGHWAY 87
CALIFORNIA MO 65018

MFA FERTILIZER PLANT
61312 CLARKSBURG
CALIFORNIA MO 65018

SOIL TEST INFORMATION		RATING					
		Very low	Low	Medium	High	Very high	Excess
pH _s (salt pH)	5.9	*****					
Phosphorus (P)	9 lbs/a	*****					
Potassium (K)	290 lbs/a	*****					
Calcium (Ca)	2918 lbs/a	*****					
Magnesium (Mg)	705 lbs/a	*****					
Sulfur (SO ₄ -S)	3.0 ppm	*****					
Zinc (Zn)	1.6 ppm	*****					
Manganese (Mn)	23.1 ppm	*****					
Iron (Fe)	33.8 ppm	*****					
Copper (Cu)	0.51 ppm	*****					
Organic matter	2.7 %	Neutralizable acidity	2.0 meq/100g	Cation exchange capacity	12.6 meq/100g		
pH in water	6.7	Electrical conductivity	0.1 mmho/cm	Sodium (Na)	10.0 lb/a		
Nitrate (NO ₃ -N)	Topsoil 6 ppm	Subsoil	ppm	Sampling depth	Top 6 inches	Subsoil	inches
Cropping options	Yield goal	NUTRIENT REQUIREMENTS					LIMESTONE SUGGESTIONS
		Pounds per acre					
		N	P ₂ O ₅	K ₂ O	Zn	S	
19 COOL SEASON GR PAST	200 CD/A	120	55	20	0	0	Effective neutralizing material (ENM)
19 COOL SEASON GR PAST	250 CD/A	150	60	20	0	0	0
18 COOL SEASON GRASS HAY	3 T/A	120	75	40	0	0	Effective magnesium (EMg)
18 COOL SEASON GRASS HAY	2 T/A	80	65	25	0	0	0

Comments:

For cool season grass pasture and bluegrass pasture split nitrogen applications between late Spring after first grazing and mid August, applying 60% before the season of greatest need. The cation exchange capacity of this soil would suggest very low potential for sulfur response. Monitor the crop by plant analyses for potential need for sulfur.

For hay production apply nitrogen just before spring growth begins (typically March). Consider splitting nitrogen applications if the rate exceeds 90 lbs N/acre, applying 60% in March and the balance in mid August.

Boron is 0.57 ppm.

Ammonium is 1.94 ppm.

Particle Size Analysis: Texture: Silt loam ; % Sand: 12.5, % Silt: 65 and % Clay: 22.5.

Regional Agronomy Specialist Joni Harper

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Signature Columbia