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-0118753
Owner:	Murphy-Brown of Missouri LLC d/b/a Smithfield Hog Production
Address:	17999 U.S. Highway 65, Princeton MO 64673
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Smithfield Hog Production, Hedgewood
Address:	24730 Fleetwood Street, Princeton MO 64673
Legal Description:	See pages 2 & 3
Latitude/Longitude:	See pages 2 & 3
Receiving Stream:	See pages 2 & 3
First Classified Stream and ID:	See pages 2 & 3
USGS Basin & Sub-watershed No:	See pages 2 & 3

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

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

FACILITY DESCRIPTION

Permitted Features #001 - #006 – Animal Waste - SIC #0213
No-discharge of process waste. Five anaerobic lagoons and secondary containment structures, wastewater is land applied. Domestic wastewater earthen basin with land application.
Design flow is 26,679,000 gallons per year (0.073 mgd)
Design capacity is 17,664 animal units of swine over 55 pounds.

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.

June 1, 2019
Effective Date

Edward B. Galbraith, Director, Division of Environmental Quality

September 30, 2023
Expiration Date

Chris Wieberg, Director, Water Protection Program

This swine finishing facility consists of five complexes. Each complex consists of eight shallow pit confinement buildings, anaerobic lagoon, and secondary containment. Sites #5 and #6 manure is scraped to the anaerobic lagoon, sites #1, #7, and #8 manure is flushed to the anaerobic lagoon using recycled lagoon water. Mortalities are rendered. Domestic waste is stored in a separate lagoon.

Permitted Feature #001 - Site #1 – Eight confinement buildings with anaerobic lagoon and secondary containment structure.
Legal Description: SE ¼, SW ¼, Sec. 28, T65N, R23W, Mercer County
UTM Coordinates: X = 458308, Y = 4472212
Receiving stream: Tributary to West Honey Creek
First Classified Stream and ID: 8-20-13 MUDD V1.0 (C) (3960)
USGS Basin & Sub-watershed No: (10280102-1201)
Design Waste Volume: 5,289,666 gallons
Design Storage: 365 days.
Upper Operating Level: one foot below overflow level.
Lower Operating Level: 4.8 feet below overflow level.

Permitted Feature #002 - Site #5 - Eight confinement buildings with anaerobic lagoon.
Legal Description: SE ¼, NE ¼, Sec. 33, T65N, R23W, Mercer County
UTM Coordinates: X = 458874, Y = 4471457
Receiving stream: Tributary to West Honey Creek
First Classified Stream and ID: 8-20-13 MUDD V1.0 (C) (3960)
USGS Basin & Sub-watershed No: (10280102-1201)
Design Waste Volume: 5,270,666 gallons
Design Storage: 365 days.
Upper Operating Level: one foot below overflow level.
Lower Operating Level: 5.0 feet below overflow level.

Permitted Feature #003 - Site #6 - Eight confinement buildings with anaerobic lagoon.
Legal Description: SE ¼, SE ¼, Sec. 28, T65N, R23W, Mercer County
UTM Coordinates: X = 459112, Y = 4472269
Receiving stream: Tributary to West Honey Creek
First Classified Stream and ID: 8-20-13 MUDD V1.0 (C) (3960)
USGS Basin & Sub-watershed No: (10280102-1201)
Design Waste Volume: 5,270,666 gallons
Design Storage: 365 days.
Upper Operating Level: one foot below overflow level.
Lower Operating Level: 4.8 feet below overflow level.

Permitted Feature #004 - Site #7 - Eight confinement buildings with anaerobic lagoon and secondary containment structure.
Legal Description: SW ¼, NW ¼, Sec. 34, T65N, R23W, Mercer County
UTM Coordinates: X = 459503, Y = 4471373
Receiving stream: Tributary to West Honey Creek
First Classified Stream and ID: West Honey Creek (C) (0556)
USGS Basin & Sub-watershed No: (10280102-1201)
Design Waste Volume: 5,577,666 gallons
Design Storage: 365 days.
Upper Operating Level: one foot below overflow level.
Lower Operating Level: 4.8 feet below overflow level.

Permitted Feature #005 - Site #8 - Eight confinement buildings with anaerobic lagoon and secondary containment structure.
Legal Description: S ½, NW ¼, SE ¼, Sec. 28, T65N, R23W, Mercer County
UTM Coordinates: X = 458719, Y = 4472468
Receiving stream: Tributary to West Honey Creek
First Classified Stream and ID: 8-20-13 MUDD V1.0 (C) (3960)
USGS Basin & Sub-watershed No: (10280102-1201)
Design Waste Volume: 5,270,666 gallons
Design Storage: 365 days.
Upper Operating Level: one foot below overflow level.
Lower Operating Level: 5.0 feet below overflow level.

Permitted Feature #006 - Domestic Wastewater - SIC Code # 4952
No-discharge domestic wastewater lagoon serving employee restrooms and showers. Wastewater is land applied.

Front gate legal description: NW ¼, NE ¼, Sec. 33, T65N, R23W, Mercer County.
UTM Coordinates: X = 458774, Y = 4471750
Receiving stream: Tributary to West Fork Honey Creek
First Classified Stream and ID: 8-20-13 MUDD V1.0 (C) (3960)
USGS Basin & Sub-watershed No: (10280102-1201)

Permitted Feature #008 - Fresh Water Lake - Removed from permit.

Permitted Feature #009 - Stream Monitoring - Removed from permit.

Permitted Feature #010 - Stream Monitoring - Removed from permit.

Permitted Feature #011 - Stream Monitoring - Removed from permit.

Permitted Feature #012 - Storm Water Monitoring - Removed from permit.

Permitted Feature #026 - Removed from permit, proposed anaerobic digester not constructed.

Permitted Feature #S1 - Stream Monitoring Stream Monitoring - Removed from permit.

Permitted Feature #S2 - Stream Monitoring Stream Monitoring - Removed from permit.

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 and Unauthorized Discharges.
   a. Monitoring. Any emergency or unauthorized discharge shall be monitored for the parameters in the table below at least once during the discharge event. Additional monitoring may be required by the Department on a case-by-case basis. The facility shall submit test results, along with the number of days the storage basin(s) has discharged during the month, to the Northeast Regional Office by the 28th day of the month after the discharge ceases. 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

   b. Emergency Discharges. An emergency discharge from wastewater storage structures may only occur if rainfall exceeds the 10-year 365-day rainfall event (chronic) or the 25-year 24-hour rainfall event (catastrophic). The facility shall make all reasonable attempts to return the water level in the lagoon to below the maximum operating level. Design Storm Maps and Tables can be found at http://ag3.agebb.missouri.edu/design_storm/.
   c. Unauthorized Discharges. Discharge for any other reason than what is stated in 1(b) of this Special Condition shall constitute a permit violation and shall be reported in accordance with Standard Conditions Part 1 Section B.2. Unauthorized discharges are to be reported to the Northeast Regional Office during normal business hours or the Environmental Emergency Response spill-line at 573-634-2436 outside of normal business 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.

B. GENERAL CONDITIONS (continued)

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. Reopener Clause

The full implementation of this operating permit, which includes implementation of any applicable schedules of compliance, shall constitute compliance with all applicable federal and state statutes and regulations in accordance with §644.051.16, RSMo, and the CWA section 402(k); however, this permit may be reopened and modified, or alternatively revoked and reissued to 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 contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or controls any pollutant not limited in the permit.

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 should 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 include those described in the Department's current guidance (PUB2422) entitled "Wet Weather Management Practices for CAFOs." Other measures may be used with prior approval by the Department. 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:

C. SPECIAL CONDITIONS (continued)

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. 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.

C. SPECIAL CONDITIONS (continued)

d. Land application may occur during nighttime hours provided staff is present to monitor the irrigation system during irrigation periods. If an automated system is in place to send notification in the event of equipment malfunctions staff is not required to be present. The irrigation system shall be inspected once per night for equipment malfunctions and runoff even if an

4. Nutrient Management Plan
   a. In accordance with 10 CSR 20-6.300(3)(G) and the *Missouri Concentrated Animal Feeding Operation Nutrient Management Technical Standard* (NMTS), 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, at a minimum, 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.

5. 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.

6. 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. In the event of significant numbers of unexpected mortalities (i.e. mass mortalities), operations shall first receive approval of proposed burial sites from the departments' Missouri Geological Survey prior to burial. Approval of burial sites can be obtained prior to a mass mortality event by contacting the Missouri Geological Survey. Rendering, composting, incineration, or landfilling, are acceptable options and do not require prior approval from the department.

C. SPECIAL CONDITIONS (continued)

7. 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 ensure that applied wastewater does not run off the fields where applied.

(2) Monitor for drifting from spray irrigation. If drift from spray irrigation of wastewater is observed crossing property boundaries, the irrigation equipment shall be moved or the irrigation stopped until conditions are more favorable.

(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.

8. 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 = flow width in feet x flow depth in feet x 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.

C. SPECIAL CONDITIONS (continued)

9. 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 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.
   h. 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.

10. 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. Secondary containments, that are left in place whether required or not, are subject to the requirements of this section.

C. SPECIAL CONDITIONS (continued)

11. 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.

12. 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.

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

14. 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.

15. 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).

16. 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.

C. SPECIAL CONDITIONS (continued)

17. 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 [2]	N or P Based Application	Crop #1		Crop #2		Crop #3		Crop #4		Crop #5[1]	
					Crop	Yield Goal[3]	Crop	Yield Goal[3]	Crop	Yield Goal[3]	Crop	Yield Goal[3]	Crop	Yield Goal[3]
001	Sec. 29 Twn. 65N Rng. 23W	28.25	L	N	Soybeans	50 bu	Corn	150 bu	Wheat	66 bu	Grass mix	4T	Legume mix	4T
003	Sec. 28 Twn. 65N Rng. 23W	20.07	L	N	Soybeans	50 bu	Corn	150 bu	Wheat	66 bu	Grass mix	4T	Legume mix	4T
005	Sec. 28 Twn. 65N Rng. 23W	45.39	L	N	Soybeans	50 bu	Corn	150 bu	Wheat	66 bu	Grass mix	4T	Legume mix	4T
006	Sec. 28 Twn. 65N Rng. 23W	63.84	L	N	Soybeans	50 bu	Corn	150 bu	Wheat	66 bu	Grass mix	4T	Legume mix	4T
007	Sec. 27 & 28 Twn. 65N Rng. 23W	37.33	L	N	Soybeans	50 bu	Corn	150 bu	Wheat	66 bu	Grass mix	4T	Legume mix	4T
009	Sec. 34 Twn. 65N Rng. 23W	22.51	VL	N	Soybeans	50 bu	Corn	150 bu	Wheat	66 bu	Grass mix	4T	Legume mix	4T
010	Sec. 34 Twn. 65N Rng. 23W	22.07	VL	N	Soybeans	50 bu	Corn	150 bu	Wheat	66 bu	Grass mix	4T	Legume mix	4T
011	Sec. 33 Twn. 65N Rng. 23W	90.45	VL	N	Soybeans	50 bu	Corn	150 bu	Wheat	66 bu	Grass mix	4T	Legume mix	4T
012	Sec. 33 Twn. 65N Rng. 23W	17.82	VL	N	Soybeans	50 bu	Corn	150 bu	Wheat	66 bu	Grass mix	4T	Legume mix	4T
013	Sec. 33 Twn. 65N Rng. 23W	20.64	L	N	Soybeans	50 bu	Corn	150 bu	Wheat	66 bu	Grass mix	4T	Legume mix	4T
014	Sec. 33 Twn. 65N Rng. 23W	68.86	L	N	Soybeans	50 bu	Corn	150 bu	Wheat	66 bu	Grass mix	4T	Legume mix	4T
015	Sec. 33 Twn. 65N Rng. 23W	20.88	L	N	Soybeans	50 bu	Corn	150 bu	Wheat	66 bu	Grass mix	4T	Legume mix	4T
018	Sec. 33 Twn. 65N Rng. 23W	18.88	L	N	Soybeans	50 bu	Corn	150 bu	Wheat	66 bu	Grass mix	4T	Legume mix	4T
019	Sec. 33 Twn. 65N Rng. 23W	28.8	L	N	Soybeans	50 bu	Corn	150 bu	Wheat	66 bu	Grass mix	4T	Legume mix	4T
020	Sec. 33 & 4 Twn. 65N & 64N Rng. 23W	63.47	L	N	Soybeans	50 bu	Corn	150 bu	Wheat	66 bu	Grass mix	4T	Legume mix	4T
025	Sec. 27 & 28 Twn. 65N Rng. 23W	56.41	VL	N	Soybeans	50 bu	Corn	150 bu	Wheat	66 bu	Grass mix	4T	Legume mix	4T

1 If more than five planned or alternative crops per field continue on next line.
2 Soil Test P Rating or P Index Rating may be used.
3 Express yield in Bu=Bushels or T=Tons per acre.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
FACT SHEET
FOR THE PURPOSE OF RENEWAL
OF
MO-0118753
HEDGEWOOD FINISHING FARM

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" Chapter 644 as amended). MSOPs are issued for a period of five (5) years unless otherwise specified.

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

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

This Factsheet is for Industrial Land Application

Part I – Facility Information

Facility Type: No-discharge Concentrated Animal Feeding Operation/land application– SIC #0213

Facility Description:
This swine finishing facility consists of five complexes. Each complex consists of eight shallow pit confinement buildings, anaerobic lagoon, and secondary containment. Sites #5 and #6 manure is scraped to the anaerobic lagoon, sites #1, #7, and #8 manure is flushed to the anaerobic lagoon using recycled lagoon water. Mortalities are rendered. Domestic waste is stored in a separate lagoon.

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

Application Date: 03/29/18
Expiration Date: 09/30/18

PERMITTED FEATURE(S) TABLE:

PERMITTED FEATURE	TREATMENT LEVEL	EFFLUENT TYPE
#ALL	Land Application	Animal wastewater

Facility Performance History:
This facility was last inspected on May 4, 2018 and was found to be in compliance.

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: Richard S. Byers
Certification Number: 11214
Certification Level: CAFO 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 West Honey Creek	N/A		General Criteria		10280102-1201
West Honey Creek	C	0566	AQL, IRR, LWW, SCR, HHP, WBCB	0.84	
8-20-13 MUDD V1.0	C	3960	AQL, IRR, LWW, SCR, HHP, WBCB	0.01-0.66	

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.

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

Total Maximum Daily Load (TMDL):
A TMDL is a calculation of the maximum amount of a given pollutant that a body of water can absorb before its water quality is affected; hence, the purpose of a TMDL is to determine the pollutant loading a specific waterbody can assimilate without exceeding water quality standards. If a water body is determined to be impaired as listed on the 303(d) list, then a watershed management plan will be developed that shall include the TMDL calculation.

- ✓ Applicable. West Honey Creek is associated with the 2006 EPA Approved Honey Creek 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 West Honey 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.

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

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

- ✓ 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.

- ✓ Not applicable; sludge is not land applied at this facility.

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

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

NUTRIENT MANAGEMENT AND LAND APPLICATION
The agronomic rate is the amount of wastewater 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 SOCs, and attain a greater level of consistency, on October 25, 2012 the department issued a policy on development of SOCs. 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

GENERAL CRITERIA CONSIDERATIONS:
In accordance with 40 CFR 122.44(d)(1), effluent limitations shall be placed into permits for pollutants which have been determined to cause, have the reasonable potential to cause, or to contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. The rule further states pollutants which have been determined to cause, have the reasonable potential to cause, or contribute to an excursion above a narrative criterion within an applicable State water quality standard, the permit shall contain a numeric effluent limitation to protect that narrative criterion. The previous permit included the narrative criteria as specific prohibitions placed upon the discharge. These prohibitions were included in the permit absent any discussion of the discharge's reasonable potential to cause or contribute to an excursion of the criterion. In order to comply with this regulation, the permit writer has completed a reasonable potential determination on whether the discharge has reasonable potential to cause, or contribute to an excursion of the general criteria listed in 10 CSR 20-7.031(4). These specific requirements are listed below followed by derivation and discussion (the lettering matches that of the rule itself, under 10 CSR 20-7.031(4)). In instances where reasonable potential exists, the permit includes numeric limitations to address the reasonable potential. In instances where reasonable potential does not exist the permit includes monitoring of the discharges potential to impact the receiving stream's narrative criteria. Finally, all

of the previous permit narrative criteria prohibitions have been removed from the permit given they are addressed by numeric limits where reasonable potential exists. It should also be noted that Section 644.076.1, RSMo as well as Section D – Administrative Requirements of Standard Conditions Part I of this permit state that it shall be unlawful for any person to cause or permit any discharge of water contaminants from any water contaminant or point source located in Missouri that is 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.

(A) 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.
- For all outfalls, there is no RP for putrescent bottom deposits preventing full maintenance of beneficial uses because the permit does not allow manure, litter, or process wastewater to be discharged from the facility.

(B) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses.
- For all outfalls, there is no RP for putrescent bottom deposits preventing full maintenance of beneficial uses because the permit does not allow manure, litter, or process wastewater to be discharged from the facility.

(C) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses.
- For all outfalls, there is no RP for putrescent bottom deposits preventing full maintenance of beneficial uses because the permit does not allow manure, litter, or process wastewater to be discharged from the facility.+

(D) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life.
- For all outfalls, there is no RP for putrescent bottom deposits preventing full maintenance of beneficial uses because the permit does not allow manure, litter, or process wastewater to be discharged from the facility.

(E) There shall be no significant human health hazard from incidental contact with the water.
- For all outfalls, there is no RP for putrescent bottom deposits preventing full maintenance of beneficial uses because the permit does not allow manure, litter, or process wastewater to be discharged from the facility.

(F) There shall be no acute toxicity to livestock or wildlife watering.
- For all outfalls, there is no RP for putrescent bottom deposits preventing full maintenance of beneficial uses because the permit does not allow manure, litter, or process wastewater to be discharged from the facility.

(G) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community.
- For all outfalls, there is no RP for putrescent bottom deposits preventing full maintenance of beneficial uses because the permit does not allow manure, litter, or process wastewater to be discharged from the facility.

(H) 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.
- There are no solid waste disposal activities or any operation that has reasonable potential to cause or contribute to the materials listed above being discharged through any outfall.

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	*
Dissolved Oxygen	mg/L	*			NO	*
Duration	hours	*			NO	*
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 28th 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.

- ✓ This permit will maintain synchronization by expiring the end of the third quarter, 2023.

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 is tentatively scheduled to begin in November 2018 or is in process.

  The Public Notice period for this operating permit was from October 26, 2018 to November 26, 2018. No were responses received.

DATE OF FACT SHEET: APRIL 8, 2019

COMPLETED BY:

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

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

Part I – General Conditions
Section A – Sampling, Monitoring, and Recording

1. **Sampling Requirements.**
   a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
   b. All samples shall be taken at the outfall(s) or Missouri Department of Natural Resources (Department) approved sampling location(s), and unless specified, before the effluent joins or is diluted by any other body of water or substance.

2. **Monitoring Requirements**.
   a. Records of monitoring information shall include:
      i. The date, exact place, and time of sampling or measurements;
      ii. The individual(s) who performed the sampling or measurements;
      iii. The date(s) analyses were performed;
      iv. The individual(s) who performed the analyses;
      v. The analytical techniques or methods used; and
      vi. The results of such analyses.
   b. If the permittee monitors any pollutant more frequently than required by the permit at the location specified in the permit using test procedures approved under 40 CFR Part 136, or another method required for an industry-specific waste stream under 40 CFR subchapters N or O, the results of such monitoring shall be included in the calculation and reported to the Department with the discharge monitoring report data (DMR) submitted to the Department pursuant to Section B, paragraph 7.

3. **Sample and Monitoring Calculations.** Calculations for all sample and monitoring results which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in the permit.

4. **Test Procedures**. The analytical and sampling methods used shall conform to the reference methods listed in 10 CSR 20-7.015 unless alternates are approved by the Department. The facility shall use sufficiently sensitive analytical methods for detecting, identifying, and measuring the concentrations of pollutants. The facility shall ensure that the selected methods are able to quantify the presence of pollutants in a given discharge at concentrations that are low enough to determine compliance with Water Quality Standards in 10 CSR 20-7.031 or effluent limitations unless provisions in the permit allow for other alternatives. A method is "sufficiently sensitive" when; 1) the method minimum level is at or below the level of the applicable water quality criterion for the pollutant or, 2) the method minimum level is above the applicable water quality criterion, but the amount of pollutant in a facility's discharge is high enough that the method detects and quantifies the level of pollutant in the discharge, or 3) the method has the lowest minimum level of the analytical methods approved under 10 CSR 20-7.015. These methods are also required for parameters that are listed as monitoring only, as the data collected may be used to determine if limitations need to be established. A permittee is responsible for working with their contractors to ensure that the analysis performed is sufficiently sensitive.

5. **Record Retention.** Except for records of monitoring information required by the permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five (5) years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

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

Section B – Reporting Requirements

1. **Planned Changes.**
   a. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility when:
      i. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
      ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42;
      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.

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.

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.
   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 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

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 permittees 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.

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.

29652

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

FORM W - CONCENTRATED ANIMAL FEEDING OPERATION (CAFO) OPERATING PERMIT APPLICATION

RECEIVED
MAR 29 2018
Water Protection Program

FOR OFFICE USE ONLY	
CHECK NUMBER:	
DATE RECEIVED: 3-29-18	FEE SUBMITTED: -0- JS.

Complete all applicable sections for type of permit being applied for. 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 Smithfield Hog Production, Hedgewood	CURRENT PERMIT NUMBER MO-0118753	COUNTY Mercer
PHYSICAL ADDRESS 24730 Fleetwood St.	LEGAL DESCRIPTION Sec.: 28 Twn.: 65N Rng.: 23W	TELEPHONE NUMBER WITH AREA CODE (660) 748-4647
CITY Princeton	STATE Missouri	ZIP CODE 64673
1.2 OWNER (PROVIDE LEGAL NAME) Murphy-Brown of Missouri LLC d/b/a Smithfield Hog Production	EMAIL ADDRESS	
MAILING ADDRESS 17999 US Highway 65		TELEPHONE NUMBER WITH AREA CODE (660) 748-4647
CITY Princeton	STATE Missouri	ZIP CODE 64673
1.3 CONTINUING AUTHORITY (IF DIFFERENT THAN THE OWNER)		
MAILING ADDRESS		TELEPHONE NUMBER WITH AREA CODE
CITY	STATE	ZIP CODE

PART 2 – PERMIT TYPE AND PERMIT ACTION

2.1 PERMIT TYPE

☒ **NPDES Site Specific Permit**
Request review of draft permit prior to public notice. ☒ **Yes** ☐ No

NPDES General Permit (MOG01)

☐ State No-Discharge General Permit (MOGS1)

2.2 PERMIT ACTION*

☐ New Permit ☒ **Renewal**
☐ Modification ☐ Ownership Transfer

PREVIOUS OWNERS NAME

ADRESS

CITY STATE ZIP CODE

SIGNATURE DATE

***See instructions for additional requirements and documents for the request permit action.**

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	E			5,294,409	5,289,666	365	0.0145
002	E			5,232,994	5,270,666	365	0.0145
003	E			5,232,994	5,270,666	365	0.0145
004	E			5,294,409	5,577,666	365	0.0153
005	E			5,232,994	5,270,666	365	0.0145

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	5	8,832				
002	5	8,832				
003	5	8,832				
004	5	8,832				
005	5	8,832				

PART 4 – OPERATIONAL INFORMATION

4.1 OPERATIONAL INFORMATION (SEE INSTRUCTIONS)
SIC Code(s) **0213** CAFO Class Size **IA**

4.2 Is this an "Export Only" operation? ☒ **No**

PART 5 – MANURE STORAGE

5.1 Do all manure storage structures have adequate storage, and operated and maintained as no discharge? [X] Yes

PART 6 – ANIMAL MORTALITY

6.1 PEMANENT METHOD OF DISPOSING OF ROUTINE ANIMAL MORTALITIES.

[X] **Rendering**

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.

Mortalities are collected and removed from buildings on a daily basis. The carcasses are removed from each farm daily and hauled to the rendering plant. The carcasses are kept from public view. The planned method of catastrophic disposal is by rendering. In the event the nearby rendering plant would be incapable due to breakdown or excess loading another rendering plant would be used.

PART 7 – DIVERSION OF CLEAN WATER

7.1 Is clean storm water diverted from the production area? [X] Yes

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

THE PRODUCTION AREAS HAVE CONTAINMENT OR EARTHEN DAMS INSTALLED AND MAINITAINED DOWN GRADIENT OF ALL CONFINEMENT BUILDINGS AND SEWER LINES, GRAVITY OUT FALL LINES, RECYCLE PUMP STATIONS AND RECYCLE FORCE MAINS TO COLLECT AND RETAIN WASTEWATER DISCHARGES FROM SPILLS OR PIPELINE BREAKS. LAGOON BERMS ENSURE THAT CLEAN WATER IS DIVERTED FROM THE PRODUCTION AREA.

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? [X] No

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

THE HEDGEWOOD UNIT IS A CONFINED ANIMAL FEEDING OPERATION AND THE ANIMALS AT THIS FACILITY ARE CONFINED INSIDE THE BARNS.

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.
- [X] 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

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

Lagoons are sampled in accordance with our SOP located in our Nutrient Management Plan.

PART 11 – RECORD KEEPING

11.1 Are records of all inspections, manure transfers, discharges and land application maintained? [X] Yes

PART 12 – SIGNATURE

NAME	TITLE
Michael Rainwater	General Manager
SIGNATURE	DATE 3/26/18

Part 13 - Engineer Certification

House Bill (HB) 28, which became effective on August 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 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 PROJECT ENGINEER SIGNATURE	ENGINEER SEAL

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

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
006	D				DOMESTIC		

LAND APPLICATION INFORMATION TABLE (REQUIRED FOR NPDES PERMTS ONLY)

Operation Name: Smithfield Hog Production, Hedgewood Farm Class Size: IA Permit #: MO-0118753 County: Mercer

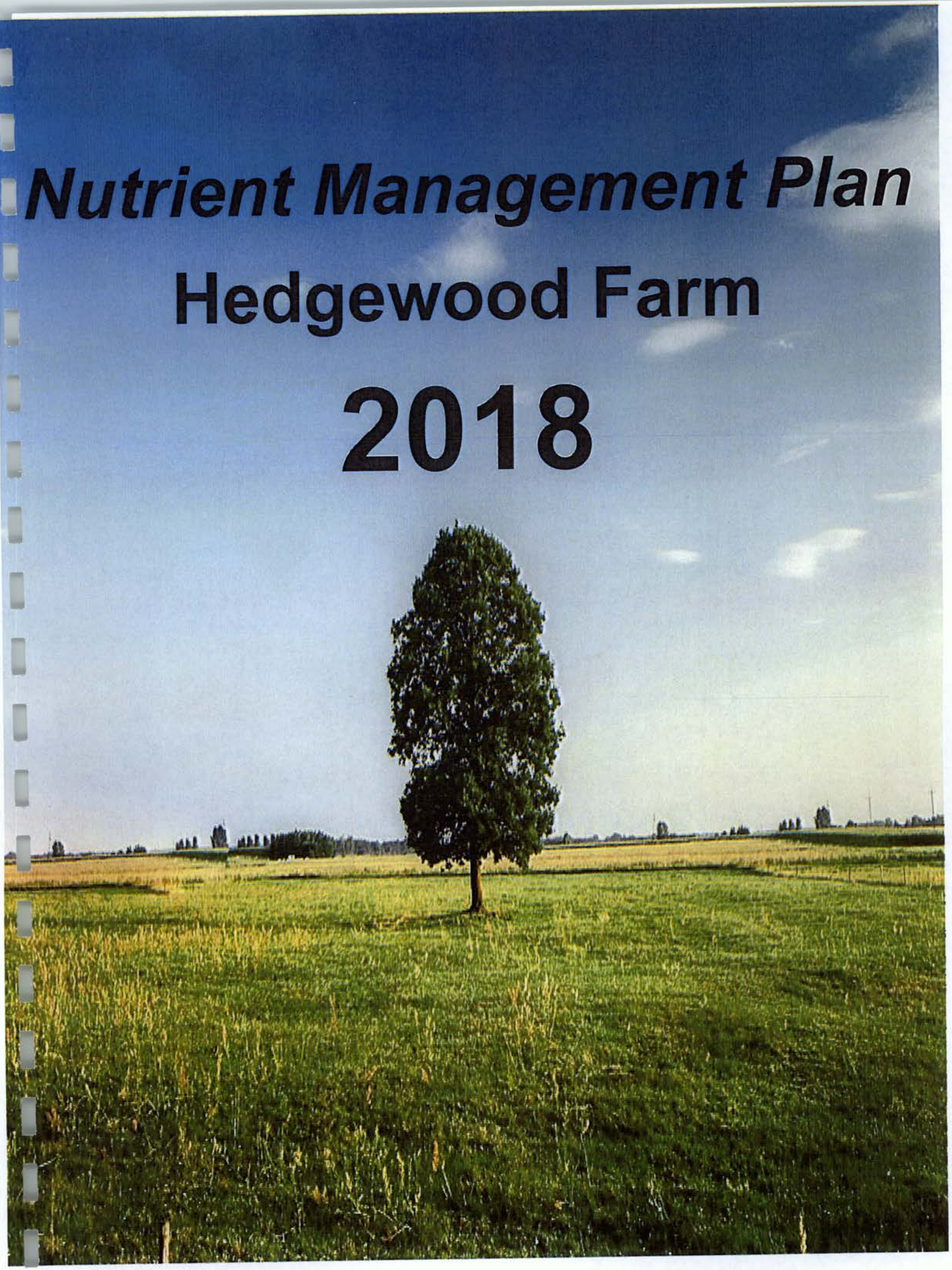
Field Name	Legal Description	Spreadable Acres	P Loss Risk [2]	N or P Based Application	Crop #1		Crop #2		Crop #3		Crop #4		Crop #5[1]	
					Crop	Yield Goal[3]	Crop	Yield Goal[3]	Crop	Yield Goal[3]	Crop	Yield Goal[3]	Crop	Yield Goal[3]
1	Sec. 29 Twn. 65N Rng. 23W	28.25	Low	N	Soybeans	50 Bu	Corn	150 Bu	Wheat	66 Bu	Grass mix	4 Ton	Legume mix	4 Ton
3	Sec. 28 Twn. 65N Rng. 23W	20.07	Low	N	Soybeans	50 Bu	Corn	150 Bu	Wheat	66 Bu	Grass mix	4 Ton	Legume mix	4 Ton
5	Sec. 28 Twn. 65N Rng. 23W	45.39	Low	N	Soybeans	50 Bu	Corn	150 Bu	Wheat	66 Bu	Grass mix	4 Ton	Legume mix	4 Ton
6	Sec. 28 Twn. 65N Rng. 23W	63.84	Low	N	Soybeans	50 Bu	Corn	150 Bu	Wheat	66 Bu	Grass mix	4 Ton	Legume mix	4 Ton
7	Sec. 27 & 28 Twn. 65N Rng. 23W	37.33	Low	N	Soybeans	50 Bu	Corn	150 Bu	Wheat	66 Bu	Grass mix	4 Ton	Legume mix	4 Ton
9	Sec. 34 Twn. 65N Rng. 23W	22.51	Very Low	N	Soybeans	50 Bu	Corn	150 Bu	Wheat	66 Bu	Grass mix	4 Ton	Legume mix	4 Ton
10	Sec. 34 Twn. 65N Rng. 23W	22.07	Very Low	N	Soybeans	50 Bu	Corn	150 Bu	Wheat	66 Bu	Grass mix	4 Ton	Legume mix	4 Ton
11	Sec. 33 Twn. 65N Rng. 23W	90.45	Very Low	N	Soybeans	50 Bu	Corn	150 Bu	Wheat	66 Bu	Grass mix	4 Ton	Legume mix	4 Ton
12	Sec. 33 Twn. 65N Rng. 23W	17.82	Very Low	N	Soybeans	50 Bu	Corn	150 Bu	Wheat	66 Bu	Grass mix	4 Ton	Legume mix	4 Ton
13	Sec. 33 Twn. 65N Rng. 23W	20.64	Low	N	Soybeans	50 Bu	Corn	150 Bu	Wheat	66 Bu	Grass mix	4 Ton	Legume mix	4 Ton
14	Sec. 33 Twn. 65N Rng. 23W	68.86	Low	N	Soybeans	50 Bu	Corn	150 Bu	Wheat	66 Bu	Grass mix	4 Ton	Legume mix	4 Ton
15	Sec. 33 Twn. 65N Rng. 23W	20.88	Low	N	Soybeans	50 Bu	Corn	150 Bu	Wheat	66 Bu	Grass mix	4 Ton	Legume mix	4 Ton
18	Sec. 33 Twn. 65N Rng. 23W	18.88	Low	N	Soybeans	50 Bu	Corn	150 Bu	Wheat	66 Bu	Grass mix	4 Ton	Legume mix	4 Ton
19	Sec. 33 Twn. 65N Rng. 23W	28.80	Low	N	Soybeans	50 Bu	Corn	150 Bu	Wheat	66 Bu	Grass mix	4 Ton	Legume mix	4 Ton
20	Sec. 33 Twn. 65N Rng. 23W & Sec. 4 Twn. 64N Rng. 23W	63.47	Low	N	Soybeans	50 Bu	Corn	150 Bu	Wheat	66 Bu	Grass mix	4 Ton	Legume mix	4 Ton
25	Sec. 27 & 28 Twn. 65N Rng. 23W	56.41	Very Low	N	Soybeans	50 Bu	Corn	150 Bu	Wheat	66 Bu	Grass mix	4 Ton	Legume mix	4 Ton

[1] If more than five planned or alternative crops per field continue on next line.
[2] Soil Test P Rating or P Index Rating may be used.
[3] Express yield in Bu=Bushels or T=Tons per acre.

Nutrient Management Plan

Hedgewood Farm

2018



Smithfield Hog Production

Hedgewood Farm

RECEIVED
MAR 29 2018
Water Protection Program

Nutrient Management Plan

Dated: March 1, 2018

Smithfield Hog Production

Signature Page

Nutrient Management Plan

Dated: March 1, 2018

Prepared for:

Hedgewood Farm

Prepared by:

Signature: Robert D Whitacre Date: March 1, 2018

Robert Whitacre
Smithfield Hog Production
CCA #341184

Smithfield Hog Production

Hedgewood Farm
Nutrient Management Plan

Table of Contents

I. Identifies specific records that will be maintained.

J. Miscellaneous.

1. SOP – DEHS-0029 - Secondary Containment Release
2. Land Application Map
3. Land Application Limitations listed in the MDNR Permit shall be implemented as part of a Standard Operation Procedure. All employees will be given a copy of the SOP's and trained as part of implementation.
4. SOP – DEHS-0018 Land Application – Soil Moisture and Climate Conditions.
5. SOP – DEHS-0023 Land Application – Slopes Greater Than 10%
6. Table 3: Animal Inventory
7. Table 4: Five Year Crop History
8. Table 5: Five Year Crop Projection

Smithfield Hog Production
Hedgewood Farm
Nutrient Management Plan

Enterprise Overview

Description of the existing enterprise

The enterprise consists of 5 farms located together, with each farm having a separate anaerobic lagoon. Each farm has 8 buildings for swine production. Each farm has the capacity for 8,832 head of finish/grower animals with an average weight of 150 lbs, which equates to 17,664 animal units. There are buried pipelines connecting the anaerobic lagoons, so that the levels can be manipulated by pumping. The lagoons are pumped and land applied primarily by a toolbar applicator. Other methods of application may include Aerway or subsurface injection.

Murphy-Brown LLC has 625.67 company owned acres that are available for land application of manure. The owned application land consists of cropland, pasture and hay land.

Animal mortality is handled by rendering. Animals are collected daily and kept from public view.

The production buildings all have under slat gutters. Recycled lagoon effluent is used to flush the under slat gutters. The under slat gutter is discharged by gravity flow through a buried pipeline to the lagoon.

The production areas have containment or earthen dams installed and maintained down gradient of all confinement buildings and sewer lines, gravity outfall lines, recycle pump stations and recycle force mains to collect and retain wastewater discharges from spills or pipeline breaks. These earthen dams ensure that clean water is diverted from production areas.

The Hedgewood Finishing Farm is a confined animal feeding operation and the animals at this facility are confined inside the barns.

Smithfield Hog Production
Hedgewood Farm
Nutrient Management Plan

Requirements:

In accordance with 10CSR 20-6.300(l) (G), the permittee shall implement a Nutrient Management Plan that at a minimum addresses the following.

A. Ensures adequate storage of manure, litter and process wastewater, including procedures to ensure proper operation and maintenance of the storage facilities.

Supporting Documents, Procedures and General Information:

1. Table 1: Lagoon Level Design Storage
2. SOP – DEHS-0028, Monitoring – Lagoon Levels
3. SOP – DEHS-0012, Maintenance – Erosion Control
4. Document: Lagoon Inspection Report

Table 1: Lagoon Level Design Storage

Site Name	Pumpdown Level	Length (ft)	Width (ft)	Depth (ft)	Capacity @ Spillway (gal)	Capacity @ Pumpdown (gal)	Treatment Volume (gal)	Design Waste Volume (gal)
HEDGEWOOD 1	57.6	504.1	315.1	24.00	19,788,043	14,493,633	5,294,409	5,289,580
HEDGEWOOD 5	60.0	395.9	395.9	24.00	19,764,292	14,531,298	5,232,994	5,270,235
HEDGEWOOD 6	57.6	395.9	395.9	24.00	19,764,292	14,531,298	5,232,994	5,270,235
HEDGEWOOD 7	57.6	315.1	504.1	24.00	19,788,043	14,493,633	5,294,409	5,577,200
HEDGEWOOD 8	60.0	395.9	395.9	24.00	19,764,292	14,531,298	5,232,994	5,270,666

MONITORING - LAGOON LEVELS

DEPARTMENT:	EHS
PERSON(S) ACCOUNTABLE:	Land Application Associates
WHEN:	Weekly
GOAL / PURPOSE:	To ensure that lagoon levels remain between the minimum and maximum pumpdown levels.

PPE Assessment:

- Appropriate Footwear
- Helmet-if using ATV
- Safety Glasses-if using ATV

Hazards Associated with Task:

- Slips, Trips, and Falls
- Vehicle Accidents

***Preparation / Supplies*:**

- Weekly Inspection Checklist
- Lagoon Level Report
- Transportation (ATV, Truck, Tractor)

Procedure Steps:

1. The lagoon level report details the minimum and maximum operating levels for each lagoon per MDNR operating permits. Members of the land application team will report the level of each lagoon weekly.
2. EHS Management personnel will use weekly readings to monitor lagoon levels and for MDNR operating permit reporting. They will also average the level of all lagoons on each tract of land.
3. Annually, land application associates will verify that pumpdown markers are correct by using a transit. If a pumpdown marker is found to be incorrect, the marker will be reset.
4. Within seven (7) days of the date that a lagoon's level comes within four (4) inches of the upper operating level, Smithfield Hog Production shall notify DNR with information that identifies the lagoon(s), the lagoon level in inches below the emergency spillway and actions taken to reduce the lagoon level(s).

Annual Pumpdown

Minimum pumpdown levels are indicated on the Lagoon Level Report. The minimum operating level shall be achieved each year to maintain DNR permit requirements. Lagoons shall be managed as to reach this minimum pumpdown level during the calendar year.

- Weekly lagoon level readings shall be taken and recorded on the Weekly Inspection Checklist

Procedure for recording a lagoon level reading:

1. Locate the pumpdown stake at each lagoon: normally located at the spillway.
2. Count the number of holes in the PVC pipe and multiply this number by six (6) (the distance between each hole).
3. Take this number and add 12" (this represents the metal rod above the pvc)
   NOTE: This rod represents the maximum level; should the lagoon level reach this point, immediate steps should be taken to ensure the maximum level of 12" is maintained.
4. Lastly, add the number of inches the lagoon level is below the last hole to the number obtained from step #3. This final addition gives the lagoon level which is to be recorded on the Weekly Inspection Checklist.

Follow-up:

1. Lagoon level reports should be turned in to the LNM Department.

Smithfield

Hog Production Division
Missouri

MAINTENANCE – EROSION CONTROL

DEPARTMENT:	EHS
PERSON(S) ACCOUNTABLE:	EHS, LNM, and R&M Utility Crew
WHEN:	According to inspection specification
GOAL / PURPOSE:	To minimize soil loss from our property and ensure structural integrity of the lagoons and secondary containment structures.

PPE Assessment:

- Appropriate footwear

Hazards Associated with Task:

- Slip/Trip/Falls associated with wet, uneven, and or icy terrain.

Preparation /Supplies:

- Weekly inspection checklist
- Monthly inspection checklist

Procedure Steps:

1. LNM personnel continuously look for erosion problems. Deficiencies are documented on the weekly and monthly inspections. Land application associates should always be looking for potential erosion problems and do a thorough review of lagoons, secondary containment structures and farms to identify any erosion or location with potential for erosion.
2. Inspectors and the person(s) who do monthly inspections have a location on their respective checklists to identify erosion problems. If either of these entities identifies erosion the Environmental Systems Manager should be notified. A work order will then be issued to the Utility Crew by the EHS Administrative Assistant through the work order system.
3. Personnel should continue to monitor locations that have been reported to ensure that corrective actions are taken. Continue to report and document if repairs are not made within a reasonable time.

Follow-up:

1. The EHS Department can, at any time, print a work order progress report and monitor the progress being made. The work order system also serves as a reference point to detail any work that has been done to minimize erosion on any specific farm.

LAND APPLICATION – BUFFERS

DEPARTMENT: EHS
PERSON(S) ACCOUNTABLE: Land Application Associates
WHEN: Buffers are applicable during all land application processes.
GOAL / PURPOSE: To ensure that the potential for run-off is minimized and to protect the natural resources and neighbors' property.

PPE Assessment:

- Helmet
- Safety glasses
- Appropriate footwear

Hazards Associated with Task:

- Slips, trips and falls
- Vehicle accidents

***Preparation / Supplies*:**

- Range finder or measuring wheel
- Flags/marking tape

Procedure Steps:

1. Separation distances (buffer zones) shall be maintained between the land application site and other features as follows:

Table A1. Manure application setback distances. For streams, lakes and wetlands the setback distance is measured from the defined edge of the water feature.

Setback Feature	Application Conditions	Setback Distance (feet)
Public or private drinking water well or other wells including un-plugged abandon wells	All applications methods	300
Public or private drinking water lake or impoundment	All applications methods	300
Public or private drinking water intake structure	All applications methods	300
Classified waters of the state not used as a water supply as defined in 10 CSR 20-7.031(1)F	Permanently vegetated buffer[1]	35
	No or insufficient vegetated buffer	100
Other public and privately owned lakes and impoundments not used as a water supply including impoundments with no outlet	Permanently vegetated buffer[1]	35
	Up-gradient, no or insufficient vegetated buffer	100
	Down-gradient, no or insufficient vegetated buffer	35
Other perennial streams, other intermittent streams, canals, drainage ditches and wetlands	Permanently vegetated buffer[1]	35
	Up-gradient, no or insufficient vegetated buffer	100
	Down-gradient, no or insufficient vegetated buffer	35
Tile line inlet (if left un-plugged during manure application)	Up-gradient, Permanently vegetated buffer[1]	35
	Up-gradient, no or insufficient vegetated buffer	100
	Down-gradient	0
Losing stream	All applications methods	300
Cave entrance	All applications methods	300
Spring	All applications methods	300

Active sinkhole	All applications methods	300
Non-owned occupied residence	Spray irrigation only	150
Public use area including non-owned businesses	Spray irrigation only	150
Public road	All applications methods	50
Property boundary	All applications methods	50

[1] See definition of vegetative buffer in the definitions section of NMTS

- Tanker Wagons or Tanker Trucks
  1. One-fourth (1/4) mile of a residence which is not owned by Missouri Operations of Smithfield Hog Production or not within the property boundaries of a spreading agreement*
  2. 300 feet from a property line*
  3. 100 feet from surface water drainages* and classified gaining streams for Class P and Class C streams listed in 10 CSR 20-7.031

- Land application equipment shall be operated in such a manner that wastes will not reach an adjoining property line, public use area or into waters of the state. There shall be no visual spray drifts across public roads or property boundaries or into waters of the state. If the employee detects wind blown mist within 100 feet of an adjoining property line or public use areas or waters of the state the application equipment shall be either moved farther away or shut down.

- Monitoring of the buffers is required.

Irrigation equipment operators shall shut down equipment if the proper buffer distance is not being maintained and corrective action shall be taken before land application recommences.

* These operating conditions are required by a Consent Decree with the U.S. Environmental Protection Agency and CLEAN. They are not state NPDES permit requirements nor conditions of the Operation and Maintenance Manual required to be maintained by PSF's and CGC's NPDES operating permits. This requirement is only included in this SOP for the convenience of employees of Smithfield Hog Production Missouri.

SITE: HEDGEWOOD

NAME: _____

DATE: _____

Weekly Inspection Checklist

	HW 1	HW 5	HW 6	HW 7	HW 8	Domestic
Emergency Spillway						
Pump Down Stake						
Damage/Erosion to Berm						
Trash in Lagoon						
Trash on Lagoon Bank						
Lagoon Level						
Is storm water diversion in good working order?						
Would an effluent release from production areas be contained?						
Lake Level						

Comments: _____

_____

_____

_____

Smithfield Hog Production
Hedgewood Farm
Nutrient Management Plan

Requirements:

In accordance with 10CSR 20-6.300(l) (G), the permittee shall implement a Nutrient Management Plan that at a minimum addresses the following.

B. Ensures proper management of mortalities.

Supporting Documents, Procedures and General Information:

1. Mortality Management: General Information, Procedures and Catastrophic loss

Mortality Management

General

Mortalities are collected and removed from buildings on a daily basis. The mortalities are picked up, transferred to a dead haul trailer and taken to the rendering plant daily.

Procedures

Carcasses are moved to a location designated for carcass pickup. The carcasses are picked up and hauled to a transfer station. A dead haul trailer will collect the carcasses and transport them the rendering plant daily. The carcasses are kept from public view.

Catastrophic loss

The planned method of catastrophic disposal is by rendering. In the event the nearby rendering plant would be incapable due to breakdown or excess loading another rendering plant would be used.

Smithfield Hog Production
Hedgewood Farm
Nutrient Management Plan

Requirements:

In accordance with 10CSR 20-6.300(l) (G), the permittee shall implement a Nutrient Management Plan that at a minimum addresses the following.

C. Ensures that clean water is diverted from the production area.

Supporting Documents, Procedures and General Information:

1. The production areas have containment or earthen dams installed and maintained down gradient of all confinement buildings and sewer lines, gravity outfall lines, recycle pump stations and recycle force mains to collect and retain wastewater discharges from spills or pipeline breaks. Lagoon berms ensure that clean water is diverted from the production areas.

Smithfield Hog Production
Hedgewood Farm
Nutrient Management Plan

Requirements:

In accordance with 10CSR 20-6.300(l) (G), the permittee shall implement a Nutrient Management Plan that at a minimum addresses the following.

D. Prevents direct contact of confined animals with waters of the state.

Supporting Documents, Procedures and General Information:

1. The Hedgewood Farm is a confined animal feeding operation and the animals at this facility are confined inside the barns.

Smithfield Hog Production
Hedgewood Farm
Nutrient Management Plan

Requirements:

In accordance with 10CSR 20-6.300(l) (G), the permittee shall implement a Nutrient Management Plan that at a minimum addresses the following.

E. 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.

Supporting Documents, Procedures and General Information:

1. General Information: Chemicals & Containments
    - Containments are in place for all fuel storage. A Spill Prevention Control and Countermeasure Plan has been written and is in place at the facility.
    - Oil and used oil is placed on containments in the LNM pole barn.
    - Hydraulic fluid, antifreeze, and all other chemicals (herbicides & pesticides) are also stored in the LNM pole barn.
    - Chemical storage and handling areas are protected from precipitation and runoff, and any spillage is contained within these areas.

Smithfield Hog Production
Hedgewood Farm
Nutrient Management Plan

Requirements:

In accordance with 10CSR 20-6.300(l) (G), the permittee shall implement a Nutrient Management Plan that at a minimum addresses the following.

F. 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.

Supporting Documents, Procedures and General Information:

1. Table 2: Hedgewood Conservation Practices
2. SOP - DEHS – 0022 Land Application Buffers

Table 2: Hedgewood Conservation Practices

Field	Acres	Crop Type	Date	Phosphorus (ppm)	Rating	Conservation Practices
1	28.25	Hay/Pasture	4/25/2014	39	PI-L	Established grass waterways, maintain good ground cover, proper amount and timing of effluent application and scheduled soil sampling.
3	20.07	Hay/Pasture	4/25/2014	16	M	Established grass waterways, maintain good ground cover, proper amount and timing of effluent application and scheduled soil sampling.
5	45.39	Hay/Pasture	4/25/2014	11	L	Established grass waterways, maintain good ground cover, proper amount and timing of effluent application and scheduled soil sampling.
6	63.84	Hay/Pasture	4/25/2014	22	PI-L	Established grass waterways, maintain good ground cover, proper amount and timing of effluent application and scheduled soil sampling.
7	37.33	Hay/Pasture	4/25/2014	22	PI-L	Established grass waterways, maintain good ground cover, proper amount and timing of effluent application and scheduled soil sampling.
9	22.51	Hay/Pasture	4/25/2014	6	VL	Established grass waterways, maintain good ground cover, proper amount and timing of effluent application and scheduled soil sampling.
10	22.07	Hay/Pasture	4/25/2014	5	VL	Established grass waterways, maintain good ground cover, proper amount and timing of effluent application and scheduled soil sampling.
11	90.45	Hay/Pasture	4/25/2014	17	M	Established grass waterways, maintain good ground cover, proper amount and timing of effluent application and scheduled soil sampling.
12	17.82	Hay/Pasture	4/25/2014	5	VL	Established grass waterways, maintain good ground cover, proper amount and timing of effluent application and scheduled soil sampling.
13	20.64	Hay/Pasture	4/25/2014	21	M	Established grass waterways, maintain good ground cover, proper amount and timing of effluent application and scheduled soil sampling.
14	68.86	Hay/Pasture	4/25/2014	19	M	Established grass waterways, maintain good ground cover, proper amount and timing of effluent application and scheduled soil sampling.
15	20.88	Hay/Pasture	4/25/2014	15	M	Established grass waterways, maintain good ground cover, proper amount and timing of effluent application and scheduled soil sampling.
18	18.88	Hay/Pasture	4/25/2014	26	PI-L	Established grass waterways, maintain good ground cover, proper amount and timing of effluent application and scheduled soil sampling.
19	28.80	Hay/Pasture	4/25/2014	16	M	Established grass waterways, maintain good ground cover, proper amount and timing of effluent application and scheduled soil sampling.
20	63.47	Hay/Pasture	4/25/2014	44	PI-L	Established grass waterways, maintain good ground cover, proper amount and timing of effluent application and scheduled soil sampling.
25	56.41	Hay/Pasture	4/27/2009	10	L	Established grass waterways, maintain good ground cover, proper amount and timing of effluent application and scheduled soil sampling.
PI indicates a P-Index was completed, L = Low, VL=Very Low						

LAND APPLICATION – BUFFERS

DEPARTMENT: EHS
PERSON(S) ACCOUNTABLE: Land Application Associates
WHEN: Buffers are applicable during all land application processes.
GOAL / PURPOSE: To ensure that the potential for run-off is minimized and to protect the natural resources and neighbors' property.

PPE Assessment:

- Helmet
- Safety glasses
- Appropriate footwear

Hazards Associated with Task:

- Slips, trips and falls
- Vehicle accidents

***Preparation / Supplies*:**

- Range finder or measuring wheel
- Flags/marking tape

Procedure Steps:

1. Separation distances (buffer zones) shall be maintained between the land application site and other features as follows:

Table A1. Manure application setback distances. For streams, lakes and wetlands the setback distance is measured from the defined edge of the water feature.

Setback Feature	Application Conditions	Setback Distance (feet)
Public or private drinking water well or other wells including un-plugged abandon wells	All applications methods	300
Public or private drinking water lake or impoundment	All applications methods	300
Public or private drinking water intake structure	All applications methods	300
Classified waters of the state not used as a water supply as defined in 10 CSR 20-7.031(1)F	Permanently vegetated buffer[1]	35
	No or insufficient vegetated buffer	100
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	Up-gradient, no or insufficient vegetated buffer	100
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	Up-gradient, no or insufficient vegetated buffer	100
	Down-gradient, no or insufficient vegetated buffer	35
Tile line inlet (if left un-plugged during manure application)	Up-gradient, Permanently vegetated buffer[1]	35
	Up-gradient, no or insufficient vegetated buffer	100
	Down-gradient	0
Losing stream	All applications methods	300
Cave entrance	All applications methods	300
Spring	All applications methods	300

Active sinkhole	All applications methods	300
Non-owned occupied residence	Spray irrigation only	150
Public use area including non-owned businesses	Spray irrigation only	150
Public road	All applications methods	50
Property boundary	All applications methods	50

[1] See definition of vegetative buffer in the definitions section of NMTS

- Tanker Wagons or Tanker Trucks
  1. One-fourth (1/4) mile of a residence which is not owned by Missouri Operations of Smithfield Hog Production or not within the property boundaries of a spreading agreement*
  2. 300 feet from a property line*
  3. 100 feet from surface water drainages* and classified gaining streams for Class P and Class C streams listed in 10 CSR 20-7.031

- Land application equipment shall be operated in such a manner that wastes will not reach an adjoining property line, public use area or into waters of the state. There shall be no visual spray drifts across public roads or property boundaries or into waters of the state. If the employee detects wind blown mist within 100 feet of an adjoining property line or public use areas or waters of the state the application equipment shall be either moved farther away or shut down.

- Monitoring of the buffers is required.

Irrigation equipment operators shall shut down equipment if the proper buffer distance is not being maintained and corrective action shall be taken before land application recommences.

* These operating conditions are required by a Consent Decree with the U.S. Environmental Protection Agency and CLEAN. They are not state NPDES permit requirements nor conditions of the Operation and Maintenance Manual required to be maintained by PSF's and CGC's NPDES operating permits. This requirement is only included in this SOP for the convenience of employees of Smithfield Hog Production Missouri.

Smithfield Hog Production
Hedgewood Farm
Nutrient Management Plan

Requirements:

In accordance with 10CSR 20-6.300(l) (G), the permittee shall implement a Nutrient Management Plan that at a minimum addresses the following.

G. Identifies protocols for appropriate testing of manure, litter, process wastewater, and soil.

Supporting Documents, Procedures and General Information:

1. SOP – DEHS-0033 Sampling - Soil
2. SOP – DEHS-0035 Sampling – Lagoons

SAMPLING – SOILS

DEPARTMENT:	EHS
PERSON(S) ACCOUNTABLE:	Land Application Associates
WHEN:	Soil samples will be collected in the spring before planting. Samples are collected at least once every 5 years.
GOAL / PURPOSE:	To collect a representative soil sample from the land application field.

PPE Assessment:

- Appropriate footwear
- Safety Glasses (ATV use)
- Helmet (ATV use)

Hazards Associated with Task:

- Slips, trips and falls associated with wet and/or uneven terrain
- Vehicle accidents

***Preparation / Supplies*:**

- Soil probe or auger
- Clean plastic pail
- Soil sampling boxes and soil bags
- Chain-of-Custody form
- Soil Sampling Map

Procedure Steps:

SAMPLING (GENERAL):

1. The average field area represented by a soil sample should be approximately 20 acres more or less.

2. Each soil sample should be comprised of a well-mixed subsample derived from at least 15 representative cores from the sampled field area; collect each core in a random zigzag pattern across the field. Thoroughly mix the cores in the plastic pail and retain approximately 1-2 cups for analysis.

3. Soil sampling should be at a depth of 6 to 8 inches.

4. Fields should be re-sampled before manure application when:
   a. The soil test is greater than five years old
   b. Phosphate surplus for the field has exceeded 500 lbs/acre since the last soil test

RECORDING OF DATA:

For each sample collected, record on the Chain-of-Custody form and the sample label the following information:

1. Tract/Field name and number
2. Date and time of sampling
3. Person(s) who performed the sampling

Follow-up:

SAMPLE HANDLING AND SHIPMENT:

1. Always use proper sampling equipment. Visually inspect containers used for sampling and the sample supplies provided by Midwest Laboratories, Inc. for cleanliness.

2. Return samples to the central office where samples will be transported to Midwest Labs.

   Midwest Laboratories, Inc.
   13611 "B" Street
   Omaha, NE 68144-3693
   (402) 334-7770 Fax (402) 334-9121

3. Responsibility for proper packaging, labeling and transferring of possessions of the sample lies with the person collecting it or the last person to sign off on the Chain-of-Custody.

4. A completed, signed and dated chain-of-custody record must accompany all sample shipments. A copy of the chain-of-custody should be retained by the originator.

5. When transferring possession of the samples, the transferee must sign and record the date and time on the chain-of-custody record. In general, custody transfers are made for each sample, although samples may be transferred as a group. Each person who takes custody must fill in the appropriate section of the chain-of-custody record.

6. Soil samples should be analyzed at soil testing laboratories accredited by the Missouri Soil Testing Association, using procedures recommended by the University of Missouri Soil Testing Laboratory

SAMPLING - LAGOONS

DEPARTMENT:	EHS
PERSON(S) ACCOUNTABLE:	Land Application Associates
WHEN:	At least once per year prior to land application
GOAL / PURPOSE:	To collect a representative lagoon sample for nutrient analysis to determine land application rates.

PPE Assessment:

- Appropriate footwear

Hazards Associated with Task:

- Slips, trips and falls associated with wet, uneven and/or icy terrain
- Vehicle Accidents

***Preparation / Supplies*:**

- Sample bottles from lab
- Hose
- Clean pitcher (plastic)
- Stop watch
- Grab sampling pole
- Transportation (truck or ATV)

Procedure Steps:

SAMPLE COLLECTION:

One composite sample should be collected from the by-pass line at the recycle pump-house using the following procedure:

1. Fill out the labels on the sample bottles prior to filling the bottles.
2. Attach the hose to the valve.
3. Turn on the valve and allow effluent to run for a few minutes to clear the line of old effluent.
4. Rinse a plastic pitcher with effluent to be sampled from the recycle pump.
5. Turn on the valve and collect effluent for a few seconds leaving the valve open, wait for 2 minutes.
6. Every two minutes, repeat the above step 6 more times until a total of 7 grab samples have been collected.
7. Use swirling motion while filling pitcher to ensure a well-mixed sample.
8. Take a pH and temperature from the pitcher.
9. Make sure valve is shut off completely before leaving the pump-house.

10. Divide the pitcher between the sample collection bottles provided, taking special care not to overfill the bottle containing the acid.
11. Ensure all effluent not collected is returned to the lagoon.

*If the recycle pump is not working or when sampling a treatment cell, take 7 grab samples with the grab sampling pole, from 7 different locations around the lagoon.

RECORDING OF DATA:

1. For each sample taken record the date, time of sampling and who performed the sampling on the chain-of-custody form and the sample label.

Follow-up:

SAMPLE HANDLING AND SHIPMENT:

1. Always use proper sampling equipment. Visually inspect containers used for sampling and the sample bottles provided by Midwest Laboratories, Inc. for cleanliness.
2. Refrigerate samples immediately to maintain sample integrity.
3. Return samples to the central office where samples will be repackaged and transported, to Midwest Laboratories.

Midwest Laboratories, Inc.
13611 "B" Street
Omaha, NE 68144-3693
(402) 334-7770 fax (402) 334-9121

4. Responsibility for proper packaging, labeling and transferring of possession of the sample lies with the person taking it or the last person to sign off on the chain of custody.
5. A completed, signed and dated chain-of-custody record must accompany all sample shipments. A copy of the chain-of-custody should be retained by the originator.

When transferring possession of the samples, the transferee must sign and record the date and time on the chain-of-custody record. In general, custody transfers are made for each sample, although samples may be transferred as a group. Each person who takes custody must fill in the appropriate section of the chain-of-custody record.

Smithfield Hog Production
Hedgewood Farm
Nutrient Management Plan

Requirements:

In accordance with 10CSR 20-6.300(l) (G), the permittee shall implement a Nutrient Management Plan that at a minimum addresses the following.

H. 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.

Supporting Documents, Procedures and General Information:

1. SOP – DEHS-0013 Nutrient Management - Database
2. SOP – DEHS-0014 Nutrient Management – PAN Planning
3. SOP – DEHS-0015 Nutrient Management for Cow/Calf Grazing
4. SOP – DEHS-0016 Nutrient Management-Work Order System
5. SOP – DEHS-0017 Nutrient Management-Yield Monitoring
6. SOP – DEHS-0021 Land Application – Checklist and Daily Run Sheet

NUTRIENT MANAGEMENT – DATABASE

DEPARTMENT:	EHS
PERSON(S) ACCOUNTABLE:	Environmental Systems Manager and Environmental Analysts
WHEN:	Continuously
GOAL / PURPOSE:	To provide a centralized computer program that stores all sample and measurement data and other activities of the land application department.

PPE Assessment:

- None needed

Hazards Associated with Task:

- None

***Preparation / Supplies*:**

- Nutrient Management Database

Procedure Steps:

1. Smithfield Hog Production Missouri has a comprehensive nutrient management database to assist in proper management of the EHS and LNM Departments.
2. This database stores all entered information and allows for compliation of annual reports. The system also maintains data pertaining to PAN Planning, Work Orders, Lagoon Transfers and Land Application as detailed in related procedures.
3. The nutrient management database is managed by EHS and is password protected to prevent unauthorized use or alteration of information in the database.
4. The PAN equation is a part of the nutrient management database. Each land application field is identified by number and includes the number of acres, soil type, intended crop and estimated yields. The Work Order function provides LNM field crews directives on the amount of effluent to apply to a specific field and from which lagoon to pump the effluent.
5. All computer programs are kept on a secure company computer network and all information is backed up nightly.

Follow-up:

6. A digital copy of all information stored in the database is retained by the Princeton Office.

NUTRIENT MANAGEMENT – PAN PLANNING

DEPARTMENT:	EHS
PERSON(S) ACCOUNTABLE:	EHS Management
WHEN:	The process begins in the late summer for October 1st application and is reevaluated during the winter months as more yields are received.
GOAL / PURPOSE:	To ensure that there is a nutrient balance on each tract of land based on estimated volumes, lagoon nutrient data, yield predictions, and soil test data and to use that data to best manage land application timing.

PPE Assessment:

- None Needed

Hazards Associated with Task:

- None

***Preparation / Supplies*:**

- Nutrient Management Database
- Lagoon Levels
- Lagoon Analysis
- Soil Analysis
- Yield averages per field
- Field Acreage and Crops

Procedure Steps:

Annual Planning

1. Within the nutrient management database, there is a nutrient application planner. The program compiles data from the lagoon analysis, soil analysis, yield data, field acres and crops to calculate the allowable nitrogen application for each field. The total nitrogen capacity of each facility is also totaled. The program compiles the Plant Available Nitrogen (PAN) that can be applied based on the formulas detailed in the MDNR Operating Permits. All tracts are managed using the PAN approach.
2. The program is operated using an application year of October 1 – September 30.
3. Using the current lagoon levels and volumes calculated from the as-built lagoon drawings, the EHS staff projects the total gallons available for land application. This tool is used to manage water use on the farms, land application processes, land resources, etc. This tool also makes it possible to compare the gallons of effluent and total pounds of PAN that needs to be land applied versus the pounds of PAN that can be applied on the available land.

4. The initial planning for individual field PAN goals is done in the late summer in preparation of the October 1st year beginning. The initial numbers are typically conservative, allowing for safe fall application where feasible. These numbers are then finalized over the winter months, as the final yields are collected and current sample results are received. Reference: NMTS-Nutrient Management Technical Standard.
5. Using the information above, Smithfield Hog Production Missouri strives to manage land application practices to best achieve a balance between:
   - Optimizing the timing of nutrient applications to match crop uptake.
   - Maintaining adequate storage in the lagoons to handle extreme rainfall events without overtopping.
   - Conducting land application at rates and amounts so that no runoff occurs from land application fields.
6. Land application typically occurs during the period of March through November when climatic conditions are favorable.

Alternate Volatilization Rate

This section is included for MDNR review and approval of an alternate volatilization rate as provided for in the Special Conditions of the current operating permits.

The following tables detail the calculations and methodology for determining inorganic nitrogen availability based on site specific soil conditions using the table below. An appendix of the soil drainage classifications for each field is maintained by the EHS Department in Princeton.

Table 1 below lists the percent organic N remaining in the soil after denitrification. The table values are the median of the values listed in Table 11-8 of the USDA-NRCS, National Engineering Handbook, Part 651(AWMFH).

Table 1

Manure N Denitrification Estimates by Soil Drainage Classification					
Soil Organic Matter %	Excessively well drained	Well drained	Moderately well drained	Somewhat poorly drained	Poorly drained
	% of inorganic N available				
< 2	94	88	82	74	60
2-5	88	80	74	65	40
> 5	84	74	65	50	25
Median values used from USDA-NRCS, National Engineering Handbook, Part 651(AWMFH), Table 11-8.					

Table 2 below lists the volatilization rates for the different land application methods used by the company.

Table 2

Volatilization Rates by Equipment Type	
% of inorganic N available	
Injection/Incorporation	95*
Spray Application	75*
• From USDA-NRCS, National Engineering Handbook, Part 651(AWMFH), Table 11-6.	

Table 3 below shows the resulting total inorganic nitrogen available after considering volatilization and denitrification losses. The values listed below were calculated by multiplying values in Table 1 by the spray application value in Table 2.

Table 3

Alternate VR for Spray Application					
Soil Organic Matter %	Excessively well drained	Well drained	Moderately well drained	Somewhat poorly drained	Poorly drained
% of inorganic N available					
< 2	71	66	62	56	45
2-5	66	60	56	49	30
> 5	63	56	49	38	19
Alternate VR equals denitrification factor multiplied by the equipment specific volatilization rate.					

Table 4 below shows the resulting total inorganic nitrogen available after considering volatilization and denitrification losses. The values listed below were calculated by multiplying values in Table 1 by the injection/incorporation in Table 2.

Table 4

Alternate VR for Injection/Incorporation					
Soil Organic Matter %	Excessively well drained	Well drained	Moderately well drained	Somewhat poorly drained	Poorly drained
% of inorganic N (manure., precip.) available					
< 2	89	84	78	70	57
2-5	84	76	70	62	38
> 5	80	70	62	48	24
Alternate VR equals denitrification factor multiplied by the equipment specific volatilization rate.					

The alternate VR factor will be used on a field and equipment specific basis. The factors will be used for the entire land application season (Oct 1 – Sept 30). When assigning an effluent application rate for each field, the nutrient management database has input fields for equipment type, soil organic matter, and soil drainage classification. Based on these three variables, a site specific alternate VR rate will be selected and used in calculating the allowable gallons of effluent that can be applied to meet the PAN requirements of the crop.

Smithfield

Hog Production Division
Missouri

NUTRIENT REQUIREMENTS FOR COW/CALF GRAZING

DEPARTMENT:	EHS
PERSON(S) ACCOUNTABLE:	Environmental Analysts
WHEN:	Annually, when figuring yields
GOAL / PURPOSE:	To set an application rate based the cow day formula taking into account the nitrogen supplied by the cattle.

PPE Assessment:

- None Needed

Hazards Associated with Task:

- None

***Preparation / Supplies*:**

- Information pertaining to nutrient requirements of cattle, forage analysis, stocking rate and days grazed.

Procedure Steps:

Pasture Nitrogen Needs

1. Calculate the average cattle weight (CW) while on pasture.
2. Determine the average stocking ratio (SR) per acre.
3. Determine the average consumption of dry matter (DM) per head per day (3% of body weight)
4. Determine by the number of days of grazing (DAYS).
5. Determine the average percent protein (PP) found in pasture for the grazing period.
6. Assume protein is 16% nitrogen.
7. The nitrogen requirement for the pasture is:
    - Pasture Nitrogen Requirement (lbs PAN/acre) = CW*SR*DM*DAYS*PP*0.16

Cattle Contribution

1. Cattle contribute .396 lbs. of Nitrogen per day at 1200 lbs. of animal (CC). (NRCS Agricultural Waste Management Field Handbook, Table 4-8 Beef Waste Characterization using average of Feeder, Yearling on a high forage diet).
2. Volatilization Rate of 37.5% (VR) (NRCS Agricultural Waste Management Field Handbook, Table 11-5).
3. De-nitrification rate of 20% (DN) (NRCS Agricultural Waste Management Field Handbook, Table 11-8).
4. The cattle nitrogen remaining available to the pasture is:
    - Cattle contribution (lbs PAN/acre) = CC*SR*DAYS*(1-VR)*(1-DN)

Set the application rate at the pasture nitrogen requirement minus the cattle contribution.

Smithfield

Hog Production Division
Missouri

NUTRIENT MANAGEMENT-WORK ORDER SYSTEM

DEPARTMENT:	EHS
PERSON(S) ACCOUNTABLE:	Environmental Analysts
WHEN:	As needed throughout the land application season.
GOAL / PURPOSE:	To assign and track land application for each field.

PPE Assessment:

- None Needed

Hazards Associated with Task:

- None

***Preparation / Supplies*:**

- Nutrient Management Database
- Land Application Tablet

Procedure Steps:

1. A nutrient management database has been developed for use in collecting and analyzing data on all tracts, fields, crops, nitrogen requirements, and permit required analysis. A work order is issued by an Environmental Analyst to a specific crew, for a specific field, from a specific lagoon, using a specified type of equipment to apply a given amount of effluent. The program calculates gallons of effluent to apply based on the lagoon analysis from the specified lagoon, the volatilization rate for the given piece of equipment, soil type, and the nitrogen or phosphorus requirements from the specified field.
2. An EHS Environmental Analyst can produce a work order at the request of the LNM Manager, an LNM Superintendent, an LNM Supervisor or acting LNM Supervisor.
3. After the work order is created LNM crews apply according to the details of the work order and log the application data on a daily run sheet. (See Land Application Checklist and Daily Run Sheet).
4. Daily application to the field is entered on the tablet to an electronic file. At the completion of the work order or application is suspended, the supervisor then checks for accuracy and forwards the request to close the work order to the EHS department. Designated EHS personnel check the request to close the work order. When the work order is closed it is saved to Land Application Database file.

NUTRIENT MANAGEMENT – YIELD MONITORING

DEPARTMENT:	EHS
PERSON(S) ACCOUNTABLE:	Land Application Associates
WHEN:	As crops are removed from field where land application has occurred
GOAL / PURPOSE:	To collect accurate yield information for nutrient management planning the following year(s).

PPE Assessment:

- None Needed

Hazards Associated with Task:

- None

***Preparation / Supplies*:**

- Yield Monitoring Worksheet

Procedure Steps:

1. As crops are removed from a field, yield information should be documented on the following pages.
2. That seasons crop yields should be obtained, documented, and turned into the EHS Department before December 31st.

Follow-up:

1. EHS keeps a hard copy of all information in the Princeton office.

Hog Production Division
Missouri

Hay Progress Report

Tenant Name:_____

Date	Farm	Cutting	Field #	# of Bales	lbs/Bale	*Office Use*

Please submit this form by August 1st and December 1st

Murphy-Brown LLC
RR 2 Box 300D
Princeton, MO 64673
Attn: LNM Department

Fax #: 660-748-7186

Smithfield

Hog Production Division
Missouri

Pasture Stocking Report

Tenant Name:_____

Farm	Field #	Type *	# of Head IN	Date IN	Weight IN	Date OUT	# Head OUT	Weight OUT

Please submit this form August 1st and December 1st

* Type: (Cows, Calves, Bulls, or Heifers)

Murphy-Brown LLC
RR 2 Box 300D
Princeton, MO 64673
Attn: LNM Department

Fax #: 660-748-7186

Instructions to tenants for completing the Pasture Stocking Report:

Column 1: Farm
Enter the Farm name on which cattle are placed.

Column 2: Field
Enter the field number(s) on which cattle are placed. You may include multiple fields if cattle are allowed to run in more than 1 field. List all fields that apply.

Column 3: Type *
Enter the type of cattle (cows, calves, bulls, heifers). Use a separate line for each type.

Column 4: # of Head
Enter the number of head moved to this field(s).

Column 5: Date IN
Enter date cattle were placed on this field(s).

Column 6: Weight IN
Provide the average weight per head.

Column 7: Date OUT
Enter date cattle were moved from the field(s).

Column 8: # of Head OUT
Enter number of head moved from field(s) on the date in Column 5

Column 9: Weight OUT
Enter the average weight of the cattle moved from this field(s) on the date in Column 5.

Planting and Harvest Report

Tenant Name:_____

Date	Farm	Field #	Crop Type	Yield	*Office Use*

Please submit this form by December 1st

Murphy-Brown LLC
RR 2 Box 300D
Princeton, MO 64673
Attn: LNM Department
Fax #: 660-748-7186

AND APPLICATION – CHECKLIST AND DAILY RUN SHEET

DEPARTMENT:	EHS
PERSON(S) ACCOUNTABLE:	Land Application Associates
WHEN:	Daily, documenting each land application event.
GOAL / PURPOSE:	To document each land application "run" and provide an accurate documentation of the day-to-day activities in the field.

PPE Assessment:

- Appropriate footwear

Hazards Associated with Task:

- Slips, Trips, and Falls associated with wet, uneven and/or icy terrain

***Preparation / Supplies*:**

- Charged Tablet with Checklist and Daily Run Sheet program installed
- A working knowledge and understanding of the land application equipment
- Watch/Clock

Procedure Steps:

1. Complete the Pre-Startup portion of the checklist.
2. After the Pre-Startup portion of the check has been completed, the land application crew members may begin land application as described in the SOP for *Land Application – Startup*.
3. Post-Startup (After reaching operating pressure) portion of the checklist must be filled out after completion of each task on the checklist.
4. Complete a single column in the Daily Run Sheet for each run. The Daily Run Sheet may contain only runs for a single work order. If a crew begins land application on a different Work Order, the crew must begin a new Checklist/Daily Run Sheet for that work order. ***Only record information from one Work Order number on the Checklist/Daily Run Sheet.***
5. A crew member must document the type of equipment used, the equipment ID number, the time the application equipment was started and stopped, the application rate, and the beginning meter reading and the ending meter reading from the flow meter if applicable.
6. If a crew, in a single day, completes more "runs" than there are columns on the Daily Run Sheet, the crew must continue on page 2 of the Daily Run Sheet. If this is the case, Pre-Startup conditions have already been met and do not need to be completed again.
7. A Daily Run Sheet may not include more than one day's work on it.
8. The Shut-down portion of the checklist must be completed after shut-down is accomplished in accordance with the SOP for *Land Application-Shut down Procedure*.

9. Any deficiencies found as a result of inspections should be documented on page 2 of the Daily Run Sheet and corrected as soon as possible. If no deficiencies are discovered, record an N/A (Not Applicable) on this section.
10. Each Daily Run Sheet must be reviewed and signed by the crew leader. By signing the Daily Run Sheet, the crew leader acknowledges that the information is correct. The supervisor must approve the run sheet for the entry to be complete.
11. The Supervisor sends a request that the work order be closed when it is completed or application to the field is suspended. The work order is closed by designated EHS personnel. Records are maintained on electronic file .

Checklist and Daily Run Sheet

Date:		Field #:		Tract #:	
Work Order #:		Lagoon #:		Crew #:	

Crew Members: _____, _____, _____, _____

Pre-Start Up:	**YES**	**NO**
Does the information on the work order (i.e. Lagoon ID, Tract, Field, Acres, Crop and Equipment) match the work being done?		
Are weather conditions favorable for land application?		
Are soil conditions such that you can land apply and prevent runoff from entering a buffer area?		
Are all valves in secondary containments that protect land application areas closed with cap in place?		
Do you have functional radios for appropriate personnel?		
Has Crew Leader checked the field notes for field-specific precautions and reviewed with crew members?		
Has the distribution system and risers to be charged during the day been inspected for defects or problems and have all lines not needed in the system you are using been properly closed off at the appropriate valves?		
Has someone checked underground line pressure maps and checked all pumps, hoses, etc. to ensure all are in proper working condition?		
Is all land application equipment in good working condition?		
Has Crew Leader determined the applicable buffer distance for the application equipment?		
Field notes, Pre-Startup distribution system, Equipment, Pumps, Hoses and Buffer Distances checked. Crew Leader's initial:_____		
Post-Start Up (After reaching operating pressure):		
Has the pump(s) Murphy Switch been set? (before leaving pump)		
Have buffer areas been checked to ensure that effluent/effluent mist is not entering designated area?		
Has Crew Leader inspected the charged distribution system at least once/day to ensure proper operation?		
Buffer areas and Distribution System checked. Crew Leader's initial:_____		
Shut-down:		
After shutdown, have the pumps been shut down and the field been checked for delayed runoff?		
Were all deficiencies recorded?		

Daily Run Sheet

Complete Run Columns for each run.

Type of Equipment *(i.e. CP, INJ, AER, TKRS & TB)*				
Machine Number:				
Application Rate (Inches/Acre):				
Start Time: *(All equipment)*				
Stop Time: *(All equipment)*				
Total Minutes:				
Ending Meter Reading:				
Beginning Meter Reading:				
Total Gallons per run:				
GPM:				

Crew Leader's Signature: _____ Certification #:_____

I certify that all information is correct.

Supervisor's Signature: _____

I certify that all information is correct.

Date:		Field #:		Tract #:	
Work Order #:		Lagoon #:		Crew #:	

Daily Run Sheet – Continued

Complete Run Columns for each run.

Machine Number:				
Application Rate (Inches/Acre):				
Start Time: *(All equipment)*				
Stop Time: *(All equipment)*				
Total Minutes:				
Ending Meter Reading:				
Beginning Meter Reading:				
Total Gallons per run:				
GPM:				

Note any deficiencies that occur during land application

Date	Equipment *(i.e. hose, toolbar, tractor)*	Deficiency	Corrective Action

Crew Leader's Signature: _____ Certification #: _____
I certify that all information is correct.

Supervisor's Signature: _____
I certify that all information is correct.

Smithfield Hog Production
Hedgewood Farm
Nutrient Management Plan

Requirements:

In accordance with 10CSR 20-6.300(l) (G), the permittee shall implement a Nutrient Management Plan that at a minimum addresses the following.

I. Identifies specific records that will be maintained.

Record Keeping Requirements:

The following records shall be maintained on-site by the CAFO operator for a period of five (5) years from the date they are created:

a. A copy of the MDNR permit.
b. A current copy of the NMP
c. Visual Inspection Records:
   Morning and Evening Recycle System inspections
   Production area freshwater line inspections
   Dead animal holding facility inspections
   Storm water diversion device inspections
   Lagoon inspections
   Land application equipment inspections
   Land application inspections
d. Records documenting any actions taken to correct deficiencies.
e. Records of mortalities management
f. Discharge records
g. Precipitation records

Smithfield Hog Production
Hedgewood Farm
Nutrient Management Plan

Requirements:

In accordance with 10CSR 20-6.300(l) (G), the permittee shall implement a Nutrient Management Plan that at a minimum addresses the following.

J. **Misc**.

1. SOP – DEHS-0029- Secondary Containment Release.
2. Land Application map
3. Land Application Limitations listed in the MDNR Permit shall be implemented as part of a Standard Operation Procedure. All employees will be given a copy of the SOP's and trained as part of implementation.
4. SOP – DEHS-0018 Land Application – Soil Moisture and Climate Conditions.
5. SOP – DEHS-0023 Land Application – Slopes Greater Than 10%.
6. Table 3: Animal Inventory
7. Table 4: Five Year Crop History
8. Table 5: Five Year Crop Projection

MONITORING – SECONDARY CONTAINMENT RELEASE

DEPARTMENT:	EHS
PERSON(S) ACCOUNTABLE:	Land Nutrient Management Associate
WHEN:	As required after storm events.
GOAL / PURPOSE:	To maintain secondary containment structures to prevent a release to waters of the state.

PPE Assessment:

- Appropriate Footwear

Hazards Associated with Task:

- Slips, Trips, and Falls

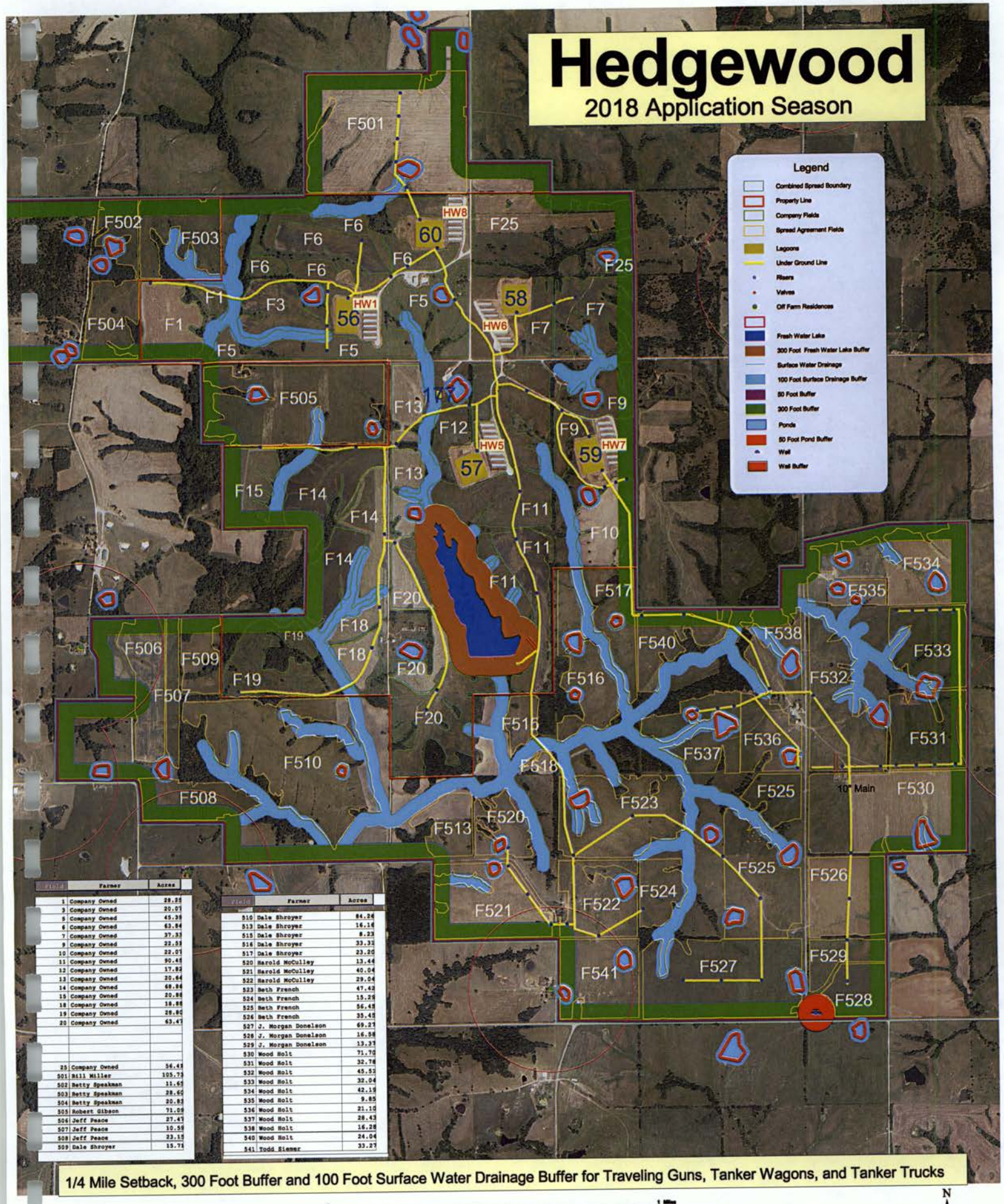
Procedure Steps:

Secondary Containment Valves – Draining Stormwater

1. Stormwater captured in a secondary containment structure that does not violate water quality standards may be released. Any wastewater or storm water that has been contaminated by coming into contact with manure, litter or wastewater and captured in a secondary containment shall be pumped into the lagoon or directly land applied.

Hedgewood

2018 Application Season



Field	Farmer	Acres
1	Company Owned	28.25
3	Company Owned	20.07
5	Company Owned	45.39
6	Company Owned	63.84
7	Company Owned	37.33
9	Company Owned	22.53
10	Company Owned	22.07
11	Company Owned	90.45
12	Company Owned	17.82
13	Company Owned	20.64
14	Company Owned	68.86
15	Company Owned	20.86
18	Company Owned	18.88
19	Company Owned	28.80
20	Company Owned	63.47
25	Company Owned	56.43
501	Bill Miller	105.73
502	Betty Speakman	11.65
503	Betty Speakman	28.60
504	Betty Speakman	20.83
505	Robert Gibson	71.09
506	Jeff Peace	27.47
507	Jeff Peace	10.59
508	Jeff Peace	23.15
509	Dale Shroyer	15.71

Field	Farmer	Acres
510	Dale Shroyer	84.26
513	Dale Shroyer	16.16
515	Dale Shroyer	8.23
516	Dale Shroyer	33.33
517	Dale Shroyer	23.20
520	Harold McCulley	13.44
521	Harold McCulley	40.04
522	Harold McCulley	29.04
523	Beth French	47.42
524	Beth French	15.25
525	Beth French	56.45
526	Beth French	35.45
527	J. Morgan Donelson	69.27
528	J. Morgan Donelson	16.58
529	J. Morgan Donelson	13.37
530	Wood Holt	71.70
531	Wood Holt	32.76
532	Wood Holt	45.51
533	Wood Holt	32.04
534	Wood Holt	42.19
535	Wood Holt	9.85
536	Wood Holt	21.10
537	Wood Holt	28.43
538	Wood Holt	16.28
540	Wood Holt	24.04
541	Todd Siemer	33.27

1/4 Mile Setback, 300 Foot Buffer and 100 Foot Surface Water Drainage Buffer for Traveling Guns, Tanker Wagons, and Tanker Trucks

This map has been prepared from public data and private gps. It should not be used for legal documents.

MAP UNDER REVIEW-THIS IS NOT THE FINAL RELEASE

February 27, 2017

N W E S

LAND APPLICATION – SOIL MOISTURE AND CLIMATIC CONDITIONS

DEPARTMENT:	EHS
PERSON(S) ACCOUNTABLE:	Land Application Associates.
WHEN:	Before initiating and throughout the land application process.
GOAL / PURPOSE:	To ensure that effluent is land applied during acceptable soil moisture and climatic conditions

PPE Assessment:

- Appropriate footwear

Hazards Associated with Task:

- Slips, Trips, and Falls associated with wet, uneven and/or icy terrain

***Preparation / Supplies*:**

- Paperwork detailing, and a working knowledge of, the "Feel Method"
- Soil Moisture Probe (if available)
- Startup Checklist

Procedure Steps:

SOIL MOISTURE CONDITIONS

1. All employees will use the "Feel Method" as outlined in the "Certification Training for Operators of Animal Waste Management Systems" by the North Carolina State University Cooperative Extension Service and visual inspection procedures to minimize potential runoff. The feel method provides a method of estimating soil moisture by feeling the soil and comparing the soil texture and behavior to the established guidelines. These guidelines provide an estimate of the amount of moisture that can be applied.
2. To use the feel method, collect a small soil sample from the upper few inches of the field and place the soil between your fingers. Roll the soil between your fingers and attempt to shape it into a ball or thin ribbon. The shape and texture of the soil can be used to estimate moisture conditions and a land application amount can be estimated using Table 5-2 "Feel guidelines for estimating the amount of plant-available water to be replaced with wastewater irrigation as a function of soil texture." Table 5-2 is provided at the end of this section.
3. Land Application Superintendents, Supervisors, or Crew Foreman should utilize the feel method before the start of all land application. The amount of land application for a particular field will generally follow the estimated allowable land application as determined by the feel method. After completion of land application, conduct the feel method again to obtain another estimate of soil moisture. If conditions are acceptable, additional land application may be conducted.

CLIMATIC CONDITIONS

4. The Land Application Supervisor(s) will check the weather each morning and decide if conditions are favorable for land application. They will notify the farms if conditions are unfavorable.
5. Avoid surface application when there is a local, applicable weather forecast or observation by staff of an imminent or impending storm event that is likely to produce runoff. No surface application of manure is allowed if precipitation, likely to create runoff, is forecasted to occur within 24 hours of the planned application. Manure will not be surface applied to frozen, snow-covered or saturated soils.
6. Cease land application when LNM associates observe an imminent or impending storm event likely to produce runoff.
7. Anytime land application is stopped or postponed due to rainfall, the feel method must be used again to monitor soil moisture conditions and decide when to resume land application. In the event of rainfall, the land application crews must remain at their assigned locations until released by the Supervisor. There may be times when rainfall occurs for only a few minutes and does not significantly affect soil moisture conditions. In these situations, after conducting a feel method check of soil conditions, the Land Application Supervisor may direct application to resume.

Table 5-2. "Feel" guidelines for estimating the amount of plant-available water to be replaced with wastewater irrigation as a function of soil texture.

Available Water Remaining in The Soil	Sands Loamy Sand	Sandy Loam	Clay, Clay Loam Sandy Clay Loam	All Other Textures
	Maximum Recommended Wastewater Irrigation (per foot of effective root zone depth)			
100 percent (I.e., field capacity)		When ball is squeezed, no free water appears on soil but wet outline of ball is left in hand.		
Wastewater Irrigation	None	None	None	None
75 to 100%	Sticks together only slightly	Forms a ball that breaks easily	Forms a ball: very pliable	Easily ribbons between thumb and forefinger; feels slick
Wastewater Irrigation	0.1 to 0.2 inch	0.2 to 0.3 inch	0.2 to 0.4 inch	0.2 to 0.4 inch
50 to 75%	Appears dry, will not form a ball	Forms a weak ball that falls apart	Forms ball; slightly plastic; slightly sticky	Forms ball; forms ribbon
Wastewater Irrigation	0.2 to 0.3 inch	0.3 to 0.4 inch	0.3 to 0.5 inch	0.3 to 0.6 inch
25 to 50%	Appears dry, will not form a ball	Appears dry, will not form a ball	Somewhat crumbly but holds under pressure	Forms ball; under pressure; somewhat pliable
Wastewater Irrigation	0.3 to 0.5 inch	0.3 to 0.6 inch	0.3 to 0.6 inch	0.3 to 0.7 inch
0 to 25%	Dry, loose, single-grained, flows through fingers	Dry, loose, flows through fingers	Powdery, dry; easily breaks into powdery condition	Hard, cracked; may have lose crumbs on the soil surface
Wastewater Irrigation	0.3 to 0.5 inch	0.3 to 0.6 inch	0.3 to 0.7 inch	0.3 to 0.7 inch

North Carolina Cooperative Extension Service

LAND APPLICATION – SLOPES GREATER THAN 10%

DEPARTMENT:	EHS
PERSON(S) ACCOUNTABLE:	LNM
WHEN:	When land applying on slopes greater than 10% but less than or equal to 20%.
GOAL / PURPOSE:	To ensure that the application process remains safe on slopes where the potential for run-off is greater.

PPE Assessment:

- None

Hazards Associated with Task:

- None

Preparation / Supplies:

- Topographic Map (NMP)

Procedure Steps:

1. For slopes greater than 10% but less than or equal to 20%, reduce the surface application rate to equal ½ (50%) the rate for slopes less than 10%.
2. Verify field slopes by checking the Field Notes.
3. At least one hour after the first application of the day, you may perform a soil moisture check to decide if a second application can be made on the same field so long as you do not exceed the daily application amount referenced in the MDNR permit.

Table 3: Animal Inventory

Location	Animal Type	Production Phase	Number of Animals Permited	Average Weight (Lbs)	Confinement Period	Manure Collected (%)	Type of manure storage
Hedgewood 1	Swine	Grow-finish	8832	150	Year round	100	Anaerobic Lagoon
Hedgewood 5	Swine	Grow-finish	8832	150	Year round	100	Anaerobic Lagoon
Hedgewood 6	Swine	Grow-finish	8832	150	Year round	100	Anaerobic Lagoon
Hedgewood 7	Swine	Grow-finish	8832	150	Year round	100	Anaerobic Lagoon
Hedgewood 8	Swine	Grow-finish	8832	150	Year round	100	Anaerobic Lagoon

Table 4: Five Year Crop History

Tract Name	Field	Year	Crop	Acres	N Limit
Hedgewood	001	2013	Hay/Pasture	28.25	118.22
Hedgewood	001	2014	Hay/Pasture	28.25	118.22
Hedgewood	001	2015	Hay/Pasture	28.25	133.40
Hedgewood	001	2016	Hay/Pasture	28.25	149.50
Hedgewood	001	2017	Hay/Pasture	28.25	126.04
Hedgewood	003	2013	Hay/Pasture	20.07	124.66
Hedgewood	003	2014	Hay/Pasture	20.07	124.66
Hedgewood	003	2015	Hay/Pasture	20.07	104.42
Hedgewood	003	2016	Hay/Pasture	20.07	89.70
Hedgewood	003	2017	Hay/Pasture	20.07	97.89
Hedgewood	005	2013	Hay/Pasture	45.39	124.66
Hedgewood	005	2014	Hay/Pasture	45.39	124.66
Hedgewood	005	2015	Hay/Pasture	45.39	78.66
Hedgewood	005	2016	Hay/Pasture	45.39	108.56
Hedgewood	005	2017	Hay/Pasture	45.39	104.24
Hedgewood	006	2013	Hay/Pasture	63.84	139.84
Hedgewood	006	2014	Hay/Pasture	63.84	139.84
Hedgewood	006	2015	Hay/Pasture	63.84	100.28
Hedgewood	006	2016	Hay/Pasture	63.84	141.68
Hedgewood	006	2017	Hay/Pasture	63.84	120.89
Hedgewood	007	2013	Hay/Pasture	37.33	173.88
Hedgewood	007	2014	Hay/Pasture	37.33	173.88
Hedgewood	007	2015	Hay/Pasture	37.33	108.10
Hedgewood	007	2016	Hay/Pasture	37.33	92.00
Hedgewood	007	2017	Hay/Pasture	37.33	124.20
Hedgewood	009	2013	Hay/Pasture	22.51	145.36
Hedgewood	009	2014	Hay/Pasture	22.51	145.36
Hedgewood	009	2015	Hay/Pasture	22.51	80.04
Hedgewood	009	2016	Hay/Pasture	22.51	83.12
Hedgewood	009	2017	Hay/Pasture	22.51	92.92
Hedgewood	010	2013	Hay/Pasture	22.07	87.40
Hedgewood	010	2014	Hay/Pasture	22.07	94.30
Hedgewood	010	2015	Hay/Pasture	22.07	109.48
Hedgewood	010	2016	Hay/Pasture	22.07	109.94
Hedgewood	010	2017	Hay/Pasture	22.07	57.50
Hedgewood	011	2013	Hay/Pasture	90.45	180.32
Hedgewood	011	2014	Hay/Pasture	90.45	180.32
Hedgewood	011	2015	Hay/Pasture	90.45	139.38
Hedgewood	011	2016	Hay/Pasture	90.45	193.66
Hedgewood	011	2017	Hay/Pasture	90.45	155.48
Hedgewood	012	2013	Hay/Pasture	17.82	80.50
Hedgewood	012	2014	Hay/Pasture	17.82	80.50
Hedgewood	012	2015	Hay/Pasture	17.82	117.30
Hedgewood	012	2016	Hay/Pasture	17.82	90.16
Hedgewood	012	2017	Hay/Pasture	17.82	90.44

Table 4: Five Year Crop History

Tract Name	Field	Year	Crop	Acres	N Limit
Hedgewood	013	2013	Hay/Pasture	20.64	182.62
Hedgewood	013	2014	Hay/Pasture	20.64	182.62
Hedgewood	013	2015	Hay/Pasture	20.64	107.64
Hedgewood	013	2016	Hay/Pasture	20.64	145.82
Hedgewood	013	2017	Hay/Pasture	20.64	146.37
Hedgewood	014	2013	Hay/Pasture	68.86	95.68
Hedgewood	014	2014	Hay/Pasture	68.86	95.68
Hedgewood	014	2015	Hay/Pasture	68.86	151.34
Hedgewood	014	2016	Hay/Pasture	68.86	166.52
Hedgewood	014	2017	Hay/Pasture	68.86	126.59
Hedgewood	015	2013	Hay/Pasture	20.88	124.66
Hedgewood	015	2014	Hay/Pasture	20.88	124.66
Hedgewood	015	2015	Hay/Pasture	20.88	135.70
Hedgewood	015	2016	Hay/Pasture	20.88	131.10
Hedgewood	015	2017	Hay/Pasture	20.88	128.80
Hedgewood	018	2013	Hay/Pasture	18.88	139.38
Hedgewood	018	2014	Hay/Pasture	18.88	139.38
Hedgewood	018	2015	Hay/Pasture	18.88	141.68
Hedgewood	018	2016	Hay/Pasture	18.88	120.06
Hedgewood	018	2017	Hay/Pasture	18.88	126.87
Hedgewood	019	2013	Hay/Pasture	28.80	106.72
Hedgewood	019	2014	Hay/Pasture	28.80	106.72
Hedgewood	019	2015	Hay/Pasture	28.80	103.96
Hedgewood	019	2016	Hay/Pasture	28.80	120.98
Hedgewood	019	2017	Hay/Pasture	28.80	98.53
Hedgewood	020	2013	Hay/Pasture	25.78	96.60
Hedgewood	020	2014	Hay/Pasture	25.78	94.30
Hedgewood	020	2015	Hay/Pasture	25.78	160.54
Hedgewood	020	2016	Hay/Pasture	25.78	179.40
Hedgewood	020	2017	Hay/Pasture	25.78	132.71
Hedgewood	025	2013	Hay/Pasture	56.41	173.88
Hedgewood	025	2014	Hay/Pasture	56.41	173.88
Hedgewood	025	2015	Hay/Pasture	56.41	108.10
Hedgewood	025	2016	Hay/Pasture	56.41	92.00
Hedgewood	025	2017	Hay/Pasture	56.41	124.20

Table 5: Five Year Crop Projections

Tract Name	Field	Year	Crop	Acres	N Limit
Hedgewood	001	2018	Hay/Pasture	28.25	160
Hedgewood	001	2019	Hay/Pasture	28.25	160
Hedgewood	001	2020	Hay/Pasture	28.25	160
Hedgewood	001	2021	Hay/Pasture	28.25	160
Hedgewood	001	2022	Hay/Pasture	28.25	160
Hedgewood	003	2018	Hay/Pasture	20.07	124
Hedgewood	003	2019	Hay/Pasture	20.07	124
Hedgewood	003	2020	Hay/Pasture	20.07	124
Hedgewood	003	2021	Hay/Pasture	20.07	124
Hedgewood	003	2022	Hay/Pasture	20.07	124
Hedgewood	005	2018	Hay/Pasture	45.39	146
Hedgewood	005	2019	Hay/Pasture	45.39	146
Hedgewood	005	2020	Hay/Pasture	45.39	146
Hedgewood	005	2021	Hay/Pasture	45.39	146
Hedgewood	005	2022	Hay/Pasture	45.39	146
Hedgewood	006	2018	Hay/Pasture	63.84	128
Hedgewood	006	2019	Hay/Pasture	63.84	128
Hedgewood	006	2020	Hay/Pasture	63.84	128
Hedgewood	006	2021	Hay/Pasture	63.84	128
Hedgewood	006	2022	Hay/Pasture	63.84	128
Hedgewood	007	2018	Hay/Pasture	37.33	133
Hedgewood	007	2019	Hay/Pasture	37.33	133
Hedgewood	007	2020	Hay/Pasture	37.33	133
Hedgewood	007	2021	Hay/Pasture	37.33	133
Hedgewood	007	2022	Hay/Pasture	37.33	133
Hedgewood	009	2018	Hay/Pasture	22.51	120
Hedgewood	009	2019	Hay/Pasture	22.51	120
Hedgewood	009	2020	Hay/Pasture	22.51	120
Hedgewood	009	2021	Hay/Pasture	22.51	120
Hedgewood	009	2022	Hay/Pasture	22.51	120
Hedgewood	010	2018	Hay/Pasture	22.07	100
Hedgewood	010	2019	Hay/Pasture	22.07	100
Hedgewood	010	2020	Hay/Pasture	22.07	100
Hedgewood	010	2021	Hay/Pasture	22.07	100
Hedgewood	010	2022	Hay/Pasture	22.07	100
Hedgewood	011	2018	Hay/Pasture	90.45	144
Hedgewood	011	2019	Hay/Pasture	90.45	144
Hedgewood	011	2020	Hay/Pasture	90.45	144
Hedgewood	011	2021	Hay/Pasture	90.45	144
Hedgewood	011	2022	Hay/Pasture	90.45	144
Hedgewood	012	2018	Hay/Pasture	17.82	90
Hedgewood	012	2019	Hay/Pasture	17.82	90
Hedgewood	012	2020	Hay/Pasture	17.82	90
Hedgewood	012	2021	Hay/Pasture	17.82	90
Hedgewood	012	2022	Hay/Pasture	17.82	90

Table 5: Five Year Crop Projections

Tract Name	Field	Year	Crop	Acres	N Limit
Hedgewood	013	2018	Hay/Pasture	20.64	120
Hedgewood	013	2019	Hay/Pasture	20.64	120
Hedgewood	013	2020	Hay/Pasture	20.64	120
Hedgewood	013	2021	Hay/Pasture	20.64	120
Hedgewood	013	2022	Hay/Pasture	20.64	120
Hedgewood	014	2018	Hay/Pasture	68.86	115
Hedgewood	014	2019	Hay/Pasture	68.86	115
Hedgewood	014	2020	Hay/Pasture	68.86	115
Hedgewood	014	2021	Hay/Pasture	68.86	115
Hedgewood	014	2022	Hay/Pasture	68.86	115
Hedgewood	015	2018	Hay/Pasture	20.88	115
Hedgewood	015	2019	Hay/Pasture	20.88	115
Hedgewood	015	2020	Hay/Pasture	20.88	115
Hedgewood	015	2021	Hay/Pasture	20.88	115
Hedgewood	015	2022	Hay/Pasture	20.88	115
Hedgewood	018	2018	Hay/Pasture	18.88	130
Hedgewood	018	2019	Hay/Pasture	18.88	130
Hedgewood	018	2020	Hay/Pasture	18.88	130
Hedgewood	018	2021	Hay/Pasture	18.88	130
Hedgewood	018	2022	Hay/Pasture	18.88	130
Hedgewood	019	2018	Hay/Pasture	28.80	130
Hedgewood	019	2019	Hay/Pasture	28.80	130
Hedgewood	019	2020	Hay/Pasture	28.80	130
Hedgewood	019	2021	Hay/Pasture	28.80	130
Hedgewood	019	2022	Hay/Pasture	28.80	130
Hedgewood	020	2018	Hay/Pasture	63.47	126
Hedgewood	020	2019	Hay/Pasture	63.47	126
Hedgewood	020	2020	Hay/Pasture	63.47	126
Hedgewood	020	2021	Hay/Pasture	63.47	126
Hedgewood	020	2022	Hay/Pasture	63.47	126
Hedgewood	025	2018	Hay/Pasture	56.41	104
Hedgewood	025	2019	Hay/Pasture	56.41	104
Hedgewood	025	2020	Hay/Pasture	56.41	104
Hedgewood	025	2021	Hay/Pasture	56.41	104
Hedgewood	025	2022	Hay/Pasture	56.41	104