

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-0119962
Owner:	Sharpe Holdings, Inc., d/b/a/ Sharpe Land & Cattle Company
Address:	500 East Ninth, Kansas City, MO 64106
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Sharpe Land & Cattle Company
Address:	12537 255 th St., Labelle, MO 63447
Legal Description:	See pages 2 - 4
Latitude/Longitude:	See pages 2 - 4
Receiving Stream:	See pages 2 - 4
First Classified Stream and ID:	See pages 2 - 4
USGS Basin & Sub-watershed No:	See pages 2 - 4

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

Operation of this facility shall not cause a violation of water quality standards.

FACILITY DESCRIPTION

Permitted Features #001 - #003, #005, #009 - #011 and #054. Concentrated Animal Feeding Operation – SIC Codes #0241, #0214 and #4952

No Discharge of Process Waste. Seven earthen storage lagoons, cow and goat dairies, solids separation, solids and mortality composting. There are also two single cell and one three-cell domestic lagoons.

Design number of animals is 8,600 dairy cows and 6,700 goats. (12,956 animal units)

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.

April 1, 2017
Effective Date


Steven Feeler, Acting Director, Division of Environmental Quality

March 31, 2022
Expiration Date


David J. Lamb, Acting Director, Water Protection Program

FACILITY DESCRIPTION (continued)

This farm has 3 complexes, a cow dairy (dairy and east complex), goat dairy, and a solids composting area with a goat loafing barn (west complex). The cow dairy consists of 4 storage lagoons, milking parlor, sand solids separator, feed storage area, with free stall and production barns that use sand bedding. Bedding and manure is vacuumed by trucks or scraped into a concrete tank and taken to the sand solids separator. Sand is washed and reused as bedding and separated manure is land applied or composted. Process wastewater from milking parlor, sand solids separator, and feed storage runoff are transferred to storage lagoons. A small scale manure-to-energy pilot is being installed at the sand solids separator building. Animal numbers and types may vary at permitted features that are designed to confine animals.

The goat dairy consists of a lagoon, milking parlor and loafing barns. Loafing barns use dry bedding pack which is periodically removed and land applied or composted.

The solid composting complex consists of a storage lagoon, concreted composting area and a goat loafing barn. Runoff from composting area is captured in the storage lagoon. Loafing barn uses dry bedding pack which is periodically removed and land applied or composted.

There are also two domestic storage lagoons serving the cow and goat dairies and a three-cell domestic lagoon serving the office, cafeteria, and rehabilitation complex.

Design flow (animals): 187,313,852 gallons per year. (0.513 mgd)

Design flow (domestic): 7,041,319 gallons per year. (0.019 mgd)

Design flow (total): 194,355,171 gallons per year. (0.532 mgd)

Permitted Feature #001: West Complex – Storage lagoon, composting area, mortality composter, and goat loafing barn.

Legal Description: NW ¼, SE ¼, Sec. 4, T60N, R9W, Lewis County

UTM Coordinates: X = 593713, Y = 4431094

Receiving stream: Tributary to Troublesome Creek

First classified stream and ID: 8-20-13 MUDD V1.0 (C) (3960)

USGS Basin & Subwatershed No.: 07110003-0203

Runoff Areas to Storage: 550,041 sq.ft. concrete.

Design Flow: 27,840,375 gallons per year

Design Storage: 618 days

Storage volume: 47,199,300 gallons

Total Basin Depth: 16 feet below overflow level

Upper Operating Level: 1.5 feet below overflow level

Lower Operating Level: 14 feet below overflow level

Permitted Feature #002: East Complex – Storage lagoon, feed storage area, production barns, and composting areas for solids and mortalities.

Legal Description: SW ¼, NW ¼, Sec. 2, T60N, R9W, Lewis County

UTM Coordinates: X = 596127, Y = 4431796

Receiving stream: Tributary to Troublesome Creek

First classified stream and ID: Troublesome Creek (C) (0074) 303(d)

USGS Basin & Subwatershed No.: 07110003-0203

Runoff Areas to Storage: 242,682 sq.ft. concrete.

Design Flow: 23,564,400 gallons per year

Design Storage: 293 days

Storage Volume: 18,962,770 gallons

Total Basin Depth: 15 feet below overflow level

Upper Operating Level: 1.5 feet below overflow level

Lower Operating Level: 13 feet below overflow level

FACILITY DESCRIPTION: (continued)

Permitted Feature #003: Cow Dairy Complex – Two storage lagoons and one reserve storage lagoon, milking parlor, free stall barns, solids separator.

Legal Description: NE ¼, SE ¼, Sec. 3, T60N, R9W, Lewis County

UTM Coordinates: X = 595714, Y = 4431427

Receiving stream: Tributary to Troublesome Creek

First classified stream and ID: 8-20-13 MUDD V1.0 (C) (3960)

USGS Basin & Subwatershed No.: 07110003-0203

Runoff Areas to Storage: 91,760 sq.ft. concrete, 78,000 sq. ft. soil

Design Flow (1 in 10 years): 130,389,000 gallons per year

Design Storage: 330 days total; includes two earthen storage basins

Manure Solids Volume: 11,000 tons per year

North Basin:

Storage Volume: 43,362,000 gallons

Total Basin Depth: 14 feet below overflow level

Upper Operating Level: 1.0 feet below overflow level

Lower Operating Level: 12 feet below overflow level

South Basin:

Storage Volume: 73,829,000 gallons

Total Basin Depth: 18.5 feet below overflow level

Upper Operating Level: 1.0 feet below overflow level

Lower Operating Level: 16.5 feet below overflow level

Permitted Feature #004: Concrete Storage Pit – Deleted, Flow is into outfall #002

Permitted Feature #005: No-discharge domestic wastewater storage lagoon and irrigation. SIC #4952

Legal description is NW ¼, SW ¼, Sec. 2, T60N, R9W, Lewis County

UTM Coordinates: X = 596108, Y = 4431441

Receiving stream: Tributary to Troublesome Creek

First classified stream and ID: Troublesome Creek (C) (0074) 303(d)

USGS Basin & Subwatershed No.: 07110003-0203

Design population equivalent is 47

Design Flow: 1,814,050 gallons per year including storm water flows

Storage capacity: 730,270 gallons

Design Storage: 120 days

Upper operating level: 1.0 feet below overflow elevation

Lower operating level: 7.0 feet below overflow elevation

Permitted Feature #006: Deleted – Fresh Water Lake Monitoring

Permitted Feature #007: Deleted - Stream Monitoring

Permitted Feature #008: Deleted - Stream Monitoring

FACILITY DESCRIPTION: (continued)

Permitted Feature #009: Goat Dairy – SIC #0214

System Type: Storage lagoon for milking parlor waste. Milking parlor using fresh water only

Legal Description: SW ¼, NW ¼, Sec. 16, T60N, R9W, Lewis County

UTM coordinates: X = 592844, Y = 4428644

Receiving stream: Tributary to Seebers Branch

First classified stream and ID: 8-20-13 MUDD V1.0 (C) (3960)

USGS Basin & Subwatershed No.: 07110003-0305

Storage Size: 822,000 gallons at overflow level

Design Flow: 620,077 gallons per year

Design Storage: 474 days

Total Basin Depth: 12.5 feet below overflow level

Upper Operating Level: 1.0 feet below overflow level

Lower Operating Level: 10.5 feet below overflow level

Permitted Feature #010: Washburn Lagoon – Wastewater is transferred from lagoons at other permitted features for additional storage.

Legal Description: SE ¼, NE ¼, Sec. 1, T60N, R10W, Knox County

UTM Coordinates: X = 589185, Y = 4431702

Receiving stream: Tributary to Spees Branch

First classified stream and ID: 8-20-13 MUDD V1.0 (C) (3960)

USGS Basin & Subwatershed No.: 07110003-0305

Storage Volume: 66,941,414 gallons

Design Flow: 4,900,000 gallons per year (stormwater only)

Total Basin Depth: 21 feet below overflow level

Upper Operating Level: 1.0 feet below overflow level

Lower Operating Level: 19.0 feet below overflow level

Permitted Feature #011: Three-cell domestic wastewater lagoon and irrigation system serving the office, cafeteria, and rehabilitation complex. Sludge is retained in lagoon. SIC #4952

Legal description: NW ¼, SE ¼, Sec. 4, T60N, R9W, Lewis County

UTM Coordinates: X = 593728, Y = 4431270

Receiving stream: Tributary to Troublesome Creek

First classified stream and ID: 8-20-13 MUDD V1.0 (C) (3960)

USGS Basin & Subwatershed No.: 07110003-0203

Design population equivalent: 145

Storage Size: 1,560,474 gallons

Design Storage: 141 days

Design Flow: 5,159,640 gallons per year including storm water flows

Operating levels of cell 3 are:

Upper level of two (2) feet below overflow elevation

Lower level of five (5) feet below overflow elevation

Permitted Feature #054: No-discharge domestic wastewater storage lagoon for employees at the goat dairy. SIC #4952

Legal Description: SW ¼, NW ¼, Sec. 16, T60N, R9W, Lewis County

UTM coordinates: X = 592826, Y = 4428599

Receiving stream: Tributary to Seebers Branch

First classified stream and ID: 8-20-13 MUDD V1.0 (C) (3960)

USGS Basin & Subwatershed No.: 07110003-0305

Storage Size: 82,630 gallons at overflow level

Design Flow: 67,629 gallons per year

Design Storage: 398 days

Total Basin Depth: 10.2 feet below overflow level

Upper Operating Level: 1.0 feet below overflow level

Lower Operating Level: 8.2 feet below overflow level

Outfall #S1: Deleted – Stream Monitoring

Outfall #S2: Deleted – Stream Monitoring

A. STANDARD CONDITIONS

In addition to other 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.

B. GENERAL CONDITIONS

1. Emergency or Unauthorized Discharge. Wastewater shall be stored and land applied during suitable conditions so that there is no discharge from the storage structures or land application sites. An emergency discharge from wastewater storage structures may only occur in accordance with Special Condition #2 of this permit. 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
Ammonia as N	mg/L
pH – Units	SU
Dissolved Oxygen	mg/L
Duration	Hours

2. 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 report the “Non-Detect” 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.
 - f. When calculating monthly averages, one-half of the minimum detection limit (MDL) should be used instead of a zero. Where all data are below the MDL, the “<MDL” shall be reported as indicated in item (C).

3. It is a violation of the Missouri Clean Water Law to fail to pay fees associated with this permit (644.055 RSMo).

4. Definitions

Definitions are as listed in the “Missouri Concentrated Animal Feeding Operation Nutrient Management Technical Standard” and in State Regulations in 10 CSR 20 Chapter 2, Chapter 6.300, Chapter 8.300, and Chapter 14.

5. Construction Permit Requirements

- a. A construction permit is required for any point source that proposes to construct an earthen storage structure to hold, convey, contain, store or treat domestic, agricultural, or industrial process wastewater.
- b. Any point source system designed to hold, convey, contain, store or treat domestic, agricultural or industrial process waste shall be designed by a professional engineer registered in Missouri in accordance with 10 CSR 20-8.300 and constructed according to the design plans.

6. 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 RSMo.

7. Reopener Clause

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

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

C. SPECIAL CONDITIONS

1. Effluent Limitations

The permittee is authorized to discharge process wastewater and storm water in accordance with the effluent limitations in this permit and 40 CFR 412. The effluent limitations shall become effective upon issuance and remain in effect until such time this permit is no longer effective. Such discharges shall be managed, controlled, limited and monitored by the permittee as specified below.

2. CAFO Production Area Requirements

Requirements applicable to all CAFO production area(s) as defined in 10 CSR 20-6.300:

- a. There shall be no discharge of manure, litter, or process wastewater into waters of the state from production area point sources except as provided in subsection e. below.
- b. A chronic weather event is a series of wet weather events and conditions that can delay planting, harvesting, and prevent land application and dewatering practices at wastewater storage structures. When wastewater storage structures are in danger of an overflow due to a chronic weather event, CAFO owners shall take reasonable steps to lower the liquid level in the structure through land application, or other suitable means, to prevent overflow from the storage structure. Reasonable steps may include, but are not limited to; following the Department's current guidance (PUB2422) entitled "Wet Weather Management Practices for CAFOs." The chronic weather determination will be based upon an evaluation of the 1 in 10 year return rainfall frequency over a 10-day, 90-day, 180-day, and 365-day operating period.
- c. Manure, litter or wastewater management activities occurring outside the production area but upon land controlled by the permittee shall be addressed in the permittee's Nutrient Management Plan (NMP). Activities that should be addressed include, but are not limited to, stockpiling of raw materials, manure, or litter or other animal feeding related items that have the potential to contribute pollutants to waters of the state. As necessary, the NMP shall identify controls, measures or BMPs to manage stormwater runoff and meet applicable water quality standards. This paragraph applies only to activities on land that is under the control of the CAFO owner or operator, whether it is owned, rented, or leased.
- d. Stockpiling of uncovered dry process waste within the production area without runoff collection is not allowed.
- e. Additional Requirements for Uncovered Liquid Storage Structures:

Whenever a precipitation related event causes an overflow of manure, litter, or process wastewater; pollutants may be discharged through the emergency spillway of the lagoon or uncovered storage structure provided:

- (1) The storage structure is properly designed, constructed, operated and maintained to contain all manure, litter, process wastewater plus the runoff and direct precipitation from the 25-year, 24-hour design storm event for the location of the CAFO.
- (2) The design storage volume is adequate to contain all manure, litter, and process wastewater accumulated during the storage period including the following:
 - (a) The volume of manure, litter, process wastewater, and other wastes accumulated during the storage period;
 - (b) 1 in 10 year 365 day annual rainfall minus evaporation during the storage period;
 - (c) 1 in 10 year 365 day normal runoff during the storage period;
 - (d) The direct precipitation from the 25-year, 24-hour storm;
 - (e) The runoff from the 25-year, 24-hour storm event;
 - (f) A minimum treatment volume for treatment lagoons.
- (3) Discharge is allowed via overflow through the emergency spillway of the lagoon or uncovered storage structure when caused by a storm event that exceeds the design storm event(s). Only that portion of storm water flow, which exceeds the design storm event(s) may be discharged. Process wastewater discharge is not allowed by pumping, siphoning, cutting of berms, or by any other method, except as authorized herein, unless prior approval is obtained from the department.
- (4) If a discharge occurs, monitor the discharge at the point immediately prior to entering the receiving stream or at the property boundary, whichever occurs first.
- (5) All open storage impoundments shall maintain a visual reference gauge showing the depth of liquids in the structure, the lower operating level, and the upper operating level.
- (6) Upper and Lower Storage Operating Levels:
 - (a) During normal weather conditions, the liquid level in the storage structure shall be maintained below the upper operating level, as identified in the FACILITY DESCRIPTION, so that adequate storage capacity is available for use during adverse weather periods when conditions are not suitable for proper land application. The lower operating level shall be used as an operational guideline; however, under normal operating conditions the level should not be lower than two feet above the lagoon floor.
 - (b) The liquid level in the storage structure should be lowered on a routine schedule based on the design storage period and Nutrient Management Plan. Typically this should be accomplished prior to expected seasonal wet and winter climate periods.
 - (c) The upper operating level for uncovered storage structures is one foot below the emergency overflow level unless specified otherwise in the FACILITY DESCRIPTION.
 - (d) The operation shall be managed so that the level of liquids in the storage structure does not exceed the upper operating level except when a 25-year, 24-hour storm or a 1 in 10-year chronic storm occurs.
- (7) Storage Safety Volume:
 - (a) When a chronic or catastrophic design storm event occurs, the "safety volume" may be used to contain the stormwater until conditions are suitable for land application.
 - (b) The required safety volume shall be maintained between the overflow level and the upper operating level.

3. CAFO Land Application Areas

These requirements are applicable to all land application areas as defined in 10 CSR 20-6.300:

- a. There shall be no discharge of manure, litter, process wastewater, or mortality by-products to surface waters of the state or that crosses property boundaries from a CAFO as a result of the land application of manure, litter, process wastewater, or mortality-by-products to land application areas, except where it is an agricultural storm water discharge. When manure, litter, process wastewater, or mortality by-products has been land applied in accordance with the CAFOs Nutrient Management Plan (NMP), and the *Missouri Concentrated Animal Feeding Operation Nutrient Management Technical Standard* (NMTS), a precipitation related discharge of manure, litter, process wastewater, or mortality-by-products from land application is considered to be an agricultural storm water discharge.
- b. The permittee is responsible for all land application areas. All land application areas must be included in the CAFO's nutrient management plan before any land application of manure, litter or process wastewater can occur. When manure litter or process wastewater generated by the permitted CAFO is sold, given away, or applied to agricultural lands that do not meet the land application area definition, the permittee shall comply with the requirement of Special Condition #6.
- c. Temporary stockpiling of dry process waste within the land application areas shall be in accordance with 10 CSR 20-8.300(10)B. No location shall be used for stockpiling for more than two weeks unless the stockpile is covered. Runoff from a stockpile shall not cause a violation of water quality standards.
- d. Land application shall only occur during daylight hours unless written authorization is obtained from the department.

4. Nutrient Management Technical Standard

The permittee shall follow Attachment A - *Missouri Concentrated Animal Feeding Operation Nutrient Management Technical Standard* (NMTS), except where otherwise stipulated in this permit. The NMTS, dated March 4, 2009, is hereby incorporated as though fully set forth herein.

5. Nutrient Management Plan

- a. In accordance with 10 CSR 20-6.300(3)(G), the permittee shall implement a Nutrient Management Plan (NMP) that at a minimum addresses the following.
 - (1) Ensures adequate storage of manure, litter and process wastewater, including procedures to ensure proper operation and maintenance of the storage facilities.
 - (2) Ensures proper management of mortalities.
 - (3) Ensures that clean water is diverted from the production area.
 - (4) Prevents direct contact of confined animals with waters of the state.
 - (5) Ensures that chemicals and other contaminants handled on site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.
 - (6) Identifies appropriate site specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants to waters of the state.
 - (7) Identifies protocols for appropriate testing of manure, litter, process wastewater, and soil.
 - (8) Establishes protocols to land apply manure, litter, or process wastewater in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater.
 - (9) Identifies specific records that will be maintained.
- b. The permittee shall maintain the NMP in accordance with 10 CSR 20-6.300(3)(G)2. Revisions of the NMP made after the effective date of this permit must be submitted to the department for review and approval prior to implementing those revisions.

6. Transfer of Manure, Litter, and Process Wastewater

In cases where manure, litter, or process wastewater generated by the permitted CAFO is sold, given away, or applied on lands that do not meet the land application area definition, the permittee shall comply with the following conditions:

- a. Maintain records showing the date and amount of manure, litter, and/or process wastewater that leaves the permitted operation.
- b. Record the name and address of the recipient. (The recipient is the broker or end user, not merely the truck driver.)
- c. Provide the recipient(s) with representative information on the nutrient content of the manure, litter, and/or process wastewater.
- d. Provide the recipient(s) with a copy of the NMTS.
- e. These records must be retained on-site, for a period of five (5) years.

7. Mortality Management

- a. Mortalities must not be disposed of in any liquid manure or process wastewater system that is not specifically designed to treat animal mortalities. Animals shall be disposed of in a manner to prevent contamination of waters of the state or creation of a public health hazard. Class I operations may not use burial as their primary mortality management method to dispose of routine mortalities.
- b. There shall be no-discharge from dead animal collection areas or holding areas (dumpsters, holding tanks, stockpiles within livestock production buildings, refrigeration units, etc.).
- c. Operations shall first receive approval from the Department before burying significant numbers of unexpected mortalities and shall conduct the burial in accordance with the Missouri Department of Agriculture requirements. Rendering, composting, incineration, or landfiling, in accordance with Chapter 269.020 RSMo., shall be considered acceptable options and do not require prior approval.

8. Inspections

The following minimum visual inspections shall be conducted by the CAFO operator.

- a. For confinement buildings that utilize wet handling flush system, a visual inspection shall be conducted once per week of the gravity outfall lines, recycle pump stations; recycle force mains, and appurtenances for any release to secondary

containment structure. A daily visual inspection shall be also be conducted of any process wastewater impoundment that serves a wet handling flush system when the liquid level is less than twelve (12) inches from the emergency spillway.

- b. Daily inspections must be conducted of water lines including wastewater, drinking water, and cooling water lines that can be visually observed within the production area. The inspection of the drinking water and cooling water lines shall be limited to the lines that possess the ability to leak or drain to wastewater storage structures or may come in contact with any process waste.
- c. Weekly inspections of all storm water diversion devices, runoff diversion structures, and devices channeling contaminated storm water to the process wastewater storage.
- d. Weekly inspections of the manure, litter, and process wastewater impoundments. The inspection will note the level in liquid impoundments as indicated by the depth marker
- e. Quarterly inspections, prior to use, of equipment used for land application of manure or process wastewater.
- f. Inspections during land application as follows:
 - (1) Monitor the perimeter of the application fields to insure that applied wastewater does not run off the fields where applied.
 - (2) Monitor for drifting of spray during spray irrigation.
 - (3) Hourly inspections of aboveground irrigation pipelines when in use.
 - (4) Twice daily inspections of pressurized underground lines including one inspection that should be completed immediately following startup.

Any deficiencies found as a result of inspections shall be documented and corrected as soon as practicable.

9. Record Keeping

The following records shall be kept on-site by the CAFO operator. The records for inspections for Special Condition 8.a. shall be maintained for a period of three (3) years from the date they are created, all other records shall be maintained for a period of five (5) years from the date they are created. All records shall be made available to the department upon request:

- a. A copy of this permit including a current copy of the facility's Nutrient Management Plan and documentation of changes/modifications made to the Nutrient Management Plan.
- b. The daily and weekly visual inspections required in Special Condition #8, shall be recorded once per week. This includes the depth of the process wastewater in liquid impoundments as indicated by the depth marker. Report the liquid level as feet below the emergency overflow level.
- c. Records documenting any actions taken to correct deficiencies. Deficiencies not corrected within thirty (30) days shall be accompanied by an explanation of the factors preventing immediate correction.
- d. Records of mortalities management used by the operation.
- e. Records of the date, time, location, duration and estimated volume of any emergency or unauthorized process waste overflow from a lagoon or any spill exceeding 1000 gallons. Report flow as cubic feet per second (CFS) based on an instantaneous estimate of the flow at the time of sampling. $CFS = \text{flow width in feet} \times \text{flow depth in feet} \times \text{flow velocity in feet per second}$. Estimates of stream channel width and depth may be used and flow velocity can be measured by timing how many feet a floating object moves within a one-second interval. Small flows may also be estimated based on gallons per minute (GPM) measurement using a container and stop watch; 450 gpm = 1.0 CFS. Other similar means of estimating may also be used.
- f. Additional record keeping requirements are found in the NMTS that document implementation of appropriate Nutrient Management Plan protocols. In addition to the requirements found in the Nutrient Management Technical Standard, the CAFO shall also test and record the potassium levels in the soils while testing nitrogen and phosphorus.
- g. The inches of precipitation received at the production site with an uncovered liquid impoundment, recorded daily and reported for daily amounts, monthly totals, and cumulative total.

10. Reporting Requirements

- a. Any wastewater discharge into waters of the state or a release that crosses property boundaries shall be reported to the Department as soon as practicable but no later than 24 hours after the start of the discharge.
- b. Spills or leaks that are contained on the property shall also be reported to the Department within 24 hours, if the spill or leak exceeds 1,000 gallons per day. This includes leaks from sewer lines; recycle lines, flushing systems, lagoons, irrigation systems etc. Spills or leaks that are entirely contained in a secondary containment listed in the "Facility Description" of this permit are excluded from this reporting requirement, but not recordkeeping requirements, provided there is no discharge from the secondary containment prior to the wastewater being removed in accordance with Special Condition 11.
- c. Within seven (7) days of the date that a lagoon's level comes within four (4) inches of the upper operating level, the permittee shall notify the department with information that identifies the lagoon(s), the lagoon level in inches below the emergency spillway and actions taken to reduce the lagoon levels.
- d. The permittee shall notify the Water Protection Program as soon as practicable but no less than 24 hours in advance of implementing the department's "Wet Weather Management Practices for CAFOs" during a chronic weather event.

- e. An Annual Report shall be submitted by January 28 of each year for the previous growing season from October 1 through September 30 or an alternate 12 month period approved by the Department. The report shall include:
 - (1) The number and type of animals confined at the operation.
 - (2) The estimated amount of manure, litter, and process wastewater generated in the previous twelve months.
 - (3) The estimated amount of manure, litter, and process wastewater transferred to other persons in the previous twelve months.
 - (4) The total number of acres for land application covered by the Nutrient Management Plan.
 - (5) The total number of acres under control of the operation that were used for land application of manure, litter and process wastewater in the previous twelve months.
 - (6) A summary of all manure, litter, and process wastewater discharges from the production area that have occurred in the previous twelve months, including date, time, and approximate volume. Report as no-discharge, if a discharge did not occur during the monitoring period.
 - (7) A statement indicating whether the current Nutrient Management Plan was developed or approved by a certified nutrient management planner.
 - (8) The crops planted and expected yields, the amount and nutrient content of the manure, litter, and process wastewater applied to the land application area(s) and the results of any soil testing from the previous twelve months.
 - (9) The daily and weekly records of the wastewater depth in the liquid impoundments as required in Special Condition #8d.
 - (10) The actual operation numbers compared to the permitted design parameters described in Special Condition #12.
 - (11) All monitoring results from an emergency or unauthorized discharge as required in General Condition #1.
- f. The reports shall include a cover sheet with an original signature of a company representative. The reports may be printed or, saved as .pdf files or locked spreadsheets on compact disc (CDs) and shall be submitted to the Northeast Regional Office and the Water Protection Program, Industrial Permits Unit.

11. Secondary Containment Structures

The following requirements are applicable to secondary containments that may capture process wastewater;

- a. Containment structures or earthen dams shall be maintained down gradient of all confinement buildings with a wet handling flush system to retain wastewater discharges from spills or pipeline breaks. The containment structure shall be able to collect a minimum volume equal to the maximum pumping capacity of flushing in any 24-hour period from all gravity outfall lines, recycle pump stations and recycle force mains.
- b. Containment structures that do not serve confinement buildings with a wet handling flush system are not required, but are subject to the requirements of this section.
- c. Any wastewater or stormwater that has been contaminated by coming into contact with manure, litter, wastewater, feed or silage captured in secondary containments shall be pumped into the lagoon or directly land applied in accordance with the NMP and the NMTS.
- d. Stormwater captured in secondary containment structures that have not come into contact with manure, litter, feed, or silage may be released. Best Management Practices should be implemented to prevent stormwater from being contaminated.
- e. Existing storm water flows from areas that drain potential releases from gravity outfall lines, recycle pump stations, recycle force mains and appurtenances shall not be diverted around or allowed to bypass the secondary containment structure, even when the flush system is not in use, without the prior approval of the Water Protection Program. Additional storm water may be directed to the secondary containment if desired by the permittee.
- f. If the wet handling flush system has been replaced or is no longer used, a secondary containment is no longer required. The permittee may request a permit modification to remove the secondary containments from the permit. Secondary containments, left in place whether required or not, are subject to the requirements of this section.

12. Design Parameters

The facility's design flow in the Facility Description is an estimated parameter that is used to help predict nutrient generation and storage periods. The design flow is based on the maximum annual flows including storm water flows during the one-in-ten year return frequency for annual or 365 day rainfall minus evaporation. The design flow is based on the time period when the flows are generated at the production site and not when flows are land applied. Permittee may exceed the design flow when precipitation in any 365 day period exceeds the one-in-ten year annual precipitation amount. Any proposed increases may require a permit modification prior to the proposed change. Portions of the design flow may be stored and carried over into the following year for land application, as necessary.

- 13. Domestic sludge shall be removed as needed and land applied in accordance with 40 CFR 503 sludge standards for septage and University of Missouri Water Quality Guide publication #WQ422.

14. Underground tile inlets for field terraces or subsurface field drainage tiles shall be shown on the site maps for all land application sites.

15. Operating Capacity

This permit authorizes operation of the CAFO waste management system as described in the "FACILITY DESCRIPTION" along with the permit application and associated engineering plans. The Facility Description lists a total design capacity in animal units. The CAFOs animal unit operating level at any given time shall be based on a "rolling 12 month average". The rolling 12 month average is determined by averaging the weekly facility wide inventory for the last 12 months. The CAFO may change animal numbers and weights, and the rolling 12 month average may exceed the total design capacity in the Facility Description but shall not subsequently violate applicable effluent limitations in 10 CSR 20-6.300(4) or adversely impact the storage and handling capacities of the waste management system. If the waste management system is adversely impacted by increased animal units or animal weight, the facility shall increase storage capacity, increase land application, or reduce the animal unit operating level.

16. Sample Collection, Preservation and Testing Methods

Testing shall be in accordance with the most current version of *Standard Methods for the Examination of Waters and Wastewaters* or other approved methods listed in 10 CSR 20-7.015(9)(A).

17. Closure of Waste Storage Structures

Class I CAFOs which cease operation shall continue to maintain a valid operating permit until all lagoons and waste storage structures are properly closed according to a closure plan approved by the Department. CAFOs that plan to close a lagoon or other liquid waste storage structure shall submit for Department review and approval a closure plan that complies with the following minimum closure requirements:

- a. Lagoons and waste storage structures shall be closed by removal and land application of wastewater and sludge.
- b. The removed wastewater and sludge shall be land applied at agricultural rates for fertilizer not to exceed the maximum nutrient utilization of the land application site and vegetation grown and shall be applied at controlled rates so that there will be no discharge to waters of the state; and
- c. After removal and proper land application of wastewater and sludge, the earthen basins may be demolished by removing the berms, grading, and revegetation of the site so as to provide erosion control, or the basin may be left in place for future use as a farm pond or similar uses when water quality monitoring shows such uses are attainable.

18. Terms of the NMP

- a. 40 CFR 122.23 requires portions of the NMP pertaining to land application protocols to be incorporated into the operating permit as terms of the NMP. Revisions of the NMP after the effective date of this permit that result in significant changes to the terms of the NMP as outlined in 40 CFR 122.23 require a modification of the permit prior to implementing those revisions.

TERMS OF THE NUTRIENT MANAGEMENT PLAN

Field Name	Legal Description	Spreadable Acres	P Loss Risk ¹	N or P Based Application	Crop #1		Crop #2		Crop #3		Crop #4		Crop #5	
					Crop	Yield Goal ²	Crop	Yield Goal ²	Crop	Yield Goal ²	Crop	Yield Goal ²	Crop	Yield Goal ²
Airport Hill T1 & T2	Sec. 2 & 11 T. 60N R. 9W	61.8	High	P	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Airport Hill T3	Sec. 2 & 11 T. 60N R. 9W	13.5	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Airport Fields T1	Sec. 2 T. 60N R. 9W	91.1	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Airport Fields T2 & T4	Sec. 2 & 11 T. 60N R. 9W	34.4	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Airport Fields T3	Sec. 2 & 11 T. 60N R. 9W	34.1	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Allen Farm T1	Sec. 22 T. 60N R. 9W	118.9	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Allen Farm T2	Sec. 22 T. 60N R. 9W	119.2	High	P	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Allen Farm T3 & T4	Sec. 22 & 26 T. 60N R. 9W	163.5	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Bart Sharpe T1	Sec. 6 T. 60N R. 9W	106.4	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Bob & Linda T1 & T2	Sec. 19 & 24 T. 60N R. 8W	101.7	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Bone Yard T1 & T2	Sec. 35 T. 61N R. 9W	16.1	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Brookins Hill T1 & T2	Sec. 27 T. 61N R. 9W	78.6	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Brookins Bottom T1	Sec. 27 T. 61N R. 9W	108.3	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Brookins Bottom T2	Sec. 27 T. 61N R. 9W	16.2	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Bud Moore T1	Sec. 22 T. 59N R. 10W	142.2	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Bud Moore T2	Sec. 22 T. 59N R. 10W	57.7	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Campbell T1	Sec. 1 T. 60N R. 10W	107.6	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Campbell T2	Sec. 1 T. 60N R. 10W	76.1	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Campbell T3	Sec. 1 T. 60N R. 10W	21.6	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Concrete Hay T1 & T2	Sec. 10, 15 T. 60N R. 9W	54.7	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Concrete Lake E. T1 & T2	Sec. 10, 11, & 15 T. 60N R. 9W	96.0	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Concrete South T1	Sec. 10 T. 60N R. 9W	6.9	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Concrete South T2	Sec. 10, 15 T. 60N R. 9W	75.4	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Conservation T1	Sec. 3 T. 60N R. 10W	24.0	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Craigs 80 T1	Sec. 32 T. 61N R. 9W	69.7	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Dare Hill T1	Sec. 27 & 34 T. 61N R. 9W	115.8	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Dare Bottom T1	Sec. 27 & 34 T. 61N R. 9W	47.1	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		

TERMS OF THE NUTRIENT MANAGEMENT PLAN

Field Name	Legal Description	Spreadable Acres	P Loss Risk ¹	N or P Based Application	Crop #1		Crop #2		Crop #3		Crop #4		Crop #5	
					Crop	Yield Goal ²	Crop	Yield Goal ²	Crop	Yield Goal ²	Crop	Yield Goal ²	Crop	Yield Goal ²
David Michael T1	Sec. 4, & 10 T. 60N R. 9W	109.2	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
David Michael T2	Sec. 3, 4, & 10 T. 60N R. 9W	129.9	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Dawson T1 & T4	Sec. 7, 8 T. 60N R. 9W	80.6	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Dawson T2 & T3	Sec. 7, 8 T. 60N R. 9W	146.6	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Dohman North T1 – T4	Sec. 16 T. 60N R. 9W	154.3	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Dohman South T1	Sec. 21 T. 60N R. 9W	54.9	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Dohman South T2 & T3	Sec. 21 T. 60N R. 9W	43.0	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
East of Creek Bottom T1	Sec. 2 T. 60N R. 9W	52.9	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
East of Creek Bottom T2 & T3	Sec. 2 & 35 T. 60N & 61N R. 9W	65.1	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
East of Creek Bottom T4	Sec. 2 T. 60N R. 9W	3.2	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
East of Creek Hills T1 & T2	Sec. 1, 2 & 35 T. 60N & 61N R. 9W	20.9	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
East of Silo T1 & T4	Sec. 2 & 35 T. 60N & 61N R. 9W	26.3	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
East of Silo T2 & T3	Sec. 2 & 35 T. 60N & 61N R. 9W	106.2	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Featherland Brown T1	Sec. 36 T. 61N R. 9W	99.0	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Featherland Brown T2	Sec. 31-36 T. 61N R. 8W-9W	71.8	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Featherland Brown T3	Sec. 36 T. 61N R. 9W	101.6	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Featherland Brown T4	Sec. 36 T. 61N R. 9W	165.4	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Floyd Sharpe T1	Sec. 3 T. 60N R. 9W	51.7	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Goat Dairy T1 – T6	Sec. 16 T. 60N R. 9W	125.6	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Gobblers T1	Sec. 1 T. 60N R. 10W	79.1	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Hadley T1 & T2	Sec. 31 & 32 T. 61N R. 9W	98.7	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Hadley T3	Sec. 31 & 32 T. 61N R. 9W	95.2	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Hadley T4	Sec. 31 T. 61N R. 9W	25.5	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Halderman Hill T1 & T3	Sec. 28 T. 61N R. 9W	100.6	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Halderman Hill T2	Sec. 28 T. 61N R. 9W	36.1	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Halderman Hill T4	Sec. 28 T. 61N R. 9W	16.1	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Halderman Bottom T1 & T2	Sec. 2 & 22 T. 61N R. 9W	45.8	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		

TERMS OF THE NUTRIENT MANAGEMENT PLAN

Field Name	Legal Description	Spreadable Acres	P Loss Risk ¹	N or P Based Application	Crop #1		Crop #2		Crop #3		Crop #4		Crop #5	
					Crop	Yield Goal ²	Crop	Yield Goal ²	Crop	Yield Goal ²	Crop	Yield Goal ²	Crop	Yield Goal ²
Halderman Bottom T3	Sec. 22 T. 61N R. 9W	38.3	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Heartland Cemetery T1 & T2	Sec. 34 & 35 T. 60N R. 10W	73.4	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Heartland Creamery East T1	Sec. 36 T. 60N R. 10W	160.5	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Heartland Creamery East T2	Sec. 36 T. 60N R. 10W	144.1	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Heartland Garden T1	Sec. 3 T. 59N R. 10W	28.1	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Heartland North T1	Sec. 35 & 2 T. 59N & 60N R. 10W	145.1	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Heartland North T2 & T3	Sec. 35 & 2 T. 59N & 60N R. 10W	152.1	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Heartland North T4	Sec. 35 & 36 T. 60N R. 10W	11.0	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Heartland Open House T1	Sec. 3 T. 59N R. 10W	40.9	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Heartland South T1	Sec. 2 T. 59N R. 10W	113.7	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Heartland South T2	Sec. 2 T. 59N R. 10W	109.2	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Heartland South T3 – T5	Sec. 2, 3, & 11 T. 59N R. 10W	133.1	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Hwy. U Patches T1	Sec. 31 & 36 T. 61N R. 10W	92.6	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Jay Dorn T1	Sec. 3, 4 T. 60N R. 10W	106.7	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Jay Dorn T2	Sec. 9, 10 T. 60N R. 10W	96.5	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Jay Dorn T3	Sec. 3, 4, 9, & 10 T. 60N R. 10W	68.0	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Jay Dorn North T1	Sec. 33 T. 61N R. 10W	96.4	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Jennings T1	Sec. 11 T. 60N R. 9W	79.0	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Jennings T2 & T3	Sec. 11 & 12 T. 60N R. 9W	78.0	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Jennings T4	Sec. 11 & 12 T. 60N R. 9W	19.3	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Jennings T5	Sec. 11 T. 60N R. 9W	94.8	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Jennings East T1	Sec. 11 & 12 T. 60N R. 9W	32.5	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Jennings East T2	Sec. 11 & 12 T. 60N R. 9W	7.9	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Litchfield Webber T1	Sec. 5 & 6 T. 60N R. 9W	92.8	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Litchfield Webber T2	Sec. 5 T. 60N R. 9W	113.3	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Litchfield Webber T3 & T4	Sec. 5 & 6 T. 60N R. 9W	173.1	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Mesner T1 & T2	Sec. 7 T. 60N R. 9W	63.4	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		

TERMS OF THE NUTRIENT MANAGEMENT PLAN

Field Name	Legal Description	Spreadable Acres	P Loss Risk ¹	N or P Based Application	Crop #1		Crop #2		Crop #3		Crop #4		Crop #5	
					Crop	Yield Goal ²	Crop	Yield Goal ²	Crop	Yield Goal ²	Crop	Yield Goal ²	Crop	Yield Goal ²
Meyers T1	Sec. 3 T. 60N R. 9W	8.6	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Meyers T2	Sec. 3 & 10 T. 60N R. 9W	51.6	High	P	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Meyers T3 & T4	Sec. 10 T. 60N R. 9W	78.8	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Minear T1	Sec. 4 & 33 T. 60N & 61N R. 9W	455.9	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Minear T2 – T5	Sec. 4 T. 60N R. 9W	123.9	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Morley T1, T2, & T4	Sec. 23 & 26 T. 60N R. 9W	88.4	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Morley T3	Sec. 26 T. 60N R. 9W	34.0	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Morley Hills T1	Sec. 24 T. 60N R. 9W	75.6	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Norval Gould T1	Sec. 3 T. 60N R. 9W	114.2	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Norval Gould T2	Sec. 3 & 34 T. 60N & 61N R. 9W	83.5	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Norval Gould T3 – T5	Sec. 3 & 34 T. 60 & 61N R. 9W	138.9	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Office West T1	Sec. 4 T. 60N R. 9W	94.3	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Office West T2	Sec. 4 T. 60N R. 9W	112.1	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Office West T3 – T5	Sec. 4 & 9 T. 60N R. 9W	120.6	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Office Recovery T1	Sec. 3 & 4 T. 60N R. 9W	33.7	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Office Recovery T2	Sec. 3 & 4 T. 60N R. 9W	13.6	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Paul Hirsh T1 & T3	Sec. 14 T. 60N R. 9W	114.6	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Paul Hirsh T2	Sec. 14 T. 60N R. 9W	47.3	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Ritter Bottom T1	Sec. 12 T. 60N R. 9W	5.5	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Ritter Bottom T2	Sec. 12 T. 60N R. 9W	40.0	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Scoggins T1 – T3	Sec. 20 T. 60N R. 9W	111.0	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Scoggins T4	Sec. 20 T. 60N R. 9W	18.2	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Stretch T1 & T2	Sec. 12 T. 60N R. 9W	57.8	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Stretch T3	Sec. 12 T. 60N R. 9W	4.3	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Taylor East T1 – T3	Sec. 35 T. 61N R. 10W	183.7	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Taylor West T1	Sec. 3 & 34 T. 60N & 61N R. 10W	186.6	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Taylor West T2 & T3	Sec. 34 T. 61N R. 10W	32.9	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		

TERMS OF THE NUTRIENT MANAGEMENT PLAN

Field Name	Legal Description	Spreadable Acres	P Loss Risk ¹	N or P Based Application	Crop #1		Crop #2		Crop #3		Crop #4		Crop #5	
					Crop	Yield Goal ²	Crop	Yield Goal ²	Crop	Yield Goal ²	Crop	Yield Goal ²	Crop	Yield Goal ²
Taylor West T4 – T6	Sec. 3 & 34 T. 61N R. 10W	191.0	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Taylor West T7	Sec. 3 T. 61N R. 10W	68.2	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Terry Kincaid T1	Sec. 36 T. 61N R. 10W	23.3	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Terry Kincaid T2	Sec. 36 T. 61N R. 10W	41.5	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Washburn Big Field T1	Sec. 36 T. 61N R. 10W	121.2	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Washburn Big Field T2	Sec 1 & 36 T. 60N & 61N R. 10W	111.7	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Washburn Big Field T3	Sec. 31 & 36 T. 61N R. 9W & 10W	111.3	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Washburn Big Field T4	Sec. 31, 6, 36, & 1 T. 60N & 61N R. 9W & 10W	120.8	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Washburn Big Field T5	Sec. 31 & 6 T. 60N & 61N R. 9W	102.7	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Washburn Big Field T6	Sec. 6 T. 60N R. 9W	40.6	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Washburn Big Field T7	Sec. 31 & 6 T. 60N & 61N R. 10W	64.3	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Washburn Big Field T8	Sec. 31, 6, 36, & 1 T. 60N & 61N R. 9W & 10W	210.1	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Washburn County Rd. E. T1	Sec. 19 T. 61N R. 9W	45.5	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Washburn County Rd. E. T2	Sec. 19 T. 61N R. 9W	18.8	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Washburn East of Shop T1	Sec. 25 T. 61N R. 10W	229.9	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Washburn Mr. Big T1	Sec. 35 & 36 T. 61N R. 10W	254.6	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Washburn Mr. Big T2	Sec. 35, 36, & 1 T. 61N & 60N R. 10W	123.9	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Washburn West of Shop T1	Sec. 25 & 26 T. 61N R. 10W	219.5	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Washburn West of Shop T2 – T4	Sec. 26 T. 61N R. 10W	163.2	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Washburn West of Shop T3	Sec. 25 & 26 T. 61N R. 10W	99.4	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Washburn West of Shop T4	Sec. 25 & 26 T. 61N R. 10W	127.5	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Wilson Tungate East T1	Sec. 5 T. 60N R. 9W	103.8	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Wilson Tungate East T2	Sec. 8 T. 60N R. 9W	157.9	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Wilson Tungate East T3 & T4	Sec. 5 & 8 T. 60N R. 9W	125.1	Medium	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Wilson Tungate East T5	Sec. 8 T. 60N R. 9W	24.7	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		
Wilson Tungate West T1 – T3	Sec. 8 T. 60N R. 9W	116.0	Low	N	Corn	180 bu/a	Corn Silage	24 t/a	Cool season hay	5 t/a	Alfalfa	6 t/a		

¹ Soil test phosphorous or Phosphorous index rating may be used.
² Yield goals may be expressed in bushel (bu) or ton (t) per acre (a).

- b. The table below lists alternative crops with yield goals. These crops are primarily for the Heartland Garden land application field but may be planted in any field in Special Condition 18a.

TERMS OF THE NUTRIENT MANAGEMENT PLAN - ALTERNATIVE CROPS					
Crop	Yield Goal	Crop	Yield Goal	Crop	Yield Goal
Barley	8 tons/ac	Beans (dry)	60 bu./ac	Snap Beans	3 tons/ac
Oats (grain)	140 bu./ac	Bell Peppers	80 cwt/ac	Spinach	6 tons/ac
Oats (straw)	5 tons/ac	Broccoli	60 cwt/ac	Sweet Corn	80 cwt/ac
Rye	9 tons/ac	Cabbage	8 tons/ac	Tomatoes	10 tons/ac
Sorghum	8 tons/ac	Cucumbers	12 tons/ac	Turnips	13 tons/ac
Wheat (grain)	80 bu./ac	Eggplant	5 tons/ac	Cotton (seed and lint)	4000 lbs./ac
Wheat (straw)	6 tons/ac	Lettuce	7 tons/ac	Cotton (stalks, leaves, & burs)	2000 lbs./ac
Bluegrass	5 tons/ac	Cantaloupe Melons	4 tons/ac	Peanuts (nuts)	2000 lbs./ac
Costal Bermuda	8 tons/ac	Honeydew Melons	4 tons/ac	Peanuts (vines)	2000 lbs./ac
Cowpea	4 tons/ac	Watermelon	8 tons/ac	Soybeans (grain)	50 bu./ac
Fescue	7 tons/ac	Okra	6 tons/ac	Soybeans (leaves, stems & pods)	9000 lbs./ac
Orchard Grass	9 tons/ac	Onions	9 tons/ac	Corn (grain)	180 bu./ac
Red Clover	4.5 tons/ac	Peaches	180 bu./ac	Corn Silage	24 tons/ac
Rye Grass	6 tons/ac	Peas	20 cwt/ac	Cool Season Grass Hay	6 tons/ac
Sorghum-Sudan	8 tons/ac	Potatoes (white)	240 bu./ac	Alfalfa	6 tons/ac
Timothy	6 tons/ac	Potatoes (vine)	3 tons/ac	Sweet Potatoes	6500 lbs./ac
Apples	240 bu./ac	-----	-----	-----	-----

- c. The Heartland Garden land application area is primarily used to grow vegetables and other crops for use at the facility. Multiple crops are planted in small plots in this field. The application rate for manure, compost or process wastewater shall be based on the nutrient requirements for the predominant crop planted in this field. If higher application rates are needed for other crops, the application rate can be based on the nutrient requirement for a specific crop but only for the portion of the field where that crop is planted.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0119962
SHARPE LAND & CATTLE COMPANY

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.

Part I – Facility Information

Facility Type: No-discharge Concentrated Animal Feeding Operation/land application– SIC #0241, #0214, and #4952

Facility Description:

This farm has 3 complexes, a cow dairy (dairy and east complex), goat dairy, and a solids composting area with a goat loafing barn (west complex). The cow dairy consists of 4 storage lagoons, milking parlor, sand solids separator, feed storage area, with free stall and production barns that use sand bedding. Bedding and manure is vacuumed by trucks or scraped into a concrete tank and taken to the sand solids separator. Sand is washed and reused as bedding and separated manure is land applied or composted. Process wastewater from milking parlor, sand solids separator, and feed storage runoff are transferred to storage lagoons. A small scale manure-to-energy pilot is being installed at the sand solids separator building. Animal numbers and types may vary at permitted features that are designed to confine animals.

The goat dairy consists of a lagoon, milking parlor and loafing barns. Loafing barns use dry bedding pack which is periodically removed and land applied or composted.

The solid composting complex consists of a storage lagoon, concreted composting area and a goat loafing barn. Runoff from composting area is captured in the storage lagoon. Loafing barn uses dry bedding pack which is periodically removed and land applied or composted. Composted material is a registered fertilizer.

There are also two domestic storage lagoons serving the cow and goat dairies and a three-cell domestic lagoon serving the office, cafeteria, and rehabilitation complex.

Design flow (animals): 187,313,852 gallons per year. (0.513 mgd)

Design flow (domestic): 7,041,319 gallons per year. (0.019 mgd)

Design flow (total): 194,355,171 gallons per year. (0.532 mgd)

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

✓ No.

Application Date: 06/19/15

Expiration Date: 12/09/15

PERMITTED FEATURE(S) TABLE:

PERMITTED FEATURE	TREATMENT LEVEL	EFFLUENT TYPE
#001 -#003, #009, #010	Land Application	Animal wastewater
#005, #011, #051	Land Application	Domestic wastewater

Facility Performance History:

This facility was last inspected on August 3, 2016 and was found to be in compliance for causing pollution to waters of the state and failure to comply with permit conditions.

Water Quality Monitoring:

Previous permits dating back to 1997 for the Sharpe Land & Cattle Company have required stormwater, lake, and in-stream monitoring various sites. This monitoring was required by 10 CSR 20-6.300 and was used to help determine if the operation of the CAFO and land application of manure had any impacts on water quality. Technical staff from the Permits and Water Quality Monitoring Sections has reviewed the results of the past water quality monitoring data and generally conclude there is no indication that a reasonable potential exists for the Sharpe Land & Cattle Company to violate water quality standards when it is managed and operated in accordance with permit requirements. As a result, the April 30, 2012 revision of 10 CSR 20-6.300 removed stormwater and stream monitoring requirements. As a result of this change the stormwater and stream outfalls #006, #SM1, and #SM2 and associated monitoring requirements were removed with this permit renewal.

Secondary Containment Structures:

State statutes and regulations require production sites with flush systems to have secondary containments for the production area. The secondary containment structures collect accidental spills as well as stormwater. Any wastewater captured in secondary containment as a result of accidents or spill must be pumped into a lagoon or land applied. Stormwater that comes into contact with manure, litter, feed, or silage either prior to or after entering a secondary containment is considered process wastewater. Stormwater captured in secondary containment may be released. No monitoring of stormwater release is required but shall not violate water quality standards.

This facility no longer utilized a wet handling flush system and the secondary containments have been removed from the "Facility Description" of the permit. The secondary containment operational requirements in the permit are applicable as long as the secondary containments are in place that may capture process wastewater.

Inspections, Record Keeping, and Reporting Requirements:

Revisions to Chapter 640 RSMo. that became effective August 28, 2013, changed the inspection frequency of operations with a flush system to once per week. It also added an inspection requirement that any lagoon whose water level is less than twelve inches from the emergency spillway be visually inspected once per day and a keep a record of those inspections. These changes of inspection requirements have been incorporated in this permit renewal.

Nutrient Management:

The 2008 EPA CAFO regulation requires portions of the operations NMP be incorporated into the permit as terms of the NMP. These terms of the NMP are shown in Special Condition 18. In addition, any revisions to the operation NMP must be submitted to the department for review. If any of the proposed revisions result in significant changes to the terms of the NMP the permit must be modified prior to implementing the revisions.

Part II – Operator Certification Requirements

- ✓ This facility is required to have a certified operator.

Operators or supervisors of CAFO waste management systems shall be certified in accordance with 10 CSR 20-14.010. This facility currently requires a CAFO supervisor with an A Certification Level or a CAFO operator with a B Certification Level.

Operator's Name: Chris Powell
Certification Number: 110201
Certification Level: CAFO Class A

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

Part III – 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:

WATERBODY NAME	CLASS	WBID	DESIGNATED USES*	DISTANCE TO CLASSIFIED SEGMENT	12-DIGIT HUC**
Tributary to Troublesome Creek	N/A	N/A	General Criteria		07110003-0203
8-20-13 MUDD V1.0	C	3960	AQL, IRR, LWW, SCR, WBCB, HHP		
Troublesome Creek			AQL, IRR, LWW, SCR, WBCB, HHP		
Tributary to Seebers Creek	N/A	N/A	General Criteria		07110003-0306
Tributary to Spees Creek	N/A	N/A	General Criteria		
8-20-13 MUDD V1.0	C	3960	AQL, IRR, LWW, SCR, WBCB, HHP		

n/a not applicable

WBID Waterbody ID: Missouri Use Designation Dataset 8-20-13 MUDD V1.0 data can be found as an ArcGIS shapefile on MSDIS at ftp://msdis.missouri.edu/pub/Inland_Water_Resources/MO_2014_WQS_Stream_Classifications_and_Use_shp.zip

* As per 10 CSR 20-7.031 Missouri Water Quality Standards, the department defines the Clean Water Commission's water quality objectives in terms of "water uses to be maintained and the criteria to protect those uses." The receiving stream and 1st classified receiving stream's beneficial water uses to be maintained are in the receiving stream table in accordance with [10 CSR 20-7.031(1)(C)].

Uses which may be found in the receiving streams table, above:

10 CSR 20-7.031(1)(C)1.:

AQL = Protection of aquatic life (Current narrative use(s) are defined to ensure the protection and propagation of fish shellfish and wildlife, which is further subcategorized as: WWH = Warm Water Habitat; CLH = Cool Water Habitat; CDH = Cold Water Habitat; EAH = Ephemeral Aquatic Habitat; MAH = Modified Aquatic Habitat; LAH = Limited Aquatic Habitat. This permit uses AQL effluent limitations in 10 CSR 20-7.031 Table A for all habitat designations unless otherwise specified.)

10 CSR 20-7.031(1)(C)2.: Recreation in and on the water

WBC = Whole Body Contact recreation where the entire body is capable of being submerged;

WBC-A = Whole body contact recreation that supports swimming uses and has public access;

WBC-B = Whole body contact recreation that supports swimming;

SCR = Secondary Contact Recreation (like fishing, wading, and boating).

10 CSR 20-7.031(1)(C)3. to 7.:

HHP (formerly HHF) = Human Health Protection as it relates to the consumption of fish;

IRR = Irrigation for use on crops utilized for human or livestock consumption;

LWW = Livestock and wildlife watering (Current narrative use is defined as LWP = Livestock and Wildlife Protection);

DWS = Drinking Water Supply;

IND = Industrial water supply

10 CSR 20-7.031(1)(C)8-11.: Wetlands (10 CSR 20-7.031 Table A currently does not have corresponding habitat use criteria for these defined uses)

WSA = Storm- and flood-water storage and attenuation; **WHP** = Habitat for resident and migratory wildlife species;

WRC = Recreational, cultural, educational, scientific, and natural aesthetic values and uses; **WHC** = Hydrologic cycle maintenance.

10 CSR 20-7.031(6): GRW = Groundwater

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.

- ✓ Applicable. Troublesome Creek was listed on the 1998 Missouri 303(d) List for sediment and on the 2006 Missouri 303(d) List for low dissolved oxygen.
- ✓ This facility is not considered to be a source of the above listed pollutant(s) or considered to contribute to the impairment of Troublesome Creek.

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. Troublesome Creek is associated with the 2006 EPA Approved TMDL for sediment.
- ✓ This facility is not considered to be a source of the above listed pollutant(s) or considered to contribute to the impairment of Troublesome Creek.

Part IV – Rationale and Derivation of Effluent Limitations & Permit Conditions

ALTERNATIVE EVALUATIONS FOR NEW FACILITIES:

As per [10 CSR 20-7.015(4)(A)], discharges to losing streams shall be permitted only after other alternatives including land application, discharges to a gaining stream and connection to a regional wastewater treatment facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons.

- ✓ Not Applicable; The facility does not discharge to a Losing Stream as defined by [10 CSR 20-2.010(36)] & [10 CSR 20-7.031(1)(N)], or is an existing facility.

ANTI-BACKSLIDING:

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

- ✓ 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 requirements for stormwater and in-stream monitoring were removed from state regulations in 2012 and therefore not included with this permit renewal. Stormwater runoff and in-stream monitoring conducted by the facility from 1997 to 2012 was reviewed and shows no indication that a reasonable potential exists for the Sharpe Land & Cattle Company to violate water quality standards when it is managed and operated in accordance with permit requirements.

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.

- ✓ No degradation proposed and no further review necessary. Facility did not apply for authorization to increase pollutant loading or to add additional pollutants to their discharge.

AREA-WIDE WASTE TREATMENT MANAGEMENT & CONTINUING AUTHORITY:

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

BIOSOLIDS & SEWAGE SLUDGE:

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

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

- ✓ Permittee land applies biosolids in accordance with Standard Conditions III and a Department approved biosolids management plan.

COMPLIANCE AND ENFORCEMENT:

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

✓ Not Applicable; The permittee/facility is not currently under Water Protection Program enforcement action.

NUTRIENT MANAGEMENT AND LAND APPLICATION

The agronomic rate is the amount of wastewater and sludge applied to a field to supply the amount of nutrients needed to meet the fertilizer recommendation. For more information on nutrient management, soil sampling, PAN calculations, and land application best management practices, consult the following University of Missouri Extension Guides:

G9112 Interpreting Missouri Soil Test Reports
G9215 Soil Sampling Pastures
G9217 Soil Sampling Hayfields and Row Crops
EQ0215 Laboratory Analysis of Manure
G9177 Preplant Nitrogen Test for Adjusting Corn Nitrogen Recommendations
G9186 Calculating Plant-Available Nitrogen and Residual Nitrogen Fertilizer Value in Manure
G9180 Phosphorus in Missouri Soils
EQ0202 Land Application Considerations for Animal Manure
EQ327 Calibration of Lagoon Irrigating Equipment
G1270 Calibrating Field Sprayers

SCHEDULE OF COMPLIANCE (SOC):

Per 644.051.4 RSMo, a permit may be issued with a Schedule of Compliance (SOC) to provide time for a facility to come into compliance with new state or federal effluent regulations, water quality standards, or other requirements. Such a schedule is not allowed if the facility is already in compliance with the new requirement, or if prohibited by other statute or regulation. A SOC includes 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. *See also* Section 502(17) of the Clean Water Act, and 40 CFR §122.2. For new effluent limitations, the permit includes interim monitoring for the specific parameter to demonstrate the facility is not already in compliance with the new requirement. Per 40 CFR § 122.47(a)(1) and 10 CSR 20-7.031(10), compliance must occur as soon as possible. If the permit provides a schedule for meeting new water quality based effluent limits, a SOC must include an enforceable, final effluent limitation in the permit even if the SOC extends beyond the life of the permit.

A SOC is not allowed:

- For effluent limitations based on technology-based standards established in accordance with federal requirements, if the deadline for compliance established in federal regulations has passed. 40 CFR § 125.3.
- For a newly constructed facility in most cases. Newly constructed facilities must meet applicable effluent limitations when discharge begins, because the facility has installed the appropriate control technology as specified in a permit or antidegradation review. A SOC is allowed for a new water quality based effluent limit that was not included in a previously public noticed permit or antidegradation review, which may occur if a regulation changes during construction.
- To develop a TMDL, UAA, or other study associated with development of a site specific criterion. A facility is not prohibited from conducting these activities, but a SOC may not be granted for conducting these activities.

In order to provide guidance to Permit Writers in developing SOC's, and attain a greater level of consistency, on October 25, 2012 the department issued a policy on development of SOC's. This policy provides guidance to Permit Writers on the standard time frames for schedules for common activities, and guidance on factors that may modify the length of the schedule such as an affordability analysis.

✓ 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.

Part V – Permit Limits Determination

All Permitted Features and Land Application Areas – Emergency Discharge

There are no effluent limits associated with all Permitted Features and land application areas 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	*
Ammonia as N	mg/L	*			NO	*
pH	SU	*			NO	≥ 6
Dissolved Oxygen	mg/L	*			NO	*
Duration	hours	*			NO	*
Temperature	°C	removed			YES	*
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.

*** - Parameter not established in previous state operating permit.

• **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	
Ammonia as N	once/day while discharging	
pH	once/day while discharging	
Dissolved Oxygen	once/day while discharging	
Duration	once/day while discharging	

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 February 10, 2017 to March 13, 2017 no were responses received.

DATE OF FACT SHEET: MARCH 16, 2017

COMPLETED BY:

**GREG CALDWELL, ENVIRONMENTAL SCIENTIST
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
OPERATING PERMITS SECTION – INDUSTRIAL PERMITS UNIT
(573) 526-1426
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STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
REVISED
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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;
 - 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.



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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



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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.

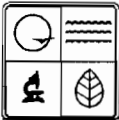


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10. **Duty to Provide Information.** The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this 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.

RECEIVED

JUN 19 2015



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
**FORM W - CONCENTRATED ANIMAL FEEDING OPERATION
(CAFO) OPERATING PERMIT APPLICATION**

FOR OFFICE USE ONLY

CHECK NUMBER:

PERMIT RECEIVED FEE SUBMITTED

Complete all applicable sections. Instructions for completing the form are located at the end of the form. Sign, date and return the form and all requested documents along with a check for the appropriate permit fee to the Missouri Department of Natural Resources. Make a copy of this completed form and keep it with your nutrient management plan.

PART 1 - PERMIT OWNERSHIP AND CONTACT INFORMATION

1.1 OPERATION NAME Sharpe Land & Cattle Company		CURRENT PERMIT NUMBER MO- 0119962	COUNTY Lewis
PHYSICAL ADDRESS 12537 255th St.		LEGAL DESCRIPTION Sec.: 2 Twn.: 60N Rng.: 9W	TELEPHONE NUMBER WITH AREA CODE (660) 213-5100
CITY LaBelle		STATE Missouri	ZIP CODE 63447
1.2 OWNER (PROVIDE LEGAL NAME) Sharpe Holdings, Inc., d/b/a Sharpe Land & Cattle Company		EMAIL ADDRESS	
MAILING ADDRESS 500 East Ninth			TELEPHONE NUMBER WITH AREA CODE (816) 842-6300
CITY Kansas City		STATE Missouri	ZIP CODE 64106
1.3 CONTINUING AUTHORITY (IF DIFFERENT THAN THE OWNER) Same as above			
MAILING ADDRESS			TELEPHONE NUMBER WITH AREA CODE
CITY		STATE	ZIP CODE

PART 2 - PERMIT TYPE AND PERMIT ACTION

<p>2.1 PERMIT TYPE</p> <p><input checked="" type="checkbox"/> NPDES Site Specific Permit Request review of draft permit prior to public notice. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p><input type="checkbox"/> NPDES General Permit (MOG01)</p> <p><input type="checkbox"/> State No-Discharge General Permit (MOGS1)</p>	<p>2.2 PERMIT ACTION*</p> <p><input type="checkbox"/> New Permit <input checked="" type="checkbox"/> Renewal</p> <p><input type="checkbox"/> Modification <input type="checkbox"/> Ownership Transfer</p> <p>_____ PREVIOUS OWNERS NAME</p> <p>_____ ADDRESS</p> <p>_____ CITY STATE ZIP CODE</p> <p>_____ SIGNATURE</p> <p>_____ DATE</p> <p><small>*See instructions for additional requirements and documents for the request permit action.</small></p>
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PART 3 - DESIGN CAPACITY FOR MANURE STORAGE AND ANIMALS OF EACH CAFO FEATURE

3.1 STORAGE STRUCTURE TYPES, AMOUNT OF STORAGE, AND AMOUNT OF MANURE GENERATED PER YEAR.

List All Manure Storage Structures at each CAFO Feature		Dry Manure Handling System		Wet Manure Handling System			
CAFO Feature	Storage Structure Type(s)	Design Dry Process Waste (tons/yr.)	Days of Storage	Total Storage Capacity (gal)	Design Wastewater per Year (gal./yr.)	Days of Storage	Design Flow MGD
001	See Attachment B						
002							
003							
004							
005							

3.2 LIST EACH TYPE OF ANIMAL IN CONFINEMENT AND THE NUMBER OF EACH ANIMAL TYPE.

CAFO Feature	Animal Category #1	Animal Numbers	Animal Category #2	Animal Numbers	Animal Category #3	Animal Numbers
001	See Attachment B					
002						
003						
004						
005						

PART 4 - OPERATIONAL INFORMATION

4.1 OPERATIONAL INFORMATION (SEE INSTRUCTIONS)

SIC Code(s) #0241 and #0214

CAFO Class Size 1A

4.2 Is this an export-only operation?

☐ Yes ☒ No

NE
Lewis

Completing PARTS 5 - 11 will meet the requirements of a Nutrient Management Plan (NMP) for an export only operation.

PART 5 – MANURE STORAGE

5.1 Do all manure storage structures have adequate storage, and operated and maintained as no discharge? ☒ Yes ☐ No

PART 6 – ANIMAL MORTALITY

6.1 PERMANENT METHOD OF DISPOSING OF ROUTINE ANIMAL MORTALITIES.

☒ Composting ☐ Rendering ☐ Send to a Landfill ☐ Incineration ☐ Other (Describe)

6.2 DESCRIBE METHOD OF MORTALITY HANDLING AND STORAGE THROUGH ALL PHASES TO FINAL DISPOSAL. (EXAMPLE: MORTALITIES ARE COMPOSTED WITHIN 24 HOURS OF DEATH AND FINISHED COMPOST PRODUCT IS STORED UNDER ROOF UNTIL LAND APPLIED). ALSO DESCRIBE THE TYPE OF COMPOST STRUCTURE USED, IF APPLICABLE.

Poured concrete, 3-bay roofed structure. Mortalities are composted following NRCS Standard 316, see SLC's NMP for more details.

PART 7 – DIVERSION OF CLEAN WATER

7.1 Is clean stormwater diverted from the production area? ☒ Yes ☐ No

7.2 IF YES, DESCRIBE CONTROLS AND MEASURES USED TO DIVERT STORMWATER.

Enclosed and roofed production areas with downspouts. Grounds are design to divert and transport stormwater to containment areas.

7.3 IF NO, DESCRIBE HOW CONTAMINATED STORMWATER IS CONTAINED AND INCLUDE THE STORAGE CAPACITY OF THE CONTAINMENT IF NOT PREVIOUSLY PROVIDED.

PART 8 – PREVENT DIRECT CONTACT OF ANIMALS WITH SURFACE WATERS

8.1 Do the animals have access to waters of the state within the production area? ☐ Yes ☒ No

8.2 LIST MEASURES USED TO PREVENT CONFINED ANIMAL FORM HAVING DIRECT CONTACT WITH WATERS OF THE STATE.

Animals confined in enclosed structures preventing contact with waters of the State.

PART 9 – CHEMICAL HANDLING

9.1 Check the appropriate boxed below to indicate method for handling and disposal of chemicals used by the operation:

- ☒ Chemicals are stored, handled, and disposed of according to manufacturer labels.
- ☒ Chemical storage and handling areas are protected from precipitation and runoff, and any spillage is contained within these areas.
- ☒ Emergency procedures and equipment are in place to contain and clean up chemical spills.
- ☒ Equipment wash areas are designed and constructed to prevent contamination of surface waters.
- ☒ No chemicals are stored or handled in the production area.

PART 10 – MANURE ANALYSIS TESTING

10.1 LIST EACH TYPE OF MANURE SOURCE. (i. e. MANURE, LITTER, COMPOST, WASTE WATER.)

Wastewater, Cow Manure, Separator Solids, Mortality Compost, Goat Manure

10.2 DESCRIBE PROCEDURES FOR ENSURING EACH MANURE SOURCE IS TESTED ANNUALLY.

SLC's O&M procedures are followed.

PART 11 – RECORD KEEPING

11.1 Are records of all inspections, manure transfers, discharges and land application maintained? ☒ Yes ☐ No

PART 12 – SIGNATURE

NAME
Charles N. Sharpe

TITLE
Owner

SIGNATURE



DATE
June 18, 2015

Part 13 - Engineer Certification

House Bill 28, which became effective Aug 28, 2013, contained provisions that changed construction permitting requirements. Construction permits are required for the construction of an earthen storage structure to hold, convey, contain, store, or treat domestic, agricultural, or industrial process wastewater. Construction of all other point source systems designed to hold, convey, contain, store, or treat domestic, agricultural, or industrial process waste must be designed by a professional engineer registered in Missouri in accordance with design regulations.

Operation Name Charles N. Sharpe
Address
City

Engineer Firm
Address
City State Zip Code

I, Project Engineer, certify that above described systems have been designed in accordance with Missouri CAFO design regulations in 10 CSR 20-8.300

ENGINEER SEAL

PROJECT ENGINEER SIGNATURE

SLC – Attachment A
NPDES Permit MO-0119962
Facility Description - Updated 2015

FACILITY DESCRIPTION – UPDATED 2015

The farm consists of cow dairy and goat dairy facilities operating at three complexes with designated Outfalls 001, 002, 003, and 009. Outfall 002 may contain approximately 2,700 animals in a combination of cows, heifers, or calves. Outfall 003 may contain 4,700 animals in a combination of cows, heifers or calves. Outfall 001 may contain 1200 animals of grower breeding replacement goats. Outfall 009 may contain 5,500 animals in a combination of maternity and milking goats. Goats have access to pasture.

At the (Cow Milking Facility) Outfall 002 manure solids bedding are scraped from maternity, heifer, and calf barns to a concrete pit where it is stored until land application occurs or composted. All production barns use sand as bedding that can be cleaned and recycled as bedding. Outfall 003 manure solids and sand are vacuumed into trucks from production barns and delivered to a Sand Solid Separator Building where the sand is first separated from the manure, cleaned and reused as bedding in the production barns. The manure solids are separated from the liquid and dewatered with screw presses. The manure solids are then directly land applied to cropland or composted and then land applied to cropland for its fertilizer nutrient value. The excess liquid from the Sand Solid Separator Building is pumped via a PVC pipe forcemain to an anaerobic earthen storage Lagoon 003N for storage. When needed liquid is directly land applied or transferred via a PVC underground forcemains to Lagoon 001 and Washburn Lagoon 010 as for irrigation through center pivots during the growing season. At the (Goat Milking Facility) Outfall 009 receives liquid from the milking parlor only. Loafing barns have a dry bedding pack where solids are removed as needed and directly land applied to farm fields or composted and then land applied to cropland for its fertilizer nutrient value. Outfall 001 goats are housed in loafing barns having a dry bedding pack where solids are removed as needed and directly land applied to farm fields or composted and then land applied to cropland for its fertilizer nutrient value. Animal mortalities are covered daily with separator manure solids and are composted. Composted animal mortalities are screened to remove any bones that are then returned to be composted and finished compost is land applied for its fertilizer nutrient value. Whey production from the creamery not used for livestock feed is land applied will be placed into the earthen storage basin. Wastewater from the earthen storage basins and manure solids/compost will be land applied in accordance with the approved nutrient management plan.

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-0119962

Owner: Sharpe Holdings Inc. d/b/a Sharpe Land & Cattle Company
Address: 500 East Ninth, Kansas City, MO 64106

Controlling Authority: Same as above
Address: Same as above

Facility Name: Sharpe Land and Cattle Company
Facility Address: 12537 255th St, La Belle, MO 63447

Legal Description: See Pages 2-6
UTM Coordinates: See Pages 2-6

Receiving Stream: Troublesome Creek(C) Seebers Branch (U)
First Classified Stream and ID: Troublesome Creek(C)(00074) South Fabius River(P)(00071)
USGS Basin & Sub-watershed No.: (07110003-030001) (07110003-020002)

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

FACILITY DESCRIPTION

Outfalls #001 - #011 and #054 – Concentrated Animal Feeding Operation – SIC Codes #0241 and #0214 – Class 1A

No Discharge of Process Waste

Seven earthen storage basins/one single cell lagoon/one three-cell lagoon/one concrete storage pit/solids separation/liquids and solids are land applied/domestic wastewater systems/stormwater runoff/solids and dead animal composters.

Design flow (animals): 187,313,852 gallons per year. (0.513 mgd)

Design flow (domestic): 7,041,319 gallons per year. (0.019 mgd)

Design flow (total): 194,355,171 gallons per year. (0.532 mgd)

Design number of animals is 8,514 dairy cows and 1200 goats. (12,283 animal units)

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.

December 10, 2010

Expiration Date


K. A. Sinding, Acting Director, Department of Natural Resources

December 9, 2015

Expiration Date


John Madras, Director, Water Protection Program

FACILITY DESCRIPTION:

The farm consists of 3 animal complexes designated Outfalls 001, 002, 003 and 009. Outfall 001 (west complex) and Outfall 002 (east complex) may contain approximately 2,625 dry cows or equivalent combination of cows, heifers, or calves each. Outfall 003 (dairy milking parlor and free stall barns) may contain approximately 4,464 dairy cows. The number of animals at each complex may vary provided the total number of cows at the operation does not exceed 8,514 head. Lots are concrete surface. Solids will be scraped from the East complex and stored in a concrete pit located at the East complex to be land applied using a solids spreader or to be composted and used for fertilizer. A PVC pipe drains any precipitation collected in the concrete pit to the earthen storage basin on site. The residual manure from the complex will be washed to an earthen storage basin, via precipitation runoff. Wastes will be removed from the milking parlor using a freshwater flush system and from the free stall barns using recycled water and a solids separator. Remaining wastewater will be transported to an earthen storage basin via PVC pipe. Outfall 009 (Goat Milking Facility) contains 1200 dairy goats, a milk parlor, animal waste lagoon, domestic waste basin and animal loafing buildings. The goats also have access to pasture. The waste from the loafing buildings is kept dry with bedding and the waste is occasionally removed and hauled to the composting operation. Manure solids and dead animals may be composted. Whey production from the creamery and goat facilities that is to be land applied will be placed into the earthen storage basins. Wastewater from the earthen storage basins and lagoons will be land applied in accordance with the approved nutrient management plan.

Total Number of Acres Available for Land Application: 9680

Outfall #001 - West Complex

System Type: Earthen storage basin/solids composter

Legal Description: SW¼, NW¼, SE¼, Sec. 4, T60N, R9W, Lewis County

UTM Coordinates X=593713, Y=4431094

Receiving stream: Tributary to Troublesome Creek (C)

First classified stream and ID: Troublesome Creek (C) 00074

USGS Basin & Subwatershed No. 07110003-030001

Design Number of Animals: 2,625 dairy dry cows, or equivalent combination of cows, heifers and calves

Runoff Areas to Storage: 550,041 sq.ft. Concrete -- Concrete lots may be used for composting solids.

Design Flow: 27,840,375 gallons per year

Design Storage: 618 days

Storage volume: 47,199,300 gallons

Total Basin Depth: 16 feet below overflow level

Upper Operating Level: 1.5 feet below overflow level

Lower Operating Level: 14 feet below overflow level

Outfall #002 - East Complex

System Type: Earthen storage basin/feed storage area/composting areas for solids and dead animals.

Legal Description: NE¼, SW ¼, NW ¼, Sec. 2, T60N, R9W, Lewis County

UTM Coordinates X=596127, Y=4431796

Receiving stream: Tributary to Troublesome Creek (C)

First classified stream and ID: Troublesome Creek (C) 00074

USGS Basin & Subwatershed No. 07110003-030001

Design Number of Animals: 2,625 dry cows or equivalent combination of cows, heifers and calves.

Runoff Areas to Storage: 242,682 sq.ft. Concrete.

Design Flow: 23,564,400 gallons per year

Design Storage 293 days

Storage Volume: 18,962,770 gallons

Total Basin Depth: 15 feet below overflow level

Upper Operating Level: 1.5 feet below overflow level

Lower Operating Level: 13 feet below overflow level

✶

FACILITY DESCRIPTION: (continued)

Outfall #003 - Dairy Complex

System Type: Two earthen storage basins/one reserve storage basin/mechanical solids separation/secondary containment.

Legal Description: NE ¼, NE ¼, SE ¼, Sec. 3, T60N, R9W, Lewis County

UTM Coordinates X=595714, Y=4431427

Receiving stream: Tributary to Troublesome Creek (C)

First classified stream and ID: Troublesome Creek (C) 00074

USGS Basin & Subwatershed No. 07110003-030001

Design Number of Animals: 4,464

Animal Units: 6,377

Runoff Areas to Storage: 91,760 sq.ft. concrete, 78,000 sq. ft. soil

Design Flow (1 in 10 years): 130,389,000 gallons per year

Design Storage: 330 days total: includes two earthen storage basins

Biosolids Volume: 11,000 tons per year

North Basin:

Storage Volume: 43,362,000 gallons

Total Basin Depth: 14 feet below overflow level

Upper Operating Level: 1.0 feet below overflow level

Lower Operating Level: 12 feet below overflow level

South Basin:

Storage Volume: 73,829,000 gallons

Total Basin Depth: 18.5 feet below overflow level

Upper Operating Level: 1.0 feet below overflow level

Lower Operating Level: 16.5 feet below overflow level

Outfall #004 - Concrete Storage Pit -- Deleted, Flow is into outfall #002

Outfall #005 - Domestic Wastewater - SIC #4952

No-discharge domestic wastewater system consisting of a single cell earthen basin and irrigation serving a total of 34 employees, 5 visitors, and 36 residents.

Legal description is NW¼, SW¼, Sec. 2, T60N, R9W, Lewis County

UTM Coordinates X=596108, Y=4431488

Receiving stream: Tributary to Troublesome Creek (C)

First classified stream and ID: Troublesome Creek (C) 00074

USGS Basin & Subwatershed No. 07110003-030001

Design population equivalent is 47

Design Flow: 1,814,050 gallons per year including storm water flows

Storage capacity: 730,270 gallons

Design Storage: 120 days

Upper operating level: 1.0 feet below overflow elevation

Lower operating level: 7.0 feet below overflow elevation

Outfall #006 -- Fresh Water Lake Monitoring

This is a privately owned lake located on permittee property that is used as a water source for livestock. The sample location is within the lake at a lake surface location near the discharge structure.

Legal Description: NE ¼, SW ¼, SE ¼, Sec 4, T60N, R9W, Lewis County

UTM Coordinates X=594329, Y=4431008

Receiving stream: Unnamed Tributary to Troublesome Creek (C)

First classified stream and ID: Troublesome Creek (C) 00074

USGS Basin & Subwatershed No. 07110003-030001

Outfall #007 -- Deleted - Stream Monitoring

Outfall #008 -- Deleted - Stream Monitoring

FACILITY DESCRIPTION: (continued)

Outfall #009 – Goat Milking Complex – SIC #0214

System Type: Earthen basin for milking parlor waste/milking parlor using fresh water only

Legal Description: SW ¼, NW ¼, Sec. 16, T60N, R9W, Lewis County

UTM coordinates X= 592844, Y= 4428644

Receiving stream: Seebers Branch (U)

First classified stream and ID: South Fabius River (P) 0071

USGS Basin & Subwatershed No. 07110003-020002

Design Number of Animals: 1200 goats

Animal Units: 120

Storage Size: 633,000 gallons at overflow level

Design Flow: 620,077 gallons per year

Design Storage: 365+ days

Total Basin Depth: 11 feet below overflow level

Upper Operating Level: 1.0 feet below overflow level

Lower Operating Level: 9.0 feet below overflow level

Biosolids Volume: 2026 Tons per year

Outfall #010 – Washburn Lagoon

System Type: Earthen storage basin for additional wastewater storage

Legal Description: SE ¼, NE ¼, Sec. 1, T60N, R10W, Knox County

UTM Coordinates X=589185, Y=4431702

Receiving stream: Seebers Branch (U)

First classified stream and ID: South Fabius River (P) 0071

USGS Basin & Subwatershed No.: 07110003-020002

Storage Volume: 66,941,414 gallons

Design Flow: 4,900,000 gallons per year (stormwater only)

Total Basin Depth: 21 feet below overflow level

Upper Operating Level: 1.0 feet below overflow level

Lower Operating Level: 19.0 feet below overflow level

Outfall #011: Office/Cafeteria/Rehabilitation Complex: Three-cell lagoon/wastewater irrigation/sludge is retained in lagoon

Legal description is NE¼, SE¼, Sec. 4, T60N, R9W, Lewis County, located adjacent to West Basin site

UTM Coordinates X=593728, Y= 4431270

Receiving stream: Tributary to Troublesome Creek (C)

First classified stream and ID: Troublesome Creek (C) 00074

USGS Basin & Subwatershed No. 07110003-030001

Design population equivalent is 145

Storage Size: 1,560,474 gallons

Design Storage: 141 days

Design Flow: 5,159,640 gallons per year including storm water flows

Operating levels of cell 3 are:

Upper level of two (2) feet below overflow elevation

Lower level of five (5) feet below overflow elevation

Outfall#054 Domestic Waste Basin: SIC #4952

No-discharge domestic waste earthen basin for employees at the Goat Complex.

Legal Description: SW ¼, NW ¼, Sec. 16, T60N, R9W, Lewis County

UTM coordinates X=592826, Y=4428599

Receiving stream: Seebers Branch (U)

First classified stream and ID: Fabius River (P) 0071

USGS Basin & Subwatershed No. 07110003-020002

Storage Size: 57,147 gallons at overflow level

Design Flow: 67,629 gallons per year

Design Storage: 275 days

Total Basin Depth: 8.3 feet below overflow level

Upper Operating Level: 1.0 feet below overflow level

Lower Operating Level: 6.3 feet below overflow level

FACILITY DESCRIPTION: (continued)

Outfall #S1 -- Stream Monitoring Troublesome Creek at Highway D (Class C)

Legal Description: SW ¼, Sec 16, T61N, R9W, Lewis County

UTM Coordinates X=592624, Y=4437575

Receiving stream: Troublesome Creek (C)

First classified stream and ID: Troublesome Creek (C) 00074

USGS Basin & Subwatershed No. 07110003-030001

Outfall #S2 -- Stream Monitoring Troublesome Creek at Highway 156 (Class C)

Legal Description: SE ¼, Sec 13, T60N, R9W, Lewis County

UTM Coordinates X=598710, Y=4428157

Receiving stream: Troublesome Creek (C)

First classified stream and ID: Troublesome Creek (C) 00074

USGS Basin & Subwatershed No. 07110003-030001

SLC – Attachment B

3.1 - Storage Structures

3.2 - Animal Type & Numbers

SHARPE HOLDINGS INC., d/b/a SHARPE LAND & CATTLE COMPANY

**Missouri State Operating Permit
NPDES # MO - 0119962
NPDES Permit Renewal - Form W Part 3**

PART 3. DESIGN CAPACITY FOR MANURE STORAGE AND ANIMALS OF EACH CAFO FEATURE

3.1 STORAGE STRUCTURE TYPES, AMOUNT OF STORAGE, AND AMOUNT OF MANURE GENERATED PER YEAR								
List All Manure Storage Structures			Dry Manure Handling System		Wet Manure Handling System			
CAFO Feature	Storage Structure Type(s)	Storage Code	Design Dry Process Waste (tons/yr.)	Days of Storage	Total Storage Capacity (gal)	Design Wastewater per Year (gal/yr.)	Days of Storage	Design Flow MGD
001-W	Storage Lagoon	E			47,199,300	27,840,375	618	0.076
002-E	Storage Lagoon	E			18,962,770	23,564,400	293	0.065
003-N & 003-S	Storage Lagoon	E			117,191,000	130,389,000	330	0.857
009-Goat	Storage Lagoon	E			633,000	620,077	365+	0.002
010 Washburn	Storage Lagoon	E			66,941,414	4,900,000	NA	NA
Manure Pad	Concrete Pad	I	9,000	110				
SSS Bldg.	Roofed Storage	F	12,000	14				
Compost Pad	Concrete Compost Pad	I	0	100				
Mortality & Compost	Mortality & Compost Pad	I	3,000	180				
Goat Manure	Roofed Storage Shed	F	3,000	300+				

3.2 LIST EACH TYPE OF ANIMAL IN CONFINEMENT AND THE NUMBER OF EACH ANIMAL TYPE					
CAFO Feature	Animal Category(s)	Animal Code	Animal Group(s)	# of Animals	# of AU
003-N & 003-S	Milk Cow & Maternity (dairy)	3	Production Barns	4,500.00	6,428.57
003-N & 003-S	Breeding Heifer (dairy)	1	Maternity Barn	200.00	200.00
002-E	Milk Cow & Maternity (dairy)	3	Production Barns	900.00	1,285.71
002-E	Calf (dairy)	1	Calf Barns	1,800.00	1,800.00
009-Goat	Milk Goat & Maternity (dairy)	6	Goat Barns	5,500.00	550.00
001-W	Grower/Breeding Goat	6	Goat Cattle Office	1,200.00	120.00
	Totals			14,100.00	10,384.29

SLC – Attachment C

Acreage Additions to NPDES Permit

NOTE: All Farms owned by SHI

SHARPE HOLDINGS, INC. d/b/a SHARPE LAND & CATTLE COMPANY

Missouri State Operating Permit NPDES # MO - 0119962 NPDES Permit Renewal & Modification - Acreage Addition

Jun-15

Acreage In Current 2015 Permit

County	Township/Range	Section	Operation	Acreage	Delineated by Slope	
					0 to 10%	10 to 20%
Lewis	T60N - R9W	2	Sharpe Land & Cattle Company	9,680.0	9,420.7	259.3
Total Acreage				9,680.0	9,420.7	259.3

Acreage Being Dropped From Permit

County	Township/Range	Section	Farm	Acreage	Delineated by Slope	
					0 to 10%	10 to 20%
			None			
Total Acreage				0.0	0.0	0.0

Acreage Being Added To Permit

County	Township/Range	Section	Farm	Acreage	Delineated by Slope	
					0 to 10%	10 to 20% *
Shelby	T59N*R10W	12	Bud Moore	199.9	185.7	14.2
Lewis	T60N*R9W	7&8	Dawson	227.2	213.1	14.1
Knox/Shelby	T59N*R10W	34&35	Heartland Cemetary	73.4	71.3	2.1
Knox	T59N*R10W	36	Heartland Creamery East	304.6	300.9	3.7
Shelby	T59N*R10W	3	Heartland Garden	28.1	25.8	2.3
Knox/Shelby	T59N*R10W	35&36&2	Heartland North	308.2	286.9	21.3
Shelby	T59N*R10W	3	Heartland Open House	40.9	39.8	1.1
Shelby	T59N*R10W	2&3&11	Heartland South	356.0	356.0	0.0
Knox	T60N*R10W	3&4&9&10	Jay Dorn	271.2	271.2	0.0
Knox	T61N*R10W	33	Jay Dorn North	96.4	96.4	0.0
Knox	T61N*R10W	35	Taylor - East	183.7	169.7	14.0
Knox	T61N*R10W	3&34	Taylor - West	478.7	454.8	23.9
Knox	T61N*R10W	35	Terry Kincaid	64.8	56.2	8.6
Total Acreage				2,633.1	2,527.8	105.3

Total Acreage for Cow Dairy Class 1-A Permit	12,313.1	11,948.5	364.6
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* Acreage with slopes delineated 10 to 20% will receive manure solids only

SLC – Attachment D

Land Application Information

NOTE: All Farms owned by SHI

Nutrient Removal Tables

LAND APPLICATION INFORMATION TABLE (REQUIRED FOR NPDES PERMITS ONLY)

Operation Name: Sharpe Land & Cattle Company

Class Size: 1A

Permit #: MO-0119962

County: Lewis, Knox, Shelby

Field Name	Legal Description	Spreadable Acres*	P Loss Risk **	N or P Based Application***	Crop #1		Crop #2		Crop #3		Crop #4		Crop #5 ¹	
					Crop****	Yield Goal ¹	Crop****	Yield Goal ¹	Crop****	Yield Goal ¹	Crop****	Yield Goal ¹	Crop****	Yield Goal ¹
Airport Hill AH-1 T1-T3	Sec. 2 & 11 Twn. T60N Rng. R9W	75.3	7.2	P - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Airport Fields AF-2 T1-T4	Sec. 2 & 11 Twn. T60N Rng. R9W	159.6	2.1	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Allen Farm AF-3 T1-T4	Sec. 23 & 26 Twn. T60N Rng. R9W	401.6	3.5	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Bart Sharpe BS-4 T1	Sec. 2 & 11 Twn. T60N Rng. R9W	106.4	4.6	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Bob & Linda BL-5 T1-T2	Sec. 13,23,26 Twn. T60N Rng. R9W	101.7	3.5	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Bone Yard BY-6 T1-T2	Sec. 35 Twn. T61N Rng. R9W	16.1	1.7	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Brookins Hill BH-7 T1-T2	Sec. 27 Twn. T61N Rng. R9W	78.6	5.2	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Brookins Bottom BB-8 T1-T2	Sec. 27 Twn. T61N Rng. R9W	124.5	0.9	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Bud Moore BM-9 T1-T2	Sec. 12 Twn. T59N Rng. R10W	199.9	2.8	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Campbell C-10 T1-T3	Sec. 6 Twn. T60N Rng. R9W	205.3	2.4	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Concrete Hay CH-11 T1-T2	Sec. 10 & 11 Twn. T60N Rng. R9W	54.7	4.5	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Concrete Lake East CLE-12 T1-T2	Sec. 10 & 11 Twn. T60N Rng. R9W	96.0	1.4	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Concrete South CS-13 T1-T2	Sec. 10 & 15 Twn. T60N Rng. R9W	82.3	3.6	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Conservation C-14 T1	Sec. 3 Twn. T60N Rng. R10W	24.0	7.3	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Craigs 80 C80-15 T1	Sec. 32 Twn. T61N Rng. R9W	69.7	6.6	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Dare Hill DH-16 T1	Sec. 27 & 34 Twn. T61N Rng. R9W	115.8	3.4	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Dare Bottom DM-17 T1	Sec. 27 & 34 Twn. T61N Rng. R9W	47.1	1.9	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
David Michael DM-18 T1-T2	Sec. 3,4,9,10 Twn. T60N Rng. R9W	239.1	4.1	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Dawson D-19 T1-T4	Sec. 7 & 8 Twn. T60N Rng. R9W	227.2	2.8	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Dohman North DN-20 T1-T4	Sec. 16 & 21 Twn. T60N Rng. R9W	154.3	3.1	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Dohman South DS-21 T1-T3	Sec. 16 & 21 Twn. T60N Rng. R9W	97.9	2.6	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
East of Creek Bottom ECB-22 T1-T4	Sec. 2 Twn. T60N Rng. R9W	121.2	1.2	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
East of Creek Hills ECH-23 T1-T2	Sec. 35 Twn. T61N Rng. R9W	20.9	4.0	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
East of Silo ES-24 T1-T4	Sec. 2 Twn. T60N Rng. R9W	132.5	1.7	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5

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LAND APPLICATION INFORMATION TABLE (REQUIRED FOR NPDES PERMITS ONLY)

Operation Name: Sharpe Land & Cattle Company Class Size: 1A Permit #: MO-0119962 County: Lewis, Knox, Shelby

Field Name	Legal Description	Spreadable Acres*	P Loss Risk **	N or P Based Application***	Crop #1		Crop #2		Crop #3		Crop #4		Crop #5 ¹	
					Crop****	Yield Goal ¹	Crop****	Yield Goal ¹	Crop****	Yield Goal ¹	Crop****	Yield Goal ¹	Crop****	Yield Goal ¹
Featherland Brown FB-25 T1-T4	Sec. 31 & 36 Twn. T61N Rng. R9W	437.8	4.1	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Floyd Sharpe FS-26 T1	Sec. 3 Twn. T60N Rng. R9W	51.7	7.7	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Goat Dairy GD-27 T1-T6	Sec. 16 Twn. T60N Rng. R9W	125.6	1.1	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Gobblers G-28 T1	Sec. 1 Twn. T60N Rng. R10W	79.1	2.0	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Hadley H-29 T1-T4	Sec. 31 & 32 Twn. T61N Rng. R9W	256.8	2.7	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Halderman Hill HH-30 T1-T4	Sec. 28 Twn. T61N Rng. R9W	152.8	2.5	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Halderman Bottom HB-31 T1-T3	Sec. 22 Twn. T61N Rng. R9W	84.1	3.2	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Heartland Cemetary HC-32 T1-T2	Sec. 34 & 35 Twn. T59N Rng. R10W	73.4	2.7	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Heartland Creamery East HCE-33 T1-T2	Sec. 36 Twn. T59N Rng. R10W	304.6	1.5	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Heartland Garden HG-34 T1	Sec. 3 Twn. T59N Rng. R10W	28.1	1.1	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Heartland North HN-35 T1-T4	Sec. 35,36,2 Twn. T59N Rng. R10W	308.2	3.2	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Heartland Open House HOH-36 T1	Sec. 3 Twn. T59N Rng. R10W	40.9	2.2	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Heartland South HS-37 T1-T5	Sec. 2,3,11 Twn. T59N Rng. R10W	356.0	1.3	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Hwy U Patches HUP-38 T1-T3	Sec. 31 & 36 Twn. T61N Rng. R9W	92.6	3.0	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Jay Dorn JD-39 T1-T3	Sec. 3,4,9,10 Twn. T60N Rng. R10W	271.2	2.6	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Jay Dorn North JDN-40 T1	Sec. 33 Twn. T61N Rng. R10W	96.4	0.8	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Jennings J-41 T1-T5	Sec. 11 & 12 Twn. T60N Rng. R9W	271.1	2.8	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Jennings East JE-42 T1-T2	Sec. 12 Twn. T60N Rng. R9W	40.4	1.3	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Itchfield Webber LW-43 T1-T4	Sec. 2 & 11 Twn. T60N Rng. R9W	379.2	4.5	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Mesner M-44 T1-T2	Sec. 7 Twn. T60N Rng. R9W	63.4	4.7	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Meyers M-45 T1-T4	Sec. 10 & 24 Twn. T60N Rng. R9W	139.0	4.1	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Minear M-46 T1-T5	Sec. 4 & 33 Twn. T60N Rng. R9W	579.8	4.3	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Morley M-47 T1-T4	Sec. 23 & 26 Twn. T60N Rng. R9W	122.4	4.2	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Morley Hills MH-48 T1	Sec. 24 Twn. T60N Rng. R9W	75.6	1.6	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5

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Norval Gould NG-49 T1-T5	Sec. 3 & 34 Twn. T60N Rng. R9W	336.6	4.7	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Office West OW-50 T1-T5	Sec. 4 & 9 Twn. T60N Rng. R9W	327.0	3.8	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Office Recovery OR-51 T1-T2	Sec. 3 & 4 Twn. T60N Rng. R9W	47.3	2.6	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Paul Hirsch PH-52 T1-T3	Sec. 14 Twn. T60N Rng. R10W	161.9	3.6	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Ritter Bottom RB-53 T1-T2	Sec. 12 Twn. T60N Rng. R9W	45.5	3.7	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Scoggins S-54 T1-T4	Sec. 20 Twn. T60N Rng. R9W	129.2	1.7	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Stretch S-55 T1-T3	Sec. 12 Twn. T60N Rng. R9W	62.1	4.0	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Taylor East TE-56 T1-T3	Sec. 35 Twn. T61N Rng. R10W	183.7	3.7	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Taylor West TW-57 T1-T7	Sec. 3 & 34 Twn. T61N Rng. R10W	478.7	2.6	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Terry Kincaid TK-58 T1-T2	Sec. 35 Twn. T61N Rng. R10W	64.8	1.3	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Washburn Big Field WBF-59 T1-T8	Sec. 31, 6, 1 Twn. T61N Rng. R9W	882.7	3.7	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Washburn County Road East WCRE-60 T1-T2	Sec. 19 Twn. T61N Rng. R9W	64.3	2.0	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Washburn East of Shop WES-61 T1	Sec. 25 & 26 Twn. T61N Rng. R10W	229.9	2.4	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Washburn Mr Big WMB-62 T1-T4	Sec. 35 & 36 Twn. T61N Rng. R10W	378.5	2.7	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Washburn West of Shop WWS-63 T1-T4	Sec. 25 & 26 Twn. T61N Rng. R10W	609.6	2.3	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Wilson Tungate Hirsch East WTHE-64 T1-T5	Sec. 5 & 8 Twn. T60N Rng. R9W	411.5	4.1	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5
Wilson Tungate Hirsch West WTHW-65 T1-T3	Sec. 8 Twn. T60N Rng. R9W	116.0	1.0	N - Based	Corn	180	Corn Silage	24	Wheat	80	Alfalfa	6	Grass Hay	5

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Additional Soil Facts:

CROP			Yield			
GRAINS			Unit	N	P ₂ O ₅	K ₂ O
Barley	straw	tons		15.00	5.00	30.00
Corn	stover	tons		22.22	8.22	32.22
Oats	grain	bu		0.63	0.25	0.19
	straw	tons		12.50	7.50	40.00
Rye	straw	tons		10.00	5.33	16.67
Sorghum	stover	tons		21.67	6.67	31.67
Wheat	straw	tons		13.33	3.33	23.33
HAY				N	P ₂ O ₅	K ₂ O
Bluegrass		tons		30.00	14.50	30.00
Coastal Bermuda		tons		50.00	11.50	43.13
Cowpea		tons		60.00	12.50	40.00
Fescue		tons		38.57	18.57	52.86
Orchardgrass		tons		50.00	16.67	62.50
Red Clover		tons		40.00	10.00	40.00
Ryegrass		tons		43.00	17.00	48.00
Sorghum-Sudan		tons		39.88	15.25	58.38
Soybean		tons		45.00	10.00	25.00
Timothy		tons		24.00	10.00	38.00
FRUITS & VEGETABLES				N	P ₂ O ₅	K ₂ O
Apples		bu		0.06	0.02	0.09
Beans, dry		bu		2.50	0.83	0.83
Bell Peppers		cwt		0.55	0.21	0.87
Broccoli		cwt		0.58	0.16	0.44
Cabbage		tons		6.53	1.80	6.53
Cucumbers		tons		9.00	2.80	17.40
Eggplant		tons		12.94	2.88	2.13
Lettuce		tons		8.71	1.43	16.57
Melons (Cantaloupe)		cwt		0.15	0.03	0.33
(Honeydew)		cwt		0.11	0.04	0.36
(Watermelon)		tons		8.33	2.33	0.15
Okra		tons		22.38	8.13	17.38
Onions		tons		2.33	1.04	2.08
Peaches		bu		0.06	0.03	0.11
Peas		cwt		6.56	1.40	4.20
Potatoes (white)		lbs		0.00	0.00	0.01
(vine)		--		--	--	--
Potatoes (sweet)		bu		0.13	0.12	0.32
(vine)		--		--	--	--
Snap Beans		tons		34.50	8.25	40.75
Spinach		tons		10.00	2.00	6.00
Squash (summer)		tons		3.20	1.20	5.60
(winter)		tons		2.00	1.67	9.67
Sweet Corn		cwt		1.56	0.52	1.51
Tomatoes		tons		6.00	1.00	8.00
Turnips		tons		3.00	1.33	6.00
OTHER CROPS				N	P ₂ O ₅	K ₂ O
Cotton (seed & lint)		lbs		0.024	0.010	0.012
(stalks, leaves & burs)		lbs		0.019	0.005	0.024
Peanuts (nuts)		lbs		0.035	0.006	0.009
(vines)		lbs		0.020	0.003	0.030
Soybeans (beans)		bu		3.76	0.84	1.48
(leaves, stems & pods)		lbs		0.015	0.003	0.012

SLC NUTRIENT REMOVAL TABLE

Crop	Yield Unit	Required for Growth			SLC Nutrient Requirements*			Removed from Field		
		N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O
Corn, grain	bu	1.34-1.96	0.70	1.48	1.20	0.45	0.28	0.90	0.45	0.30
Soybeans, grain	bu	4.84-6.32	1.43	2.79	3.60	0.84	1.30	3.25-4.84	1.04	2.14
Wheat, grain	bu	1.62-2.05	0.95	1.70	1.26	0.60	0.38	1.25-1.26	0.84	0.37
Barley, grain	bu	1.17-1.32	0.52	1.23	1.20	0.52	1.23	.87-1.18	0.36	0.34
Rye, grain	bu	1.48-1.66	0.59	1.16	1.48	0.59	1.16	1.16-1.48	0.34	0.34
Sorghum, grain	bu	1.38-2.01	0.79	1.85	1.38	0.79	1.85	.78-.93	0.45	0.52
Corn, silage	ton	7.19-9.00	4.00	9.20	9.00	3.60	7.50	7.19-9.00	3.97	9.20
Sorghum, silage	ton	8.64-13.0	4.56	10.00	13.00	4.56	10.00	8.64-13.0	4.56	10.00
Alfalfa, hay	ton	45.0-50.6	9.92	52.51	45.00	10.00	48.00	45.0-50.6	9.92	52.51
Cool season grass, hay	ton	32.6-40.0	15.37	57.20	45.00	16.00	50.00	32.6-40.0	15.37	57.20
Warm season grass, hay	ton	21.2-24.0	10.44	37.80	32.00	10.44	37.80	21.2-24.0	10.44	37.80
Sudan, hay	ton	39.9-40.0	15.16	58.40	40.00	15.16	58.40	39.9-40.0	15.16	58.40
Cool season pasture	cd	0.60	0.14	0.52	0.60	0.14	0.52	0.60	0.05	0.17
Warm season pasture	cd	0.36	0.02	0.34	0.36	0.02	0.34	0.36	0.02	0.17
Sudan pasture	cd	0.60	0.09	0.29	0.60	0.09	0.29	0.60	0.02	0.09

*SLC nutrient requirement for growth based on factors to raise a crop to meet targeted yield goals.

Data Sources:

- MWPS-18 *Livestock Waste Facilities Handbook*, 2nd ed. 1997, Midwest Plan Service, Iowa State University, Ames.
- *Agricultural Waste Management Field Handbook*, Natural Resources Conservation Service, U.S. Dept. of Agriculture
- *Soil Test Interpretations and Recommendations Handbook*, rev. 12/92. Department of Agronomy, U. of Missouri
- P to P205 (2.27 factor); K to K20 (1.12 factor)
- Nitrogen Recommendations for Corn - *Tri-County Fertilizer Recommendations Extension Bulletin E-2569*
Web Site: <http://ohioonline.osu.edu/e2567/Index.html>

NOTE: Additional Soil Facts are on the following page.