App 49187 for MOG010900, 5/18/2026

RECEIVED 35692 37814

OCT 0 3 2020

Water Protection Program

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

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

FOR OFFICE USE ONLY	
CHECK NUMBER:	
DATE RECEIVED 10-2-20	FEE SUBMITTED

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, Locust Ridge Farm	CURRENT PERMIT NUMBER MO-0118494	COUNTY Sullivan
PHYSICAL ADDRESS 44104 Highway E	LEGAL DESCRIPTION Sec.: 31 Twn.: 64N Rng.: 21W	TELEPHONE NUMBER WITH AREA CODE (660) 794-6761
CITY Harris	STATE Missouri	ZIP CODE 64645
1.2 OWNER (PROVIDE LEGAL NAME) Smithfield Hog Production Missouri	EMAIL ADDRESS	
MAILING ADDRESS 17999 US Highway 65		TELEPHONE NUMBER WITH AREA CODE 660-748-4647
CITY Princeton	STATE MO	ZIP CODE 64673
1.3 CONTINUING AUTHORITY (IF DIFFERENT THAN THE OWNER) Owner and continuing authority changed per emails to Murphy-Brown of Missouri LLC d/b/a Smithfield Hog Production		
MAILING ADDR		NE 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

☒ 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			5,284,581	5,274,615	365	0.0145
002	E			5,265,325	5,267,680	365	0.0144
003	E			4,340,616	4,330,360	365	0.0119
004	E			5,284,581	5,274,615	365	0.0145
005	E			5,435,502	4,336,565	365	0.0119

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	4	18,400				
002	4	18,400				
003	4	18,400				
004	4	18,400				
005	4	18,400				

PART 4 – OPERATIONAL INFORMATION

4.1 OPERATIONAL INFORMATION (SEE INSTRUCTIONS)
SIC Code(s) 0213 CAFO Class Size 1A

4.2 Is this an "Export Only" operation? ☑ No

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	E			5,302,387	5,328,270	365	0.0146
007	E			5,334,590	5,484,855	365	0.0150
008	E			5,007,877	4,109,535	365	0.0113
009	D				Domestic Wastewater Lagoon		
038	D – 5 cells AND				1,039,458		

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
006	4	1,840				
007	4	1,840				
008	4	1,840				

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

PART 5 – MANURE STORAGE

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

PART 6 – ANIMAL MORTALITY

6.1 PEMANENT METHOD OF DISPOSING OF ROUTINE ANIMAL MORTALITIES.

[√] 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 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? [√] 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 IN ORDER 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? [√] No

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

THE LOCUST RIDGE 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.)

Waste water

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? [√] **Yes**

PART 12 – SIGNATURE

NAME	TITLE
Michael Rainwater	General Manager
SIGNATURE	DATE 9-28-2020

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

This table has been updated with the 2024 NMP data and included with the draft renewal permit. 2/20/26 TB.

LAND APPLICATION INFORMATION TABLE (REQUIRED FOR NPDES PERMTS ONLY)

Operation Name: **Smithfield, Locust Ridge Farm** Class Size: **1A** Permit #: **MO-0118494** County: **Sullivan**

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. 19 & 20 Twn. 64N Rng. 21W	84.71	VL	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
4	Sec. 20 Twn. 64N Rng. 21W	38.74	VL	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
5	Sec. 20 Twn. 64N Rng. 21W	14.61	VL	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
6	Sec. 19 Twn. 64N Rng. 21W	8.18	M	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
7	Sec. 19 Twn. 64N Rng. 21W	119.60	M	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
9	Sec. 19 Twn. 64N Rng. 21W	38.11	L	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
11	Sec. 19 & 30 Twn. 64N Rng. 21W	57.75	VL	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
12	Sec. 20 Twn. 64N Rng. 21W	7.41	VL	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
13	Sec. 20 Twn. 64N Rng. 21W	18.85	M	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
14	Sec. 20 Twn. 64N Rng. 21W	9.16	VL	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
15	Sec. 20 Twn. 64N Rng. 21W	35.04	VL	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
16	Sec. 29 Twn. 64N Rng. 21W	107.46	L	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
17	Sec. 29 Twn. 64N Rng. 21W	20.31	VL	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
18	Sec. 29 Twn. 64N Rng. 21W	12.82	M	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
19	Sec. 29 Twn. 64N Rng. 21W	22.90	M	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
20	Sec. 29 Twn. 64N Rng. 21W	19.57	VL	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
21	Sec. 29 Twn. 64N Rng. 21W	10.18	VL	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
22	Sec. 30 Twn. 64N Rng. 21W	65.34	VL	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
24	Sec. 30 Twn. 64N Rng. 21W	46.80	VL	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
26	Sec. 30 & 31 Twn. 64N Rng. 21W	98.20	VL	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
27	Sec. 30 & 31 Twn. 64N Rng. 21W	23.07	L	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
28	Sec. 30 Twn. 64N Rng. 21W	36.65	VL	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
29	Sec. 31 Twn. 64N Rng. 21W	51.35	L	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a
30	Sec. 31 Twn. 64N Rng. 21W	50.13	M	N	Mixed Grasses	4 t/a	Brome	4 t/a	Fescue	4 t/a	Orchard Grass	4 t/a	Clover	4 t/a

[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.

From: Boxley, Blake
To: Bullock, Teresa
Subject: Permit Request
Date: Tuesday, April 14, 2026 8:03:49 AM
Attachments: ATT00001.png

Ms. Bullock,

I am writing to you concerning the six site specific farms listed below. Murphy-Brown of Missouri LLC d/b/a/ Smithfield Hog Production ("Smithfield") has previously submitted to DNR applications to renew these site-specific permits. In accordance with 10 CSR 20-6.300(2)(B), Smithfield is asking that these permits be issued as new NPDES General Permits MOG01. Accordingly, Smithfield hereby amends sections 2.1 and 2.2 of our previous renewal applications. Section 2.1 is amended to request a "NPDES General Permit (MOG01). Section 2.2 is amended to request a "New Permit" in the form of a MOG01 permit with a new permit number.

Site Specific Permits	Permit No.	Issued	Expires
Green Hills Finishing Site	MO-0118486	06/01/2017	12/31/2021
Locust Ridge Finishing Site	MO-0118494	03/01/2017	02/28/2022
Somerset Farm	MO-0118168	03/01/2017	02/28/2022
Valley View Finishing Site	MO-0118478	07/01/2017	03/31/2022
Whitetail Finishing Site	MO-0117421	07/01/2016	03/31/2021
Ruckman Farm	MO-0118451	06/01/2017	12/31/2021

Smithfield
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Blake Boxley
Director, EHS
p: (660) 748-7239 x47239 **c:** (660) 748-5370
e: bboxley@smithfield.com

17999 US Highway 65
Princeton, Missouri 64673

smithfieldfoods.com

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PUBLIC NOTICE

DRAFT MISSOURI STATE OPERATING PERMIT

DATE: October 16, 2026

In accordance with the state Clean Water Law, Chapter 644, RSMo, Missouri Clean Water Commission regulation 10 CSR 20-6.010, and the federal Clean Water Act, the applicants listed herein have applied for authorization to either discharge to waters of the state, or to operate a no-discharge wastewater treatment facility. The proposed permits for these operations are consistent with applicable water quality standards, effluent standards and/or treatment requirements or suitable timetables to meet these requirements (see 10 CSR 20-7.015 and 7.031). All permits will be issued for a period of five years unless noted otherwise in the Public Notice for that discharge.

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

Persons wishing to comment on the proposed permit conditions are invited to submit them in writing to: Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, MO 65102-0176, ATTN: NPDES Operating Permits /Permit Comments. **Please include the permit number in all comment letters.**

Comments should be confined to the issues relating to the proposed action and permit(s) and the effect on water quality. The Department may not consider as relevant comments or objections to a permit based on issues outside the authority of the Missouri Clean Water Commission, (see Curdt v. Mo. Clean Water Commission, 586 S.W.2d 58 Mo. App. 1979).

All comments must be received or postmarked by 5 p.m. on **November 2, 2026**. The Department will consider all written comments including emails, faxes, and letters in the formulation of all final determinations regarding the applications. Email comments will be accepted at the following address: publicnoticenpdes@dnr.mo.gov. If response to this notice indicates significant public interest, a public meeting or hearing may be held after due notice for the purpose of receiving public comment on the proposed permit or determination. Public hearings and/or issuance of the permit will be conducted or processed according to 10 CSR 20-6.020.

Copies of all draft permits and other information including copies of applicable regulations are available for inspection and copying at the Department's website at https://dnr.mo.gov/water/what-were-doing/public-notices, or at Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, MO 65102-0176, between the hours of 8 a.m. and 5 p.m. on Monday through Friday.

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

General Operating Permit

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo as amended, hereinafter, the Law),

Permit No	MOG010900
Responsible Authority:	MURPHY-BROWN OF MISSOURI LLC 17999 US Highway 65 Princeton, MO 64673
Facility Name: Facility Address:	Smithfield Hog Production, Locust Ridge Farm 44104 Highway E Harris, MO 64645

is authorized to operate the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein.

FACILITY DESCRIPTION

All Outfalls - Concentrated Animal Feeding Operation (CAFO) - SIC #0211, #0212, #0213, #0214, #0241, #0251, #0252, #0253, #0254, #0259, or #0272.

Process wastes are collected and reused as a fertilizer or soil amendment by spreading onto agricultural fields at agricultural rates in accordance with this permit. There is no-discharge except as allowed in accordance with the effluent limitation guidelines contained within this permit.

CAFO Class Size:	IA
Animal Units:	28,262

The activities permitted herein are authorized under the Missouri Clean Water Law and National Pollutant Discharge Elimination System.

Issue Date

Heather Peters, Director
Water Protection Program

February 29, 2028

Expiration Date

DRAFT

Smithfield, Locust Ridge Farm
MO-G010900, Sullivan County

Detailed Operation Description
For Concentrated Animal Feeding Operations

Feature: 001
Legal Description: Sec. 31, T64N, R21W, Sullivan County
UTM Coordinates: X=475082, Y=4461884
Receiving Stream: Tributary to W. Fork Locust Creek
First Classified Stream - ID#: Presumed Use Streams (C) (5048)
USGS# and Sub Watershed#: 10280103-0202

Animal Type(s) and Number: Swine Over 55 lbs 8,832
Storage Structure Type(s) and Design Storage Period (days): Anaerobic lagoon – 365 (days)
General Description: Farm #1. Eight confinement buildings with shallow concrete pits. Manure is scraped to an anaerobic lagoon. All mortalities are rendered.

Feature: 002
Legal Description: Sec. 31, T64N, R21W, Sullivan County
UTM Coordinates: X=474530, Y=4462298
Receiving Stream: Tributary to W. Fork Locust Creek
First Classified Stream - ID#: Presumed Use Streams (C) (5048)
USGS# and Sub Watershed#: 10280103-0802

Animal Type(s) and Number: Swine Over 55 lbs 8,832
Storage Structure Type(s) and Design Storage Period (days): Anaerobic lagoon – 365 (days)
General Description: Farm #2. Eight confinement buildings with shallow concrete pits. Manure is scraped to an anaerobic lagoon. All mortalities are rendered.

Feature: 003
Legal Description: Sec. 31, T64N, R21W, Sullivan County
UTM Coordinates: X=473682, Y=4461969
Receiving Stream: Tributary to Medicine Creek
First Classified Stream - ID#: Presumed Use Streams (C) (5048)
USGS# and Sub Watershed#: 10280103-0207

Animal Type(s) and Number: Swine Over 55 lbs 8,832
Storage Structure Type(s) and Design Storage Period (days): Anaerobic lagoon – 365 (days)
General Description: Farm #3. Eight confinement buildings with shallow concrete pits. Manure is scraped to an anaerobic lagoon. All mortalities are rendered.

Feature: 004
Legal Description: Sec. 30, T64N, R21W, Sullivan County
UTM Coordinates: X=474199, Y=4462622
Receiving Stream: Tributary to W. Fork Locust Creek
First Classified Stream - ID#: Presumed Use Streams (C) (5048)
USGS# and Sub Watershed#: 10280103-0802

Animal Type(s) and Number: Swine Over 55 lbs 8,832
Storage Structure Type(s) and Design Storage Period (days): Anaerobic lagoon – 365 (days)
General Description: Farm #5. Eight confinement buildings with shallow concrete pits. Manure is scraped to an anaerobic lagoon. All mortalities are rendered.

DRAFT

Detailed Operation Description
For Concentrated Animal Feeding Operations

Feature: 005
Legal Description: Sec. 30, T64N, R21W, Sullivan County
UTM Coordinates: X=474660, Y=4463577
Receiving Stream: Tributary to W. Fork Locust Creek
First Classified Stream - ID#: Presumed Use Streams (C) (5048)
USGS# and Sub Watershed#: 10280103-0802

Animal Type(s) and Number: Swine Over 55 lbs 8,832
Storage Structure Type(s) and Design Storage Period (days): Anaerobic lagoon – 365 (days)
General Description: Farm #6. Eight confinement buildings with shallow concrete pits. Manure is scraped to an anaerobic lagoon. All mortalities are rendered.

Feature: 006
Legal Description: Sec. 19, T64N, R21W, Sullivan County
UTM Coordinates: X=474748, Y=4464008
Receiving Stream: Tributary to W. Fork Locust Creek
First Classified Stream - ID#: Presumed Use Streams (C) (5048)
USGS# and Sub Watershed#: 10280103-0802

Animal Type(s) and Number: Swine Over 55 lbs 8,832
Storage Structure Type(s) and Design Storage Period (days): Anaerobic lagoon – 365 (days)
General Description: Farm #7. Eight confinement buildings with shallow concrete pits. Manure is scraped to an anaerobic lagoon. All mortalities are rendered.

Feature: 007
Legal Description: Sec. 30, T64N, R21W, Sullivan County
UTM Coordinates: X=475200, Y=4463826
Receiving Stream: Tributary to W. Locust Creek
First Classified Stream - ID#: Presumed Use Streams (C) (5048)
USGS# and Sub Watershed#: 10280103-0802

Animal Type(s) and Number: Swine Over 55 lbs 8,832
Storage Structure Type(s) and Design Storage Period (days): Anaerobic lagoon – 365 (days)
General Description: Farm #8. Eight confinement buildings with shallow concrete pits. Manure is scraped to an anaerobic lagoon. All mortalities are rendered.

Feature: 008
Legal Description: Sec. 19, T64N, R21W, Sullivan County
UTM Coordinates: X=475183, Y=4464886
Receiving Stream: Tributary to W. Locust Creek
First Classified Stream - ID#: Presumed Use Streams (C) (5048)
USGS# and Sub Watershed#: 10280103-0801

Animal Type(s) and Number: Swine Over 55 lbs 8,832
Storage Structure Type(s) and Design Storage Period (days): Anaerobic lagoon – 365 (days)
General Description: Farm #9. Eight confinement buildings with shallow concrete pits. Manure is scraped to an anaerobic lagoon. All mortalities are rendered.

DRAFT

Detailed Operation Description
For Concentrated Animal Feeding Operations

Feature: 009
Legal Description: Sec. 32, T64N, R21W, Sullivan County
UTM Coordinates: X=475377, Y=4462243
Receiving Stream: Tributary to W. Fork Locust Creek
First Classified Stream - ID#: Presumed Use Streams (C) (5048)
USGS# and Sub Watershed#: 10280103-0802

Storage Structure Type(s) and Design Storage Period (days): Storage lagoon – 365 (days)

General Description: No-discharge domestic storage lagoon with land application.

Feature: 010
Legal Description: Sec. 30, T64N, R21W, Sullivan County
UTM Coordinates: X=474650, Y=4463247
Receiving Stream: Tributary to W. Fork Locust Creek
First Classified Stream - ID#: Presumed Use Streams (C) (5048)
USGS# and Sub Watershed#: 10280103-0802

Storage Structure Type(s) and Design Storage Period (days): Anaerobic lagoon – 365 (days)

General Description: Advanced Nitrification/Denitrification (A.N.D.) System. The anaerobic lagoon associated with each farm (8 total) is pumped to this system using underground piping before land application is conducted. The AND system is comprised of equalization basin, anoxic basin, aerated basin, solids storage basin and irrigation storage pond.

Feature: 011
General Description: Annual Reporting Requirements – Land application

DRAFT

Permitted Feature #001: Production Area, Waste Storage (e.g. earthen basin, covered earthen basin, deep pit, stack shed, composter), with Land Application
Legal Description:
UTM Coordinate: X = Y =
Receiving Water:
First Classified Stream and ID:
USGS Basin & Sub-Watershed No:
Storage Structure Type(s) and Design Storage Period (days):

General Description:

Permitted Feature #02 (#02M or #02I): Truck Wash with Earthen Basin or Storage Structure
Truck wash wastewater may be mixed (or applied on the same field) with CAFO wastewater under an approved NMP (monitored under Table A-2 and Permitted Feature #02M)
OR truck wash wastewater may be independently managed and land applied on a field separate from CAFO land application activities (Permitted Feature #02I, must be associated with PF#003, and monitored under Table A-1)
Legal Description:
UTM Coordinates: X = Y=
USGS Basin & Sub-watershed No.:
Design Flow, Dry Weather (gallons per day):
Design Flow, 1-in-10 Year Wet Weather (gallons per day):

Permitted Feature #003: Truck Wash Specific Land Application.
This permitted feature is only for fields used exclusively for land application of truck wash wastewater, which is not included in the CAFO Nutrient Management Plan (NMP). If truck wash wastewater is mixed with CAFO wastewater and land applied under the nutrient management plan, this permitted feature and associated monitoring and special conditions are not applicable.
Legal Description:
UTM Coordinates: X = Y =
USGS Basin & Sub-watershed No.:
Maximum Application Rate: 24" per year, 3" per week, 1" per day or nutrient based land application rate, whichever is lower.

Permitted feature #004: Domestic Wastewater Holding Basin
Legal Description:
UTM Coordinates: X = Y=
USGS Basin & Sub-watershed No.:
Design Flow, Dry Weather (gallons per day):
Design Flow, 1-in-10 Year Wet Weather (gallons per day):

Permitted Feature #005: Domestic Specific Land Application
This permitted feature is only for fields used exclusively for land application of domestic wastewater, which is not included in the CAFO Nutrient Management Plan (NMP). If domestic wastewater is mixed with CAFO wastewater and land applied under the nutrient management plan, this permitted feature and associated monitoring and special conditions are not applicable.
Legal Description:
UTM Coordinates: X = Y =
USGS Basin & Sub-watershed No.:
Maximum Application Rate: 24" per year, 3" per week, 1" per day

Annual Summary #AS1 – This is a feature established for summary annual reporting for all land application activities conducted under this permit on land application areas under the operational control of the CAFO owner/operator.
Volume irrigated: Gals or Ton/year
Land Application Area: Acres/year

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

PERMITTED FEATURE #02I *Truck Wash Wastewater* *(managed independent of CAFO wastewater/NMP)*	**TABLE A-1** **STORAGE BASIN MONITORING REQUIREMENTS**				
The permittee is authorized to store and land apply truck wash wastewater as specified in the application for this permit. No discharge is authorized from this permitted feature. The irrigation of wastewater shall be controlled, limited and monitored by the permittee as specified below:					
EFFLUENT PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS	
		DAILY MAXIMUM	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: IW					
LAND APPLIED WASTEWATER (◊, Ψ)					
Oil & Grease	mg/L	*		once/year	grab
Nitrate + Nitrite	mg/L	*		once/year	grab
Ammonia Nitrogen as N	mg/L	*		once/year	grab
Nitrogen, Total Kjeldahl	mg/L	*		once/year	grab
Phosphorous, Total	mg/L	*		once/year	grab
Boron	µg/L	*		once/year	grab
Copper	µg/L	*		once/year	grab
Zinc	µg/L	*		once/year	grab
Limit Set: S					
LAND APPLIED INDUSTRIAL SLUDGE (Ϫ,☼)					
Nitrogen, Total	mg/kg	*		once/event	grab
Phosphorus, Total	mg/kg	*		once/event	grab
Potassium, Total	mg/kg	*		once/event	grab
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2024. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.					

PERMITTED FEATURE #02M *Truck Wash Wastewater* *(When mixing with CAFO Wastewater under NMP)*	**TABLE A-2** **STORAGE BASIN MONITORING REQUIREMENTS**

The permittee is authorized to store and land apply truck wash wastewater mixed with CAFO wastewater as specified in the application for this permit. No discharge is authorized from this permitted feature. The irrigation of wastewater shall be controlled, limited and monitored by the permittee as specified below:

EFFLUENT PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS	
		DAILY MAXIMUM	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: IW					
LAND APPLIED WASTEWATER (◊, Ψ)					
Oil & Grease	mg/L	*		once/year	grab
Boron	µg/L	*		once/year	grab
Copper	µg/L	*		once/year	grab
Zinc	µg/L	*		once/year	grab
Limit Set: S					
LAND APPLIED INDUSTRIAL SLUDGE (Ƶ,☼)					
Nitrogen, Total	mg/kg	*		once/event	grab
Phosphorus, Total	mg/kg	*		once/event	grab
Potassium, Total	mg/kg	*		once/event	grab

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2024.
THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

PERMITTED FEATURES #003 AND #005 *Truck Wash / Domestic Wastewater Land Application* *(only applies to truck wash wastewater when not mixed with CAFO waste)*	**TABLE A-3** **TRUCK WASH / DOMESTIC WASTEWATER LAND APPLICATION FIELD MONITORING REQUIREMENTS**				
The permittee is authorized to conduct irrigation of wastewater and sludge as specified in the application for this permit. No discharge is authorized from this permitted feature. The final limitations shall become effective on **March 1, 2023,** and remain in effect until expiration of the permit. The irrigation of wastewater shall be controlled, limited and monitored by the permittee as specified below:					
EFFLUENT PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS	
		DAILY MAXIMUM	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: LA					
WASTEWATER APPLICATION ◊					
Application Area	Acres	*		once/day	measured
Application Rate	Inches/Acre	*		once/day	measured
Irrigation Period	Hours	*		once/day	measured
Volume Irrigated	Gallons	*		once/day	measured
Limit Set: LS					
INDUSTRIAL SLUDGE APPLICATION ϰ					
Application Area	Acres	*		once/day	measured
Application Rate	Inches/Acre	*		once/day	measured
Volume Irrigated	Gallons	*		once/day	measured
MONITORING REPORTS SHALL BE SUBMITTED BY THE 28TH DAY OF THE MONTH FOLLOWING LAND APPLICATION. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE MOUNTS.					
SOIL MONITORING ▼					
pH♠	SU	*		once/permit cycle	composite
Nitrate Nitrogen as N	ppm £	*		once/permit cycle	composite
Nitrogen, Total	ppm £	*		once/permit cycle	composite
Phosphorus, Bray P1 method	ppm £	*		once/permit cycle	composite
MONITORING REPORTS SHALL BE SUBMITTED ONCE PER PERMIT CYCLE; THE FIRST REPORT IS DUE BY JANUARY 28, 2028. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.					

PERMITTED FEATURE #AS1 *ANNUAL SUMMARY*	**TABLE A-4** **CAFO LAND APPLICATION FIELD LIMITATIONS AND MONITORING REQUIREMENTS**				
This permit authorizes land application of wastewater, waste and manure, in accordance with all applicable permit conditions. In addition to the required annual report, the following summary data shall be submitted by the permittee as specified below:					
EFFLUENT PARAMETERS	UNITS	FINAL EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS	
		DAILY MAXIMUM	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Limit Set: LA					
MANURE/WASTEWATER APPLICATION ◊					
Application Area	Acres	*		once/day	measured
Volume Irrigated	Gallons	*		once/day	measured
	Tons	*		once/day	measured
MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE JANUARY 28, 2024, FOR ALL PERMITTED CAFOS.					

* Monitoring requirement only

ϰ Reporting is only required for permitted features where land application occurred during the month. If no land application occurs at a permitted feature, no reporting is required. These are unscheduled parameters.

▼ Sample the upper 6 to 8 inches of soil. Composite samples shall be collected from each permitted land application site. See Section E. Land Application System Condition #3(k) Soil Monitoring for additional guidance.

♠ Soil pH shall be maintained in an appropriate range for plant growth.

£ Some soils test results may be in lbs./acre. To convert to ppm multiply lbs./acre by 0.5 to get ppm.

◊ Report as "No Application" when land application does not occur during the report period.

Ψ Wastewater that is land applied shall be sampled in the storage basin, at the irrigation pump, wet well, or application equipment prior to land application.

☼ Sludge that is land applied shall be sampled at the storage basin or application equipment prior to land application.

APPLICABILITY

1. This permit authorizes operation of a Concentrated Animal Feeding Operation (CAFO) under the National Pollutant Discharge Elimination System (NPDES) regulations found in portions of 40 CFR Part 122 & 412 that apply to (CAFOs, and under the Missouri Clean Water Law and regulations found in 10 CSR 20-Chapter 6 and 10 CSR 20-Chapter 8 for point source related discharges at CAFOs in the State of Missouri.

2. CAFOs that may be eligible for this general permit are Class I CAFOs and Class II Animal Feeding Operations (AFO) that are defined as a CAFO or required by an enforcement action to be permitted. Once an operation obtains coverage under this permit, the requirements set forth herein apply with respect to all manure, litter, process wastewater, and mortality by-products generated within the CAFO production area and land application areas under the operational control of the CAFO owner or operator.

3. Facilities generating more than 50,000 gallons per day of domestic (e.g. human waste) wastewater are not eligible for this general permit. The facility must either obtain a facility site-specific permit, for the CAFO operations and the domestic wastewater system, or the CAFO general permit and the appropriate, separate permit for the domestic wastewater treatment system.

4. This general permit only allows the use of EPA's narrative rate approach as described in 40 CFR 122.42(e)(5)(ii) for calculating land application rates for manure, litter, process wastewater, and mortality by-products. To meet this requirement the nutrient management (NMP) plan must be written and implemented in accordance with the terms of the Nutrient Management Technical Standard (NMTS).

5. The CAFOs authorization under this permit is only for allowable discharges that occur after permit coverage is granted. Any discharges that occur prior to permit coverage may be subject to enforcement action.

6. If at any time the owner or operator of the operation should desire to apply for a MOGS10000 state no discharge permit or site specific permit, the owner or operator may do so, if eligible. If applying for the state no discharge permit, the CAFO must demonstrate the ability to meet the no discharge requirement. This requirement can be met by showing compliance with design requirements in 10 CSR 20-8.300, compliance with previous permits, or other acceptable documentation.

7. If at any time the Department determines that a site specific NPDES permit is necessary to ensure protection of the waters of the state, the Department will require the CAFO to apply for one.

8. This permit applies only to requirements under the Missouri Clean Water Law and the Federal Clean Water Act and their implemented regulations and does not apply to other environmental laws and regulations.

9. This permit does not supersede nor remove liability for compliance with county and other local ordinances.

10. This permit does not cover land disturbance activities or construction of earthen basins.
    (a) Land disturbance activities disturbing one or more acres of total area for the entire project or less than one acre for sites that are part of a common promotional plan of development may require a land disturbance permit. Instructions on how to apply for and receive the online land disturbance permit are located at www.dnr.mo.gov/env/wpp/epermit/help.htm. Questions regarding permit requirements may be directed to the Department's Land Disturbance phone line at 573-526-2082 or toll free at 855-789-3889.
    (b) Construction of an earthen basin or holding structure requires a construction permit. CAFO waste and wastewater storage system modifications shall be designed and constructed in accordance with 10 CSR 20-8.300. Instructions on how to apply for and receive a construction permit are located at https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/wastewater/construction-engineering. Construction may not begin on new or expanding CAFOs until an operating permit is issued. Questions regarding permit requirements may be directed to Department's Water Protection Program phone line at 573-751-1300, or toll free at 800-361-4827.

GENERAL REQUIREMENTS

1. Definitions are as listed in the "Missouri Concentrated Animal Feeding Operation Nutrient Management Technical Standard," in State Statute 640.703 RSMO, and in State Regulations under 10 CSR 20-2, 6.300, and 8.300.

2. AUTHORIZATION

   This permit authorizes operation of the CAFO waste management system as described in the "Facility Description", permit application and associated engineering plans. The CAFO is allowed to operate at an animal unit level not to exceed its respective class size (i.e. Class IC or IB) as listed in the "Facility Description". When determining the appropriate classification a rolling 12 month average will be used. The rolling 12 month average shall at no time exceed the upper threshold limit of the CAFO's

designated class size. The CAFO may change animal numbers and weights within its respective class size; however, such changes must not adversely impact the storage and handling capacities of the waste management system or violate the effluent limitations of this permit.

3. TERMINATION OF PERMIT

If activities covered by this permit have ceased, and the operation has been closed in accordance with the regulations and this permit, the permittee shall request termination of this permit.

4. 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.

5. PERMIT RENEWAL

Unless terminated, the permittee shall submit an application for the renewal of this permit by submitting *Form W Concentrated Animal Feeding Operation (CAFO) Operating Permit Application MO 780-2112* https://dnr.mo.gov/document-search/form-w-concentrated-animal-feeding-operation-cafo-operating-permit-application-mo-780-2112 no later than thirty (30) days prior to the permit's expiration date.

When a facility submits a timely and complete application in accordance with 10 CSR 20-6.010(10)(C)1, and the Department is unable through no fault of the permittee to issue a renewed permit prior to expiration of the previous permit, the terms and conditions of the expired permit are administratively continued and will remain fully effective and enforceable until such time when a permit action is taken. Failure to submit a renewal application is a violation of the Missouri Clean Water Law. Failure to apply for renewal of a permit may result in termination of this permit and enforcement action to compel compliance with this condition and the Missouri Clean Water Law.

6. PERMIT MODIFICATION

An application for permit modification must be submitted, with modified permit issued, prior to new construction or expansion of an existing CAFO, demonstrating compliance with all applicable CAFO laws and regulations including 640.715 RSMo and 10 CSR 20-6.300. Expansion includes, but it is not limited to, expansion of the production areas or buildings, expansion or structural changes to the waste storage structure, or increase in animal units resulting in a new class size. Addition of new permitted features and changes to land application authority (e.g. changing from an export-only facility to conducting land application at CAFO land application areas) must be included in a permit modification prior to implementation or use. Please contact the Operating Permits section if you need further clarification at (573) 522-4502 or CAFO@dnr.mo.gov.

7. PERMIT TRANSFER

This permit may be transferred to a new owner by submitting a "Concentrated Animal Feeding Operation (CAFO) Operating Permit Application" along with the appropriate modification fee.

8. NOTICE OF RIGHT TO APPEAL

If you were adversely affected by this decision, you may be entitled to pursue an appeal before the administrative hearing commission (AHC) pursuant to 621.250 and 644.051.6 RSMo. To appeal, you must file a petition with the AHC within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC. Any appeal shall be directed to:

Administrative Hearing Commission
U.S. Post Office Building, Third Floor
131 West High Street, P.O. Box 1557
Jefferson City, MO 65102-1557
Phone: 573-751-2422
Fax: 573-751-5018
Website: https://ahc.mo.gov

STANDARD CONDITIONS

In addition to specified conditions stated herein, this permit is subject to the attached Standard Conditions Part I, and/or Standard Conditions Part III dated August 1, 2014, and August 1, 2019, and hereby incorporated as though fully set forth herein. https://dnr.mo.gov/document-search/standard-conditions-npdes-permits-aug-1-2014-part-i . Standard Conditions Part III August 1, 2019, is applicable for domestic only systems and associated land application, but is not applicable to land application of domestic waste when mixed and land applied with CAFO waste.

STANDARD REQUIREMENTS

1. DISCHARGES

The permittee is authorized to discharge process wastewater and stormwater 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 AND TRUCK WASH AREA REQUIREMENTS

Requirements applicable to all CAFO production area(s):

a. There shall be no discharge of manure, litter, process wastewater, or mortality by-products into waters of the state or release that crosses property boundaries from the production area except as provided in subsection i. 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 discharging, releasing or spilling due to a chronic weather event, CAFO owners shall take reasonable steps to lower the liquid level in the structure through land application, or other suitable means, to prevent an overflow from the storage structure. Reasonable steps may include, but are not limited to: following the Department's current guidance (PUB2422) entitled "Wet Weather Management Practices for CAFOs." This guide was designed specifically to help minimize or eliminate water quality impacts from CAFOs during extreme wet weather periods. 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. The operator shall notify the appropriate Regional Office 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.
c. Stockpiling of uncovered solid manure within the production area is not allowed, unless runoff collection system is present and operational and must be designed and operated to meet the standards and best management practices established in Publication 2503, *Requirements and Best Management Practices for Temporary Stockpiles of Poultry Litter and Other Dry Process Waste*.
d. CAFO staff and contractors shall not dispose of inorganic solid waste or chemicals into the wastewater system, including but not limited to insemination tubes, disposable medical equipment, masks, and other trash, unless the system is specifically designed to manage, filter or treat for the waste or chemicals.
e. To maintain structural integrity, the berms of the storage basin(s) shall be mowed and kept free of any deep-rooted vegetation, livestock, animal dens, or other potential sources of damage; any leaks or issues shall be noted and repaired as soon as possible.
f. The facility shall prevent surface water intrusion and run-in into the storage basin(s) and to protect embankments from erosion.
g. It is a violation of this permit to place material in the emergency spillway or otherwise cause it to cease to function properly, as this may result in a catastrophic failure of the storage basin, unless authorized by the Department.
h. The permittee must request written approval prior to the addition or change in any chemicals being used and released into the wastewater storage structure, including but not limited to truck wash soaps, chemicals and disinfectants. Changes in brands, manufacturers or solutions that do not result in changes in the pollutant(s) and their concentration or load in the wastewater do not require written approval. Written approval may be via e-mail communication.
i. Additional requirements for uncovered liquid storage structures. Whenever a precipitation related event causes an overflow of manure, litter, or process wastewater; pollutants may be discharged through the emergency spillway of the earthen basin 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 earthen basins.

(3) All open surface liquid impoundments must have a depth marker which clearly indicates the minimum capacity necessary to contain the runoff and direct precipitation of the 25-year, 24-hour rainfall event. In the case of new sources subject to effluent limitations established pursuant to § 412.46(a)(1) of this part, all open surface manure storage structures associated with such sources must include a depth marker which clearly indicates the minimum capacity necessary to contain the maximum runoff and direct precipitation associated with the design storm used in sizing the impoundment for no discharge.

(4) Discharge is allowed via overflow through the emergency spillway of the earthen basin or uncovered storage structure when caused by a weather event that exceeds the catastrophic storm or the chronic weather event requirement. 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.

(5) All discharges of process wastewater to 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 operator becomes aware of the discharge. See Section 7.(f.) for additional requirements.

(6) 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.

(7) The operator shall notify the appropriate regional office 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.

(8) All open storage structures shall maintain a visual reference gauge showing the depth of liquids in the structure, the lower operating level, the upper operating level, and the emergency spillway level.

(9) 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, 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 earthen basin 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 the Department approved construction permit or plans.
(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 catastrophic storm or chronic weather event occurs.

(10) Storage Safety Volume (10 CSR 20-8.300(4)(D)2.B.: When a chronic or catastrophic design storm event occurs, the "safety volume" may be used to contain storm water until conditions are suitable for land application. The required safety volume shall be maintained between the overflow level and the upper operating level.

3. CAFO AND TRUCK WASH LAND APPLICATION AREAS REQUIREMENTS

The Land Application Area is agricultural land which is under the operational control of the CAFO owner or operator; whether it is owned, rented, or leased; to which manure, litter, process wastewater, or mortality by-products from the production area is or may be applied.

Requirements applicable to all CAFO land application area(s):

a. There shall be no discharge of manure, litter, process wastewater, or mortality by-products to waters of the state or that crosses property boundaries from a CAFO stockpile or as a result of the land application of manure, litter, process wastewater, or mortality-by-products to land application areas under the operational control of the CAFO, 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 this permit, the 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 areas under the operational control of the CAFO is considered to be an agricultural storm water discharge.
b. Truck wash wastewater not included within the NMP must be applied in accordance within a department approved land application management plan.
c. All land application area(s), as defined in 10 CSR 20-6.300, must be included in the CAFO's nutrient management plan. When the permittee applies dry process wastes or process wastewater to agricultural lands that are not owned, rented, leased or otherwise under the operational control of the CAFO owner or operator, the permittee shall do so in accordance with Section 4 below.
d. Temporary stockpiling of solid manure within the land application areas shall be bermed or otherwise prevent runoff. No location shall be used for stockpiling for more than two weeks unless the stockpile is covered.

e. Land application may only occur during nighttime hours if conducted in accordance with a Department-approved plan, submitted in accordance with 10 CSR 20-6.300(3)(G)3.
f. Effective and efficient native plants and vegetation, appropriate for the region and site, are encouraged for land application area vegetated buffers.
g. This permit does not authorize land disposal or the application of hazardous waste.

4. TRANSFER OF MANURE, LITTER, AND PROCESS WASTEWATER TO OTHER PERSONS

In cases where CAFO-generated manure, litter, process wastewater, or mortality by-products is sold, given away, or applied on land not under the operational control of the CAFO, the permittee must comply with the following conditions:
a. Maintain records showing the date, recipient name and address, and amount of manure, litter, and/or process wastewater that leaves the permitted operation (The recipient is the broker or end user, not merely the truck driver). These records must be retained on-site, for a period of five (5) years and made available upon request;
b. Provide the recipient(s) with the current nutrient analysis of the manure, litter, and/or process wastewater;
c. Provide the recipient with a paper copy of, or electronically a link to, the Manure Export Guidance (MEG); and
d. Complete and submit the summary manure export report, in accordance with Standard Requirement 9.iii.

5. MORTALITY MANAGEMENT

a. In accordance with 10 CSR 20-6.300(3)(A)5, 10 CSR 20-6.300(5)(B), 40 CFR 412.37(a)(4) and 40 CFR 412.47(a), mortalities must not be disposed of in any liquid manure or process wastewater system that is not specifically designed to treat animal mortalities. Mortalities must be handled in such a way as to prevent the discharge of pollutants to surface waters and prevent the creation of a public health hazard. Class I operations may not use burial as a permanent mortality management method to dispose of routine mortalities, in accordance with 10 CSR 20-8.300(11).
b. Routine animal mortalities must be promptly removed from any area where the carcass will impact normal facility waste management operations (e.g. scrapers or wastewater transfer points).
c. There shall be no free-draining liquids from dead animal collection areas or holding areas (dumpsters, holding tanks, stockpiles within livestock production buildings, refrigeration units, etc.).
d. In the event of significant numbers of unexpected mortalities (i.e. mass mortalities), operations shall first receive approval of an emergency plan of disposal by the State Veterinarian. The Missouri Geological Survey shall review proposed burial sites prior to burial to determine if there is the potential for major groundwater contamination and assist the State Veterinarian in locating proper burial sites. 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. For the additional information, please see the Department's publication 12150, "*Animal Production Mortalities Emergency Procedures*," https://dnr.mo.gov/document-search/animal-production-mortalities-emergency-procedures-pub1250/pub1250.

6. INSPECTIONS

The following minimum visual inspections shall be conducted by the CAFO operator.
a. 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.
b. Weekly inspections of all BMPs, including storm water diversion devices, runoff diversion structures, and devices that channel contaminated storm water to the process wastewater storage and divert storm water runoff away from the production area.
c. Weekly inspections of the manure, litter, process waste and wastewater, or impoundments. The inspection will note the level in liquid impoundments as indicated by the depth marker.
d. Weekly inspections of the collection or holding areas for dead animals, including all composting or holding containers prior to transport off-site. Equipment and devices used for the transfer of dead animals for delivery and disposal off-site are not considered a collection or holding area, therefore, are not required to be part of the weekly inspection requirement.
e. Conduct leak inspections on equipment used for land application, daily when in use.
f. Monitoring of the perimeter of the application fields where runoff is likely to occur to ensure that applied wastewater does not run off the fields where applied.
g. 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.
h. Hourly inspections of aboveground irrigation pipelines when in use.
i. Any deficiencies found as a result of inspections shall be documented and corrected as soon as possible.

7. RECORD KEEPING FOR PRODUCTION AREA

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 and shall be made available to the Department upon request:

a. A copy of permits, permit applications, and a current copy of the CAFO's NMP.
b. The visual inspections required in Special Requirement and Standard Condition #6 shall be recorded once per week.
c. Weekly records of the depth of process wastewater in the liquid impoundments as indicated by the depth marker. Report the liquid level as feet below the emergency overflow level.
d. 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.
e. Records of mortalities management and practices used by the operation to ensure proper management of mortalities to ensure they are not disposed of in a liquid manure, stormwater or process wastewater storage or treatment system that is not specifically designed to treat animal mortalities.
f. Records of the date, time, location, duration, estimated volume and corrective actions taken for any discharge of manure, litter, process wastewater, or mortality by-products to waters of state or release that crosses property boundaries. Monitor a discharge at the point immediately prior to entering the receiving stream or a release at the property boundary. 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 be used.
g. For open liquid manure storages only, record the inches of precipitation received daily near the production site. CAFOs may use nearby weather reporting station data to satisfy this requirement.

8. RECORD KEEPING FOR LAND APPLICATION AREA

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 and shall be made available to the Department upon request:

a. Expected and actual crop yields;
b. The date(s) and rates of manure, litter, process wastewater, or mortality by-product applications to each field;
c. Weather conditions at time of application and for twenty-four (24) hours prior to and following application;
d. Test methods used to sample and analyze manure, litter, process wastewater or mortality-by-products, and soil;
e. Results from manure, litter, process wastewater or mortality-by-products, and soil sampling;
f. Explanation of the basis for determining manure application rates, as provided in the NMTS;
g. Calculations showing the total nitrogen and phosphorus to be applied to each field, including sources other than manure, litter, process wastewater or mortality by-products;
h. Total amount of nitrogen and phosphorus actually applied to each field for each application, including documentation of calculations for the total amount applied;
i. The method used to apply the manure, litter, process wastewater or mortality-by-products;
j. Record of runoff from the land application field that resulted in a direct release off of the CAFO property or a discharge to waters of the state, and the response; and
k. Date(s) of manure application equipment inspection.
l. Additional record keeping requirements are found in the NMTS that document implementation of appropriate NMP protocols.

9. REPORTING REQUIREMENTS

a. Any spill, overflow, or other discharge(s) not specifically authorized are unauthorized.
b. If an unauthorized discharge cause or permit any contaminants to discharge or enter waters of the state or a release that crosses property boundaries, the unauthorized discharge or release must be reported to the regional office as soon as practicable but no more than 24 hours after the discovery of the discharge. If the spill or overflow needs to be reported after normal business hours or on the weekend, the facility must call the Department's 24 hour spill line at 573-634-2436.
c. Spills or leaks that are contained on the property shall 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, earthen basins, 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 Requirement 1.

10. Electronic Discharge Monitoring Report (eDMR) Submission System. The NPDES Electronic Reporting Rule, 40 CFR Part 127, reporting of effluent monitoring data and any report required by the permit (unless specifically directed otherwise by the permit), shall be submitted via an electronic system. The facility must register in the Department's eDMR system through the Missouri Gateway for Environmental Management (MoGEM) <u>no later than December 31, 2023</u>. All reports uploaded into the system shall

be reasonably named so they are easily identifiable, such as "CAFOAnnualManureExportReport2023", or "CAFOAnnualReport2023". Information about eDMR, including the waiver request form, may be found on our webpage: https://dnr.mo.gov/water/business-industry-other-entities/reporting/electronic-discharge-monitoring-reporting-system-edmr.

An annual report for Class I operations shall be submitted by the 28th day of January for the previous calendar year (Class IA see Special Requirement 5). The first report is due on the next annual report date after permit issuance including partial report periods. Annual Report forms, supplied by the Department, or other equivalent forms, may be used. The report shall include:

i. The number and type of animals confined at the operation.
ii. The estimated amount of manure, litter, process wastewater, or mortality by-products generated in the previous twelve months.
iii. The summary manure export report, which includes amount of waste, manure, litter, process wastewater, sludge, compost, or mortality by-products transferred to other persons in the previous twelve months, reported by the receiving HUC-12. This report should not include personal identifiable information.
iv. The total number of acres under the operational control of the operation that were used for land application of manure, litter, process wastewater, or mortality by-products in the previous twelve months, including a summary of the land application and nutrient management activities.
v. A summary of all manure, litter and process wastewater discharges from the productions area to waters of the state that have occurred in the previous twelve (12) months including date, time and approximate volume. Report as no discharge if a discharge did not occur.
vi. A statement indicating whether the current Nutrient Management Plan was developed or approved by a certified nutrient management planner.
vii. The date, time, location, duration, and estimated volume of any process wastewater discharges to waters of the state or release that crossed property boundaries. Report as no-discharge, if there was no discharge during the monitoring period.
viii. The crops planted and actual yields, nutrient analysis results and the amount applied for each unique source of manure, litter, and process wastewater applied to the land application area(s), and the results of any soil testing from the previous twelve months.
ix. All reports or information submitted to the Department shall be signed by the owner or operator of the CAFO.

11. NUTRIENT MANAGEMENT PLAN

a. In accordance with 10 CSR 20-6.300(3)(G)1, the permittee shall develop, implement, and maintain a current Nutrient Management Plan. A portion of a CAFOs NMP includes the engineering design and construction related documents within a CAFO's construction and operating permit application and annual reports. This plan must comply with the requirements found within the Nutrient Management Technical Standard (See # 14 below). The NMP must, at a minimum, address the following areas.

(1) Ensures adequate storage of manure, litter, process wastewater, or mortality by-products 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. This shall include as necessary, controls, measures, or BMPs to properly manage storm water runoff in or around the production area and land application areas that is under the operational control of the CAFO. Activities that should be addressed include, but are not limited to, winter feeding areas, stockpiling of raw materials, manure, litter or other animal feeding related items that have the potential to contribute pollutants to waters of the state.
(4) Prevents direct contact of confined animals with waters of the state.
(5) Ensures that chemicals and other contaminants handled within animal production facilities are not disposed of in any manure, litter, process wastewater, mortality by-products, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants.
(6) Identifies appropriate site specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants to waters of the state.
(7) Identifies protocols for appropriate testing of manure, litter, process wastewater, mortality by-products, 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.

12. The permittee is responsible for all "land application area(s)" as defined in 10 CSR 20-6.300, and they must be included in the facility's nutrient management plan. The addition of land application area(s) that are not already included in a current NMP and

the Terms of the NMP in this permit must follow permit modification procedures prior to land application of manure, litter, or process wastewater unless otherwise approved by the Department.

13. ATTACHMENT A - TERMS OF THE NMP

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 to the NMP made after the effective date of this permit that results in significant changes to the terms of the NMP as outlined in 40 CFR 122.23 will require a modification of the permit prior to implementing those revisions. The completed attachment contains permit terms that are an enforceable component of this permit and are hereby incorporated as though fully set forth herein.

14. NUTRIENT MANAGEMENT TECHNICAL STANDARD

The permittee and the permittee's Nutrient Management Plan, shall follow "*Missouri Concentrated Animal Feeding Operation Nutrient Management Technical Standard*", dated March 4, 2009, which is hereby incorporated as though fully set forth herein. The NMTS is available on the Department's website at https://dnr.mo.gov/document-search/missouri-concentrated-animal-feeding-operation-nutrient-management-technical-standard-march-4-2009

15. DOMESTIC EARTHEN BASIN(S) AND LAND APPLICATION

a. Storage Basin Minimum BMPs.
   i. 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) according to National Weather Service data. Design Storm Maps and Tables can be found at http://ag3.agebb.missouri.edu/design_storm/. No other discharge is authorized.
   ii. Per 10 CSR 20 8.200(4)(A), the basin shall have a minimum freeboard of two (2) feet maintained at all times.
   iii. To maintain structural integrity, basins shall be inspected at least monthly, the berms of the storage basin(s) shall be mowed and kept free of any deep-rooted vegetation, animal dens, or other potential sources of damage, any leaks or issues shall be noted.
   iv. The facility shall ensure adequate provisions are provided to prevent surface water intrusion and run-in into the storage basin(s), to divert stormwater runoff from around the storage basin(s), and protect embankments from erosion.
   v. The minimum and maximum operating water levels for the storage basin(s) shall be clearly marked.
   vi. Each storage basin shall be operated and maintained to achieve and maintain no discharge status; including maximum water elevations up to the operating level of the 1-in-10 year or 25-year, 24-hour storm events.
   vii. Storage basins should be lowered to the minimum operating level prior to November 30 each year.
   viii. It is a violation of this permit to place material in the emergency spillway or otherwise cause it to cease to function properly, as this may result in a catastrophic failure of the storage basin.

Land application of wastewater and/or sludge materials listed in the Facility Description of this permit is authorized and shall be conducted according to the following conditions. These land application conditions do not apply to fertilizer products receiving a current exemption under the Missouri Clean Water Law and regulations in 10 CSR 20-6.015(3)(B)8, and are land applied in accordance with the exemption. Should the facility choose to mix domestic and CAFO waste this section will not be applicable.

b. Land Application Equipment Minimum Requirements.
   i. Spray application equipment shall minimize the formation of aerosols.
   ii. Application equipment shall be visually inspected daily during land application to check for equipment malfunctions and leaks. The application system shall be operated so as to provide uniform distribution of wastes over the entire land application site.
   iii. Equipment shall be calibrated at least once per calendar year to ensure even distribution of wastewater.

c. Land Application Field(s) Minimum Requirements.
   i. No land application shall occur when the soil or ground is frosted, frozen, snow covered, or saturated. Daily observation of fields is required. Application activities shall cease if these conditions occur.
   ii. There shall be no application during a precipitation event or if a precipitation event likely to create runoff is forecasted to occur within 24 hours of a planned application.
   iii. Public Access Restrictions; this permit does not authorize application of wastewater to public use areas.
   iv. If land application sites listed in this permit are also included as land application sites in another permit, the wastewater and sludge applications from all sources shall be included in the application rates in the facility description. Records of all sources must be kept for all permits.
   v. Grazing and Harvesting Deferment.
      a) May 1 to October 31, the minimum grazing or forage harvest deferment shall be fourteen (14) days from application;

b) November 1 to April 30, the minimum grazing or forage harvest deferment shall be thirty (30) days from application;
c) If deferment period spans two timeframes, the minimum grazing or forage harvest deferment shall be thirty (30) days from most recent application.
d) Lactating dairy animal grazing is generally not recommended for application areas unless there has been a much longer deferment period.

vi. Land application may only occur during nighttime hours if conducted in accordance with a Department-approved plan.
vii. Land application fields shall be checked daily during land application for runoff.
viii. Sites utilizing spray irrigation shall monitor for the drifting of spray across property lines. Spray drift is not permissible.
ix. Setback distances from sensitive features per 10 CSR 20-8.200(6)(B). There shall be no land application within:
a) 50 feet inside of the property line;
b) 100 feet of any classified or unclassified gaining perennial or intermittent stream, any wetland, or any public or privately owned pond or lake;
c) 150 feet of any dwelling, residence, public building, or public use area (excluding roadways);
d) 300 feet of any potable water supply well not located on the property, adequate protections shall be implemented and maintained for any potable water supply well located within the application area;
e) 300 feet from any sinkhole, losing stream, or any other physiographic structure with a conduit to groundwater; and
f) Flood-prone areas having a flood frequency greater than once every ten (10) years.

d. Application Rate(s) and Loading.
a. This permit does not authorize application of materials in concentrations known to cause, or having the potential to cause, phytotoxicity in plants per 10 CSR 20-6.015(4)1. If plant stress is observed, the facility may need to reduce application of wastewaters and/or sludges. If phytotoxicity is observed, the facility shall cease land application activities and evaluate the applied substances to determine the cause of phytotoxicity.
b. The application rate shall not exceed 24 inches (24") per year, three inches (3") per week, and one inch (1") per day.
c. Wastewater application on slopes exceeding 10%:
i. Initial application rate on dry soils may briefly exceed one-half (1/2) the design sustained permeability rate;
ii. The hourly application rate shall not exceed one-half (1/2) the design sustained permeability;
iii. In no case shall exceed one-half (1/2) inch per hour.
d. Runoff and ponding is prohibited.
e. This permit does not authorize land disposal or the application of hazardous waste.
f. The facility must maintain a record of all fertilizer products applied to fields; even exempted products, to determine total nutrient loading.
g. The fertilizer recommendation shall be based on all of the following:
i. The nutrient recommendation (nitrogen or phosphorus) for each crop. Recommendations can be found in University of Missouri Extension Guide EQ202 Crop/Nutrient Considerations for Biosolids or from publications by other land grant universities in adjoining states,
ii. Realistic yield goal for each crop. Yield goals should be based on actual crop yield records from multiple years for each field. Good judgment should be used to counteract unusually high or low yields. If a field's yield history is not available the USDA county wide average or other approved source may be used, and
iii. The most recent soil test.

e. Soil Monitoring.
i. Composite soil samples shall be collected every five years from each field listed in this permit where land application has occurred in the last 12 months. No land application shall occur on fields listed in this permit if soil sample results are more the five years old.
ii. Soil sampling shall be in accordance with University of Missouri (MU) Guides G9215, Soil Sampling Pastures or G9217, Soil Sampling Hayfields and Row Crops or other methods approved by the Department. The recommendation of one composite sample per 20 acres in G9215 and G9217 is not required by this permit, however, this is a useful method to identify soil fertility fluctuations in large fields due to past management practices, soil type, and variability of crop yields. There shall be at least one composite sample per 80 acres.
iii. Testing shall conform to Recommended Chemical Soil Testing Procedures for North Central Region (North Central Regional Research Publication 221 Revised), or Soil Testing in Missouri (MU Extension Guide EC923), or other methods approved by the Department.

f. Record Keeping. The following record keeping shall occur, be maintained for at least five years, be made available to the Department upon request, and shall be submitted with the application for renewal.
i. Daily land application log showing, at a minimum: date(s) of application, field identified, acres used, volume

applied,

ii. Monthly visual storage structure inspections (if applicable);
iii. Equipment inspections and calibrations;
iv. Land application field inspections, including runoff, saturation, and ponding;
v. Record of maintenance and repairs;
vi. Description of any unusual operating conditions encountered, narrative summary of any problems or deficiencies identified, corrective action taken, or improvements planned;
vii. The number of days the storage structure discharged during the year, the discharge flow, reason the discharge occurred, and effluent analysis performed including analytical result laboratory pages and any clean-up actions taken.
viii. Annual summary for each field used for land application showing: number of days application occurred, crop grown and yield, and total amount of wastewater and/or sludge applied (gallons and/or tons per acre).
ix. For fields where total nitrogen application exceeded 150 pounds per acre, the facility must submit PAN calculations to document the applied nitrogen was utilized.

16. DISCHARGES – ALL PERMITTED FACILITIES

Emergency or Unauthorized Discharge. Wastewater shall be stored and land applied during suitable conditions so that there is no discharge from the storage structures or land application sites. An emergency discharge from wastewater storage structures may only occur in accordance with Standard Requirement 2.i. of this permit. **Discharges for any other reason from production or land application areas shall constitute a permit violation and shall be reported in accordance with Standard Conditions, Part I, Section B.2.b.** Monitoring shall take place once per day while discharging, from any of the permitted waste or wastewater management or storage structures. Test results are due on the 28th day of the following month after the cessation of the discharge. Permittee shall monitor for the following constituents:

Constituent	**Units**
Flow	MGD
Duration	Hours
Biochemical Oxygen Demand$_5$	mg/L
Ammonia as N	mg/L
pH – Units	SU
Temperature	ºF
Total Suspended Solids	mg/L

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.

17. CLOSURE OF WASTE STORAGE STRUCTURES

Class I CAFOs which cease operation shall continue to maintain a valid operating permit until all earthen basins and waste storage structures are properly closed according to a closure plan approved by the Department. CAFOs that plan to close an earthen basin 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. Earthen basins and waste storage structures shall be closed by removal and land application of all wastewater and sludge;
b. The removed wastewater and sludge shall be transferred or land applied at agricultural rates 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 revegetating the sit; or the basin may be left in place for future use as a farm pond or similar uses.

18. ADVERSE IMPACT

The permittee shall take all necessary steps to minimize any adverse impacts to waters of the state resulting from noncompliance with any effluent limitations specified in this permit or set forth in the Missouri Clean Water Law and Regulations, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

19. RIGHT OF ENTRY

For the purpose of inspecting, monitoring, or sampling the point source, water contaminant source for compliance with the Clean Water Law and regulations, authorized representatives of the Department, shall be allowed by the permittee at reasonable times, upon presentation of credentials and following the operations biosecurity plan;

a. to enter upon permittee's premises in which a point source, water contaminant source is located or in which any records are required to be kept under terms and conditions of the permit;
b. to have access to, or copy, any record required to be kept under terms and conditions of the permit;
c. to inspect any monitoring equipment or method required in the permit;
d. to inspect any collection or treatment facility covered under the permit; and
e. to sample any wastewater at any point in the collection system or treatment process.

SPECIAL REQUIREMENTS APPLICABLE TO CLASS IA OPERATIONS ONLY

In addition to the Standard Conditions and Standard Requirements, Class IA operations shall also comply with the following Special Requirements.

1. 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 earthen basin or directly land applied in accordance with the NMP and the NMTS.
d. Wastewater spills or overflows into, and completely contained within, secondary containment structures are not releases. This wastewater must be promptly addressed, though, and returned to a permitted primary holding structure or appropriately land applied in accordance with all applicable permit land application requirements.
e. Stormwater captured in secondary containment structures that has 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.
f. Existing storm water flows from areas that drain potential leaks from gravity outfall lines, recycle pump stations, recycle force mains and appurtenances shall not be diverted around 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.

2. 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 leaks to secondary containment structure.
b. A daily visual inspection shall also be conducted of any process wastewater impoundment, including secondary containment structures, that serves a wet handling flush system when the liquid level is less than twelve (12) inches from the emergency spillway.
c. Quarterly inspections, prior to use, of equipment used for land application of manure or process wastewater.
d. Twice daily inspections of pressurized underground lines including one inspection that should be completed immediately following startup.
e. Weekly inspections of the collection or holding areas for dead animals. Equipment and devices used for the transfer of dead animal for delivery and disposal off-site are not considered a collection or holding area, therefore, are not required to be part of the daily inspection requirement.

Records of inspections shall be kept and maintained for a period of five (5) years and made available to the Department upon request.

3. Reporting Requirements

a. Within seven (7) days of the date that an earthen basin's level comes within four (4) inches of the upper operating level, the permittee shall notify the Department with information that identifies the earthen basin(s), the basin level in inches below the emergency spillway and actions taken to reduce the basin levels.
b. Any unauthorized discharge from a flush system animal waste wet handling system that crossed property lines or entered waters of the state shall be reported within 24 hours in accordance with 640.735 RSMo.
c. The 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;

(1) The daily and weekly records of the wastewater depth in the liquid impoundments as required by Standard Requirement 6c.
(2) All monitoring results from an emergency or unauthorized discharge as required by Special Requirement #1.

4. The operation of a Class IA CAFO waste management system requires a Certified Operator in accordance with 10 CSR 20-14.

5. GROUNDWATER MONITORING PLAN

When groundwater monitoring is required and approved by the Department prior to permit issuance, the permittee shall fully implement the Department approved "groundwater monitoring plan". The necessity of groundwater monitoring will be determined by the Water Protection Program in consultation with the Missouri Geological Survey on a case-by-case basis in hydrologically sensitive areas where the quality of groundwater may be compromised, in accordance with 640.710 RSMo.

Terms of the NMP
Attachment A

Permit Number:

TERMS OF THE NUTRIENT MANAGEMENT PLAN														
					Crop #1		Crop #2		Crop #3		Crop #4		Crop #5[1]	
Field Name	Legal Description	Spreadable Acres	P Loss Risk [2]	N or P Based Application	Crop	Yield Goal[3]	Crop	Yield Goal[3]	Crop	Yield Goal[3]	Crop	Yield Goal[3]	Crop	Yield Goal[3]
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[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-G010000
MASTER GENERAL PERMIT

The Federal Water Pollution Control Act [Clean Water Act (CWA)] Section 402 of 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 stormwater from certain point sources. All such discharges are unlawful without a permit (Section 301 of the CWA). After a permit is obtained, a discharge not in compliance with all permit terms and conditions is unlawful. Missouri State Operating Permits (permit) are issued by the Missouri Department of Natural Resources (Department) under an approved program operated in accordance with federal and state laws (Federal CWA and Missouri Clean Water Law Section 644 as amended). Permits are issued for a period of five (5) years unless otherwise specified.

Per 40 CFR 124.56, 40 CFR 124.8, and 10 CSR 20-6.020(1)(A)2, a Fact Sheet 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 permit. A Fact Sheet is not an enforceable part of an MSOP.

Part I – Facility Information

Facility Type: No-discharge Concentrated Animal Feeding Operation (CAFO)
Facility SIC Code(s): SIC #0211, #0212, #0213, #0214, #0241, #0251, #0252, #0253, #0254, #0259, or #0272
Facility Description: Process wastes are collected and reused as fertilizer by spreading onto agricultural fields at agricultural rates in accordance with this permit. There is no discharge except as allowed in accordance with the effluent limitation guidelines contained within this permit.

Summary of Changes

- Specific authorization, tables, monitoring, limitations and conditions were added for the management, storage and land application of domestic and truck wash wastewater and sludge. These sections include industrial and domestic earthen basin and irrigation requirements in 10 CSR 20-6 and 10 CSR 20-8, outside of the CAFO regulations. This also includes soil sampling to monitor proper land application requirements.
- Establishing new permitted features to clearly identify CAFO production areas, domestic wastewater storage, truck wash areas, domestic wastewater-only land application fields, truck wash wastewater-only land application fields, and a feature used to electronically report the summary of annual land application activities.
- Clarification that if truck wash wastewater and/or domestic wastewater is mixed with CAFO waste, those volumes must be included within the CAFO NMP.
- Annual reporting requirements were updated to include submittal of a summary manure export record. This report is a summary of manure exported by HUC-12. The original drafts required submittal of the manure export records required in 10 CSR 20-6.300(3)(E)1.G. and 40 CFR 122.42(e)(3), but concerns were raised with retaining personally identifiable information, specifically individual names and address. In response, the requirement to submit a summary manure export report was incorporated into this permit. While the manure export recordkeeping requirements in 40 CFR 122.42(e)(3) and 10 CSR 20-6.300(3)(E)1.G. still require retention of manure recipient name and address, an alternative manure summary report will provide information about the location of exported wastes while protecting individuals' personally identifiable information. If the permittee chooses at any time to submit the full manure export record with names and addresses, the record will be retained by the Department and therefore will be subject to the Missouri Sunshine Law, Chapter 610, RSMo.
- Require an annual land application summary report be submitted electronically.
- Addition of electronic monitoring requirements through the eDMR system.
- New Best Management Practices
    - Prompt mortality management
    - Prohibition on placing solid waste into wastewater or manure storage structures.
    - Earthen basin berm protection practices
- Removal of the word "surface" from waters of the state references to clarify that discharges are prohibited to all waters of the state.

- Creation of a *Manure Export Guidance* document to help provide tools and resources in a clear form to export waste recipients.
- Language concerning spills and overflows to secondary containment structures and proper management of wastewater contained therein.
- Clarification that a permit modification must be submitted for export-only facilities to conduct land application on fields under their operational control, which must include submittal of an updated nutrient management plan.
- Requirements for earthen basin depth markers.
- Recommendation for the use of native plants when effective and appropriate.
- Groundwater Monitoring moved- Groundwater monitoring required in accordance with 640.710 RSMo is only applicable to Class IA CAFOs in hydrologically sensitive areas. This statute does not provide groundwater monitoring authority for smaller CAFOs. As such, this language was moved to the Class IA section of the permit. The Department retains the right to require site-specific permit conditions, including groundwater monitoring if warranted, in accordance with 644.051 RSMo, 10 CSR 20-6.010(13)(C), and 10 CSR 20-6.015(2)(B).

Part II – Operator Certification Requirements

✓ Class IA facilities are required to have a certified operator.

Part III – Receiving Stream Information

Applicable Designations of Waters of the State:
Per Missouri Effluent Regulations (10 CSR 20-7.015), the waters of the state are divided into seven (7) categories. Each category lists effluent limitations for specific parameters, which are presented in each outfall's Effluent Limitation Table and further discussed in the Derivation and Discussion of Limits section. This permit applies to facilities discharging to the following water body categories:

✓ Missouri or Mississippi River [10 CSR 20-7.015(2)]
✓ Lakes or Reservoirs [10 CSR 20-7.015(3)]
✓ Losing Streams [10 CSR 20-7.015(4)]
Metropolitan No-Discharge Streams [10 CSR 20-7.015(5)]
✓ Special Streams [10 CSR 20-7.015(6)]
✓ Subsurface Waters [10 CSR 20-7.015(7)]
✓ All Other Waters [10 CSR 20-7.015(8)]

Missouri Water Quality Standards (10 CSR 20-7.031) 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 shall be maintained in accordance with 10 CSR 20-7.031(4). The effluent limitations established by this permit are intended to be protective of all streams that fall within the categories of receiving water bodies indicated above. A general permit does not take into consideration site-specific conditions.

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; This is a no-discharge permit.

ANTI-BACKSLIDING:
A provision in the Federal Regulations [CWA Section 303(d)(4); CWA Section 402(c); 40 CFR Part 122.44(I)] requires a reissued permit to be as stringent as the previous permit with some exceptions.
✓ 40 CFR 122.44(l)(i)(B)(2); the Department determined technical mistakes or mistaken interpretations of law were made in issuing the permit under CWA §402(a)(1)(b).
  - The previous permit special conditions contained a specific set of prohibitions related to general criteria (GC) found in 10 CSR 20-7.031(4); however, there was no determination as to whether the discharges have reasonable potential to cause or contribute to excursion of those general water quality criteria in the previous permit. This permit assesses each general criteria as listed in the previous permit's special conditions. Federal regulations 40 CFR 122.44(d)(1)(iii) requires instances

where reasonable potential (RP) to cause or contribute to an exceedance of a water quality standard exists, a numeric limitation must be included in the permit. Rather than conducting the appropriate RP determination, the previous permit simply placed the prohibitions in the permit. These conditions were removed from the permit. Appropriate reasonable potential determinations were conducted for each general criterion listed in 10 CSR 20-7.031(4)(A) through (I) and effluent limitations were placed in the permit for those general criteria where it was determined the discharge had reasonable potential to cause or contribute to excursions of the general criteria. Specific effluent limitations were not included for those general criteria where it was determined the discharges will not cause or contribute to excursions of general criteria. Removal of the prohibitions does not reduce the protections of the permit or allow for impairment of the receiving stream. The permit maintains sufficient effluent limitations, monitoring requirements and best management practices to protect water quality while maintaining permit conditions applicable to facility disclosures and in accordance with 10 CSR 20-7.031(4) where no water contaminant by itself or in combination with other substances shall prevent the water of the state from meeting the following conditions:

(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 nothing disclosed by the facility indicates putrescent wastewater would be discharged from the facility, as this permit does not authorize discharges of wastewater.
- For all outfalls, there is no RP for unsightly or harmful bottom deposits preventing full maintenance of beneficial uses because nothing disclosed by the facility indicates unsightly or harmful bottom deposits would be discharged from the facility, as this permit does not authorize discharges of wastewater.

(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 oil in sufficient amounts to be unsightly preventing full maintenance of beneficial uses because nothing disclosed by the facility indicates oil will be present in sufficient amounts to impair beneficial uses, as this permit does not authorize discharges of wastewater.
- For all outfalls, there is no RP for scum and floating debris in sufficient amounts to be unsightly preventing full maintenance of beneficial uses because nothing disclosed by the facility indicates scum and floating debris will be present in sufficient amounts to impair beneficial uses, as this permit does not authorize discharges of wastewater.

(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 unsightly color or turbidity in sufficient amounts preventing full maintenance of beneficial uses because nothing disclosed by the facility indicates unsightly color or turbidity will be present in sufficient amounts to impair beneficial uses, as this permit does not authorize discharges of wastewater.
- For all outfalls, there is no RP for offensive odor in sufficient amounts preventing full maintenance of beneficial uses because nothing disclosed by the facility indicates offensive odor will be present in sufficient amounts to impair beneficial uses, as this permit does not authorize discharges of wastewater.

(D) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life.
- Specific toxic pollutants were considered when writing this permit, but no reasonable potential was determined to be present for toxicity, as this permit does not authorize discharges of wastewater.

(E) Waters shall maintain a level of water quality at their confluences to downstream waters that provides for the attainment and maintenance of the water quality standards of those downstream waters, including waters of another state.
- This criteria was not assessed for antibacksliding as this is a new requirement, approved by the EPA on July 30, 2019.

(F) There shall be no significant human health hazard from incidental contact with the water.
- This criterion is very similar to (D) above.

(G) There shall be no acute toxicity to livestock or wildlife watering.
- This criterion is very similar to (D) above.

(H) 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 physical changes impairing the natural biological community, as this permit does not authorize discharges of wastewater.
- For all outfalls, there is no RP for hydrologic changes impairing the natural biological community, as this permit does not authorize discharges of wastewater.

(I) 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 260.200 RSMo, except as the use of such materials is specifically permitted pursuant to 260.200 through 260.247 RSMo.
- There are no solid waste disposal activities or any operation which has reasonable potential to cause or contribute to the materials listed above being discharged through any outfall.

ANTIDEGRADATION:
Antidegradation policies ensure protection of water quality for a particular water body on a pollutant-by-pollutant basis to ensure Water Quality Standards are maintained to support beneficial uses such as fish and wildlife propagation and recreation on and in the water. This also includes special protection of waters designated as an Outstanding National Resource Water or Outstanding State Resource Water [10 CSR 20-7.031(3)(C)]. Antidegradation policies are adopted to minimize adverse effects on water. As these permits do not authorize routine discharge of wastewater, an antidegradation review is not required.

BEST MANAGEMENT PRACTICES
Minimum site-wide best management practices are established in this permit to ensure all facilities are managing their sites equally to protect waters of the state from certain activities which could cause negative effects in receiving water bodies. While not all sites require a SWPPP because the SIC codes are specifically exempted in 40 CFR 122.26(b)(14), these best management practices are not specifically included for stormwater purposes. These practices are minimum requirements for all industrial sites to protect waters of the state. If the minimum best management practices are not followed, the facility may violate general criteria [10 CSR 20-7.031(4)]. Statutes are applicable to all permitted facilities in the state, therefore pollutants cannot be released unless in accordance with 644.011 and 644.016 (17) RSMo.

NUTRIENT MANAGEMENT PLAN AND LAND APPLICATION
Land application areas as defined in 10 CSR 20-6.300 that are to receive manure application must be included in a current NMP and in the Terms of the NMP in of the CAFOs permit prior to any manure application. Any revisions to the NMP after the issuance date of the permit must be submitted to the Department for review prior to implementing the revisions. If the revisions result in substantial changes to the Terms of the NMP a permit modifications is required before implementing the revisions. Substantial changes include, but are not limited to, addition of new land application areas, new crops or change in expected yields, or changes to the phosphorous loss risk assessment.

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

EFFLUENT LIMITATION GUIDELINE:
Effluent Limitation Guidelines, or ELGs, are found at 40 CFR 400-499. These are limitations established by the EPA based on the SIC code and the type of work a facility is conducting. Most ELGs are for process wastewater and some address stormwater. All are technology based limitations which must be met by the applicable facility at all times.

- ✓ The industries covered under this permit have an associated Effluent Limit Guideline (ELG), 40 CFR 412, which is applicable to the wastewater discharges in this permit and is applied under 40 CFR 125.3(a). This permit includes special conditions and limitations to meet the federal ELG requirements.

ELECTRONIC DISCHARGE MONITORING REPORT (EDMR) SUBMISSION SYSTEM:
The U.S. Environmental Protection Agency (EPA) promulgated a final rule on October 22, 2015, to modernize Clean Water Act reporting for municipalities, industries, and other facilities by converting to an electronic data reporting system. The final rule requires regulated entities and state and federal regulators to use information technology to electronically report data required by the National Pollutant Discharge Elimination System (NPDES) permit program instead of filing paper reports. To comply with the federal rule, the Department is requiring all permittees to begin submitting discharge monitoring data and reports online.

Per 40 CFR 127.15 and 127.24, permitted facilities may request a temporary waiver for up to 5 years or a permanent waiver from electronic reporting from the Department. To obtain an electronic reporting waiver, a permittee must first submit an eDMR Waiver Request Form: https://dnr.mo.gov/document-search/electronic-discharge-monitoring-report-waiver-request-form-mo-780-2692. A request must be made for each facility. If more than one facility is owned or operated by a single entity, then the entity must submit a separate request for each facility based on its specific circumstances. An approved waiver is not transferable.

The Department must review and notify the facility within 120 calendar days of receipt if the waiver request has been approved or rejected [40 CFR 124.27(a)]. During the Department review period, as well as after a waiver is granted, the facility must continue submitting a hard-copy of any reports required by their permit. The Department will enter data submitted in hard-copy from those facilities allowed to do so and electronically submit the data to the EPA on behalf of the facility.

To assist the facility in entering data into the eDMR system, the permit describes limit sets in each table in Part A of the permit. The data entry personnel should use these identifiers to ensure data entry is being completed appropriately.

GENERAL CRITERIA CONSIDERATIONS:
In accordance with 40 CFR 122.44(d)(1), effluent limitations shall be placed into permits for pollutants determined to cause, have reasonable potential to cause, or to contribute to, an excursion above any water quality standard, including narrative water quality criteria. In order to comply with this regulation, the permit writer has completed a reasonable potential determination on whether discharges have reasonable potential to cause, or contribute to an excursion of the general criteria listed in 10 CSR 20-7.031(4). In instances where reasonable potential exists, the permit includes limitations within the permit to address the reasonable potential. In discharges where reasonable potential does not exist, the permit may include monitoring to later determine the discharge's potential to impact the narrative criteria. Additionally, RSMo 644.076.1, as well as Section D – Administrative Requirements of Standard Conditions Part I of this permit state it shall be unlawful for any person to cause or allow 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.

SLUDGE – DOMESTIC BIOSOLIDS:
Biosolids are solid materials resulting from domestic wastewater treatment meeting federal and state criteria for beneficial use (i.e. fertilizer). Sewage sludge is solid, semi-solid, 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 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: https://extension.missouri.edu/publications/eq421 (WQ422 through WQ449).

- ✓ Land application of biosolids in accordance with Standard Conditions III and a Department approved sludge management plan is authorized by this permit.

SPILL REPORTING:
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 when 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. https://revisor.mo.gov/main/OneSection.aspx?section=260.500&bid=13989&hl=

STANDARD CONDITIONS:
The standard conditions Part I attached to this permit incorporate all sections of 40 CFR 122.41(a) through (n) by reference as required by law. These conditions, in addition to the conditions enumerated within the standard conditions should be reviewed by the permittee to ascertain compliance with this permit, state regulations, state statutes, federal regulations, and the Clean Water Act. Standard Conditions Part III, if attached to this permit, incorporate requirements dealing with domestic wastewater, sludge, and land application.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP):
In accordance with 40 CFR 122.44(k), Best Management Practices (BMPs) must be used 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 stormwater 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.

- ✓ Not Applicable: At this time, the facility is not required to develop and implement a SWPPP.

UNDERGROUND INJECTION CONTROL (UIC):
The UIC program for all classes of wells in the state of Missouri is administered by the Missouri Department of Natural Resources and approved by EPA pursuant to section 1422 and 1425 of the Safe Drinking Water Act (SDWA) and 40 CFR 147 Subpart AA. Injection wells are classified based on the liquids which are being injected. Class I wells are hazardous waste wells which are banned by RSMo 577.155; Class II wells are established for oil and natural gas production; Class III wells are used to inject fluids to extract minerals; Class IV wells are also banned by Missouri in RSMo 577.155; Class V wells are shallow injection wells; some examples are heat pump wells and groundwater remediation wells. Domestic wastewater being disposed of sub-surface is also considered a Class V well. In accordance with 40 CFR 144.82, construction, operation, maintenance, conversion, plugging, or closure of injection wells shall not

cause movement of fluids containing any contaminant into Underground Sources of Drinking Water (USDW) if the presence of any contaminant may cause a violation of drinking water standards or groundwater standards under 10 CSR 20-7.031, or other health based standards, or may otherwise adversely affect human health. If the Department finds the injection activity may endanger USDWs, the Department may require closure of the injection wells or other actions listed in 40 CFR 144.12(c), (d), or (e). In accordance with 40 CFR 144.26, the permittee shall submit a Class V Well Inventory Form for each active or new underground injection well drilled, or when the status of a well changes, to the Missouri Department of Natural Resources, Geological Survey Program, P.O. Box 250, Rolla, Missouri 65402. The Class V Well Inventory Form can be requested from the Geological Survey Program or can be found at the following web address: http://dnr.mo.gov/forms/780-1774-f.pdf Single family residential septic systems and non-residential septic systems used solely for sanitary waste and having the capacity to serve fewer than 20 persons a day are excluded from the UIC requirements (40 CFR 144.81(9)).

- ✓ Not applicable; this permit does not authorize subsurface wastewater systems or other underground injection. These activities must be assessed under an application for a site specific permit if not permitted otherwise.

WATER QUALITY STANDARDS:
Per 10 CSR 20-7.031(4), 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 include in each NPDES permit conditions to achieve water quality established under Section 303 of the CWA, 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

TABLE A-1– TRUCK WASH WASTEWATER MONITORING

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	DAILY MAX	MONTHLY AVG.	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	REPORTING FREQUENCY	SAMPLE TYPE
WASTEWATER MONITORING							
OIL & GREASE	mg/L	*		NEW	ONCE/YEAR	ONCE/YEAR	GRAB
NITRATE + NITRITE	mg/L	*		NEW	ONCE/YEAR	ONCE/YEAR	GRAB
AMMONIA AS N	mg/L	*		NEW	ONCE/YEAR	ONCE/YEAR	GRAB
TOTAL KJELDAHL NITROGEN	mg/L	*		NEW	ONCE/YEAR	ONCE/YEAR	GRAB
PHOSPHORUS, TOTAL	mg/L	*		NEW	ONCE/YEAR	ONCE/YEAR	GRAB
BORON	µg/L	*		NEW	ONCE/YEAR	ONCE/YEAR	GRAB
COPPER	µg/L	*		NEW	ONCE/YEAR	ONCE/YEAR	GRAB
ZINC	µg/L	*		NEW	ONCE/YEAR	ONCE/YEAR	GRAB
SLUDGE MONITORING							
NITROGEN, TOTAL	mg/kg	*		NEW	ONCE/EVENT	ONCE/EVENT	GRAB
PHOSPHORUS, TOTAL	mg/kg	*		NEW	ONCE/EVENT	ONCE/EVENT	GRAB
POTASSIUM, TOTAL	mg/kg	*		NEW	ONCE/EVENT	ONCE/EVENT	GRAB

* monitoring and reporting requirement only

DERIVATION AND DISCUSSION OF LIMITS:

Oil & Grease
Monitoring only. High levels of oil and grease should result in changes to land application practices, specifically avoiding land application activities after rain events or on saturated soil. Oil and grease is considered a conventional pollutant. Furthermore, oil and grease is a comprehensive test which measures for gasoline, diesel, crude oil, creosote, kerosene, heating oils, heavy fuel oils, lubricating oils, waxes, and some asphalt and pitch. The test can also detect some volatile organics such as benzene, toluene, ethylbenzene, or xylene, but these constituents are often lost during testing due to their boiling points. Oil and Grease are potential pollutants of concern associated with vehicles and vehicle washing. As such, monitoring for oil and grease to assess the potential impact of these pollutants in wash water.

Boron, Copper, and Zinc
Metals are potential pollutants of concern associated with vehicle and equipment washing. These pollutants also have potential impacts on soil health and plant growth. As such, this permit establishes monitoring for these three metals associated with vehicle and equipment washing. The permit writer will assess these pollutants in future permit reviews; however, this permit establishes conditions to monitor for, and prohibit, phytotoxicity.

Nitrate + Nitrite, Ammonia as N, Kjeldahl Nitrogen- Total (TKN), Total Nitrogen, Total Phosphorus, Total Potassium
This facility washes out agricultural trailers and equipment. As such, manure is expected to be present in the wash water. As such, nutrients are expected to be present in the washwater. Nutrients must be monitored to ensure that the nutrient concentrations are appropriately considered for agricultural land application rates. As this permit has limited authorization for conditional wet weather discharges, speciation of nitrogen in the wastewater that could be discharged is warranted for evaluation and comparison to water quality standards. This permit does not authorize discharge of sludge; as such, only the total nitrogen, phosphorus and potassium content is needed for calculation of appropriate, agronomic land application rates.

TABLE A-2 – TRUCK WASH WASTEWATER MONITORING

EFFLUENT LIMITATIONS TABLE:

PARAMETERS	UNIT	DAILY MAX	MONTHLY AVG.	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	REPORTING FREQUENCY	SAMPLE TYPE
WASTEWATER MONITORING							
OIL & GREASE	mg/L	*		NEW	ONCE/YEAR	ONCE/YEAR	GRAB
BORON	µg/L	*		NEW	ONCE/YEAR	ONCE/YEAR	GRAB
COPPER	µg/L	*		NEW	ONCE/YEAR	ONCE/YEAR	GRAB
ZINC	µg/L	*		NEW	ONCE/YEAR	ONCE/YEAR	GRAB
SLUDGE MONITORING							
NITROGEN, TOTAL	mg/kg	*		NEW	ONCE/EVENT	ONCE/EVENT	GRAB
PHOSPHORUS, TOTAL	mg/kg	*		NEW	ONCE/EVENT	ONCE/EVENT	GRAB
POTASSIUM, TOTAL	mg/kg	*		NEW	ONCE/EVENT	ONCE/EVENT	GRAB

* monitoring and reporting requirement only

DERIVATION AND DISCUSSION OF LIMITS:

Oil & Grease
Monitoring only. High levels of oil and grease should result in changes to land application practices, specifically avoiding land application activities after rain events or on saturated soil. Oil and grease is considered a conventional pollutant. Furthermore, oil and grease is a comprehensive test which measures for gasoline, diesel, crude oil, creosote, kerosene, heating oils, heavy fuel oils, lubricating oils, waxes, and some asphalt and pitch. The test can also detect some volatile organics such as benzene, toluene, ethylbenzene, or xylene, but these constituents are often lost during testing due to their boiling points. Oil and Grease are potential pollutants of concern associated with vehicles and vehicle washing. The source of oil and grease may be the vehicles/trailers themselves, as well as the oil and grease acquired from travel on roadways. As such, monitoring for oil and grease to assess the potential impact of these pollutants in wash water.

Boron, Copper, and Zinc
Metals are potential pollutants of concern associated with vehicle and equipment washing. The source of boron, copper, and zinc may be the vehicles/trailers themselves, but more likely, they are pollutants acquired on the vehicles from travel on roadways. These pollutants also have potential impacts on soil health and plant growth. As such, this permit establishes monitoring for these three metals associated with vehicle and equipment washing. The permit writer will assess these pollutants in future permit reviews; however, this permit establishes conditions to monitor for, and prohibit, phytotoxicity.

Total Nitrogen, Total Phosphorus, Total Potassium
This facility washes out agricultural trailers and equipment. As such, manure is expected to be present in the wash water. As such, nutrients are expected to be present in the washwater. Nutrients must be monitored to ensure that the nutrient concentrations are appropriately considered for agricultural land application rates.

PERMITTED FEATURE #003 & #005 – TRUCK WASH WATER AND DOMESTIC WASTEWATER LAND APPLICATION
These tables do not apply to land application of truck wash water and/or domestic wastewater, if covered under the CAFO land application fields NMP.

IRRIGATION OPERATIONS TABLE:

PARAMETERS	UNIT	DAILY MAX	MONTHLY AVG	PREVIOUS PERMIT LIMITS	MINIMUM SAMPLING FREQUENCY	MINIMUM REPORTING FREQUENCY	SAMPLE TYPE
IRRIGATION ACTIVITY							
APPLICATION AREA	ACRES	*	*	SAME	ONCE/DAY ♠	ONCE/MONTH	RECORD
APPLICATION RATE	GAL/ACRE	*	*	SAME	ONCE/DAY ♠	ONCE/MONTH	RECORD
IRRIGATION PERIOD	HOURS	*	*	SAME	ONCE/DAY ♠	ONCE/MONTH	RECORD
VOLUME IRRIGATED	GALLONS	*	*	SAME	ONCE/DAY ♠	ONCE/MONTH	RECORD

♠ Facility will maintain records for each day land application occurred. If no application occurred, a record is not required.

LAND APPLICATION OPERATIONAL MONITORING:
Monitoring of pollutants in the domestic wastewater prior to land application was determined to be unnecessary as the land application requirements and rates are adequately protective of soils, crops, human health and the environment, including groundwater and surface waters. Land application is not authorized in public access areas. These permit conditions, limitations and monitoring requirements are similar to other domestic wastewater management general permits: MOG821, MOG823, and MOGD.

Application Area
Recording and reporting requirement only. In order to determine compliance with 10 CSR 20-6.015 and 10 CSR 20-8.200, reporting the area utilized will allow the Department to ensure compliance with setback distances. Adhering to the required setbacks prevents illicit discharges to waterbodies.

Application Rate
Recording and reporting requirement only. In order to determine compliance with 10 CSR 20-6.015 and 10 CSR 20-8.200, monitoring the rate will allow the Department to ensure appropriate permeability and plant uptake is occurring. Rates of application must be adjusted based on soil saturation; and rate monitoring will prevent soil saturation conditions possibly resulting in runoff or illicit discharges to waterbodies.

Irrigation Period
Recording and reporting requirement only. In order to determine compliance with 10 CSR 20-6.015 and 10 CSR 20-8.200 monitoring of irrigation period is required. Monitoring the irrigation period will also ensure soils do not get saturated and result in runoff or cause illicit discharges to waterbodies.

Volume Irrigated
Recording and reporting requirement only. In order to determine compliance with 10 CSR 20-6.015 and 10 CSR 20-8.200, monitoring of application activity is required. Monitoring the volume irrigated will allow the Department to ensure over application does not occur, and appropriate hydraulic loading is maintained within design levels. This will also help prevent runoff and illicit discharges due to soil saturation.

Soil Sampling- Nitrate Nitrogen, Total Nitrogen, Phosphorus
This facility washes out agricultural trailers and equipment. As such, manure is expected to be present in the wash water. As such, nutrients are expected to be present in the washwater. Nutrients are to be evaluated in the soil to ensure that the nutrient content in the soil is considered in determining agricultural land application rates and monitor for overapplication.

PERMITTED FEATURE #AS1 – ANNUAL SUMMARY REPORTING
This table was created simply to report a summary of the land application activities that have occurred at the land application areas under the operational control of the CAFO owner or operator. The detailed data, tracking and recordkeeping requirements are established in this permit and 10 CSR 20-6.300. This table is a mechanism to electronically report the annual summary data.

PERMITTED FEATURE #001 – CAFO PRODUCTION AREA WITH LAND APPLICATION
CAFO land application practices, soil assessment, and waste monitoring requirements are established in special conditions within this permit, in accordance with 10 CSR 20-6.300 and the "*Missouri Concentrated Animal Feeding Operation Nutrient Management Technical Standard*." 10 CSR 20-6.015 requires the Department to develop permit conditions, limitations, monitoring and reporting for land application of industrial wastes not otherwise specifically regulated. The CAFO land application practices are robust and intended to protect soils, crops, surface waters, groundwater, public health and the environment. The definition of CAFO process wastewater includes water which comes into contact with any raw materials, products or byproducts. The truck washes are intended to flush manure and other animal waste, generated by animals on or associated with the CAFO. Furthermore, the pollutants associated with the truck wash and domestic systems were evaluated. Truck wash and domestic wastewater nutrient concentrations are substantially lower than nutrient concentrations found in liquid manure. Domestic wastewater pollutants of concern are expected to be similar, yet less concentrated, than the CAFO waste, as the human wastewater is mixed with water from toilets and sinks. As the pollutants are similar, managing the domestic wastewater with the CAFO wastewater is protective of soils, crops, surface waters, groundwater, public health and the environment. The wastewater sampling analysis conducted annually, used for annual nutrient management plans and provided to exported CAFO waste recipients must be a representative sample of the final mixed wastewater, therefore properly incorporating and accounting for all mixed wastewater and nutrient content.

Pollutants associated with truck washes were also evaluated. The typical agricultural truck washes generate 1,000-4,000 gallons of wastewater per day. That amount of wastewater could be up to 50% of the total when combined with a Class IC facility and is closer to 10%-25% of the wastewater when combined with a Class IB facility wastewater flow. Furthermore, the data from car washes was evaluated and the metals content of a typical carwash was less than 1 mg/L boron, 10 mg/L copper, and 1 mg/L lead, already well below concentrations that would pose a concern for soils, crops, surface waters, groundwater, public health and the environment. In combining these waste streams, the concentration would be even lower, resulting in even lower pollutant loading in the fields. As such, the permit writer determined that land application of truck wash wastewater and/or domestic wastewater combined with CAFO does not pose a risk to soils, crops, surface waters, groundwater, public health and the environment.

Part VI – Administrative Requirements

On the basis of preliminary staff review and 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 permit. The proposed determinations are tentative pending public comment.

PUBLIC NOTICE – MASTER GENERAL PERMIT:
The Department shall give public notice when 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 or because of 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 facility must be notified of the denial in writing.

The Department must give public notice of a pending permit or of a new or reissued Missouri State Operating Permit. The public comment period is a length of time not less than thirty (30) days following the date of the public notice, during which interested persons may submit written comments about the proposed permit.

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

- ✓ The Public Notice period for this master general permit was October 31, 2022 through November 30, 2022.

Summary of changes made to the proposed permit based on public comment:

- Sampling is required for all discharges, not just those from Class IA facilities.
- Removed some language pertaining to groundwater monitoring as it implied requirements that would need to be determined and established upon review in accordance with 640.710 RSMo. The Department retains the right to require groundwater monitoring in accordance with 640.710 RSMo or to permit an ongoing discharge to groundwater.
- Typos in Table A-1 and A-2 were corrected to reference the appropriate permitted features and use the term "wastewater."
- Domestic wastewater treatment systems were limited to 50,000 gallons per day for coverage under this permit, based on the MOG823 permit that was used as the foundation for the relevant permit conditions.
- Language was amended to clarify that substitution of different brands or types of chemicals does not require written approval so long as the amount and type of pollutant or chemicals remains the same.
- Clarifications were made to the permit modification language, specifically the section concerning changes to the land application authority.
- Typos, grammar changes, numbering and other minor changes were made that did not change the content, meaning or intent of the text.
- "Unless authorized by the Department" was added to Standard Requirement 2.g. concerning emergency spillways.
- The Facility Description was edited to note that process wastes are collected and reused as *a fertilizer* or soil amendment.

PUBLIC NOTICE OF COVERAGE FOR AN INDIVIDUAL FACILITY:
Public Notice of reissuance of coverage is not required unless the facility has been found to be in significant noncompliance [10 CSR 20-6.020(1)(C)4.]. The need for an individual public notification process shall be determined and identified in the permit [10 CSR 20-6.020(1)(C)5.].

- ✓ Applicable: Public Notice is required for the Terms of the NMP for issuance of coverage under this permit to individual facilities.

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

- ✓ The Public Notice period for this permit is December 30, 2022 – February 13, 2023.

DATE OF FACT SHEET: DECEMBER 14, 2022

COMPLETED BY:

HEATHER PETERS
MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
573-522-9793
Heather.peters@dnr.mo.gov

Smithfield

Good food. Responsibly.®

Nutrient Management Plan

RECEIVED
JUL 29 2024
Water Protection Program

Dated: 7/24/24

Locust Ridge Farm

Smithfield Hog Production

Signature Page

Nutrient Management Plan
Dated: July 24, 2024

Prepared for:
Locust Ridge Farm

Prepared by:

Signature: _____ Date: 7/24/24

Blake Boxley
Smithfield Hog Production
Certified Crop Advisor

Smithfield Hog Production
Locust Ridge Farm
Nutrient Management Plan

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   1. Table 1: Lagoon Level Design Storage
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B. Ensures proper management of mortalities.
   1. Mortality Management: General Information, Procedures and Catastrophic loss

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

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

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.

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

G. Identifies protocols for appropriate testing of manure, litter, process wastewater, and soil.
   1. SOP – DEHS-0033 Sampling - Soil
   2. SOP – DEHS-0035 Sampling – Lagoons

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.
   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
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   6. SOP – DEHS-0021 Land Application – Checklist and Daily Run Sheet

I. Identifies specific records that will be maintained.

J. Miscellaneous.

1. SOP – DEHS-0029 Monitoring – Secondary Containment Release
2. Land Application Map
3. SOP – DEHS-0018 Land Application – Soil Moisture and Climate Conditions.
4. SOP – DEHS-0023 Land Application – Slopes Greater Than 10%
5. Table 3: Animal Inventory
6. Table 4: Five Year Crop History
7. Table 5: Five Year Crop Projection

Smithfield Hog Production
Locust Ridge Farm
Nutrient Management Plan
Enterprise Overview

Description of the existing enterprise

The enterprise consists of 8 farms located together, with each farm having a separate anaerobic lagoon. Each farm has 8 buildings for swine production. Each farm has 18,400 head of Nursery/grower animals with an average weight of less than 55 lbs., which equates to 14,720 animal units. There are buried pipelines connecting the anaerobic so that the levels can be manipulated by pumping. The lagoons are pumped to an AND system and from there land applied primarily by a toolbar applicator. Other methods of application may include Aerway or subsurface injection.

The Locust Ridge Farm has 1,731.78 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 equipped with scrapers. Recycle water is introduced into the collection pit to convey manure by gravity flow through a buried pipeline to the lagoon.

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

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

Contact information:

Smithfield Hog Production
17999 US Hwy 65
Princeton, MO 64673
(p) 660-748-4647
(f) 660-748-7186

Smithfield Hog Production
Locust Ridge 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	Top Length (ft)	Top Width (ft)	Maximum Depth (ft)	Capacity @ Spillway (gal)	Capacity @ Pumpdown (gal)	Treatment Volume	Design Waste Volume
Locust Ridge 1	57.6	469.9	335.6	24.00	19,759,845	14,499,408	5,260,437	5,274,615
Locust Ridge 2	57.6	434.0	361.7	24.00	19,757,145	14,517,515	5,239,630	5,267,680
Locust Ridge 3	51.6	472.2	337.3	24.00	19,990,819	14,471,306	5,519,513	4,330,360
Locust Ridge 5	57.6	469.9	335.6	24.00	19,759,845	14,499,408	5,260,437	5,274,615
Locust Ridge 6	58.8	570.6	285.3	24.00	20,022,831	14,501,478	5,521,354	4,336,565
Locust Ridge 7	55.2	481.0	343.6	22.00	19,674,794	14,366,568	5,308,225	5,328,270
Locust Ridge 8	60.0	472.0	337.1	24.00	19,966,932	14,453,249	5,513,684	5,484,855
Locust Ridge 9	55.2	405.3	405.3	22.00	19,661,709	14,381,365	5,280,344	4,109,535
AND Irrigation Basin	132.0	922.0	386.0	13.0	29,803,644	3,993,206	25,810,438	
Domestic	122.4	143.8	147.8	13.30	870,490	62,725	807,765	

MONITORING - LAGOON LEVELS

DEPARTMENT:	Environmental
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.
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. The pumpdown marker is located in the wet well for lagoons with impermeable covers.
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.
5. When reading a level at a lagoon with a wet well, make sure to turn off the recycle or transfer pump if it is running. Not doing so will result in an inaccurate reading.

Follow-up:

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

MAINTENANCE – EROSION CONTROL

DEPARTMENT:	Environmental
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 Environmental personnel 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.

SITE: LOCUST RIDGE

NAME: _____

DATE: _____

Weekly Inspection Checklist

	LR 1	LR 2	LR 3	LR 5	LR 6	LR 7	LR 8	LR 9	Irrig Basin LR AND	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	West:			Middle:			North:			

Comments: _____

_____

_____

_____

Smithfield Hog Production
Locust Ridge 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 from each building. The mortalities are picked up, transferred to a mortality trailer and taken to the rendering plant.

Procedures

Carcasses are moved to a location near the door of the building. The carcasses are picked up and hauled to a transfer area. A mortality trailer collects the carcasses and transports them the rendering plant. 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. If rendering isn't feasible, the method of burial will be used in accordance with applicable laws and regulations.

Smithfield Hog Production
Locust Ridge 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 earthen dam containments installed and maintained down gradient of all confinement buildings and sewer lines, gravity outfall lines, recycle pump stations and recycle force mains in order 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
Locust Ridge 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 Locust Ridge Farm is a confined animal feeding operation and the animals at this facility are confined inside the barns.

Smithfield Hog Production
Locust Ridge 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 are 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.
   - No chemicals or other contaminants located inside production facility.

Smithfield Hog Production
Locust Ridge 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: Locust Ridge Conservation Practices
2. SOP - DEHS – 0022 Land Application Buffers

Locust Ridge Conservation Practices

Field Number	Acres	Crop Type	Soil Test Results			Conservation Practices
			Date	Phosphorus (ppm)	Rating	
1	Mixed Grasses	84.71	2/12/2024	11	L	Continuous Grass
4	Mixed Grasses	38.74	2/12/2024	7	L	Continuous Grass
5	Mixed Grasses	14.61	2/12/2024	7	L	Continuous Grass
6	Mixed Grasses	8.18	2/12/2024	4	VL	Continuous Grass
7	Mixed Grasses	119.6	2/12/2024	7	L	Continuous Grass
9	Mixed Grasses	38.11	2/12/2024	6	L	Continuous Grass
11	Mixed Grasses	57.75	2/12/2024	5	VL	Continuous Grass
12	Mixed Grasses	7.41	2/12/2024	5	VL	Continuous Grass
13	Mixed Grasses	18.85	2/12/2024	4	VL	Continuous Grass
14	Mixed Grasses	9.16	2/12/2024	6	L	Continuous Grass
15	Mixed Grasses	35.04	2/12/2024	3	VL	Continuous Grass
16	Mixed Grasses	115.92	2/12/2024	4	VL	Continuous Grass
17	Mixed Grasses	20.31	2/12/2024	3	VL	Continuous Grass
18	Row Crops	12.82	2/12/2024	10	L	Grass Buffers
19	Row Crops	22.9	2/12/2024	12	M	Grass Buffers
20	Mixed Grasses	19.57	2/12/2024	3	VL	Continuous Grass
21	Mixed Grasses	10.18	2/12/2024	3	VL	Continuous Grass
22	Mixed Grasses	65.34	2/12/2024	3	VL	Continuous Grass
24	Mixed Grasses	46.8	2/12/2024	3	VL	Continuous Grass
26	Mixed Grasses	98.2	2/12/2024	6	L	Continuous Grass
27	Mixed Grasses	23.07	2/12/2024	5	VL	Continuous Grass
28	Mixed Grasses	36.65	2/12/2024	3	VL	Continuous Grass
29	Mixed Grasses	51.35	2/12/2024	4	VL	Continuous Grass
30	Mixed Grasses	50.13	2/12/2024	6	L	Continuous Grass
32	Mixed Grasses	64.27	2/12/2024	6	L	Continuous Grass

Field Number	Acres	Crop Type	Soil Test Results			Conservation Practices
			Date	Phosphorus (ppm)	Rating	
33	Mixed Grasses	42.87	2/12/2024	6	L	Continuous Grass
34	Mixed Grasses	39.27	2/12/2024	5	VL	Continuous Grass
35	Mixed Grasses	24.25	2/12/2024	3	VL	Continuous Grass
36	Mixed Grasses	39.45	2/12/2024	6	L	Continuous Grass
37	Mixed Grasses	18.2	2/12/2024	4	VL	Continuous Grass
38	Mixed Grasses	5.17	2/12/2024	3	VL	Continuous Grass
39	Mixed Grasses	39.55	2/12/2024	4	VL	Continuous Grass
40	Mixed Grasses	89.03	2/12/2024	6	L	Continuous Grass
41	Mixed Grasses	90.27	2/12/2024	6	L	Continuous Grass
42	Mixed Grasses	6.98	2/12/2024	2	VL	Continuous Grass
43	Mixed Grasses	22.14	2/12/2024	2	VL	Continuous Grass
45	Mixed Grasses	31.47	2/12/2024	5	VL	Continuous Grass
46	Mixed Grasses	67.34	2/12/2024	5	VL	Continuous Grass
47	Mixed Grasses	84.16	2/12/2024	4	VL	Continuous Grass
48	Mixed Grasses	61.96	2/12/2024	4	VL	Continuous Grass

LAND APPLICATION – BUFFERS

DEPARTMENT: Environmental
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.

Smithfield Hog Production
Locust Ridge 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 for phosphorus, cation exchange capacity (CEC) and soil organic matter at Midwest Laboratories, Inc. which is a soil testing laboratory accredited by the Missouri Soil Testing Association, using procedures recommended by the University of Missouri Soil Test 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 consisting of seven grab samples should be collected from each source of land applied water which may include the AND lagoon basin and/or individual site lagoons. When collecting from a by-pass line on the recycle system, use 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 on ice, 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.
6. Midwest Laboratories, Inc. shall be directed to analyze each lagoon sample for total nitrogen, ammonia nitrogen, total phosphorus, and total potassium.

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
Locust Ridge 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:	Environmental
PERSON(S) ACCOUNTABLE:	Environmental Personnel
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 Environmental and LNM Departments.
2. This database stores all entered information and allows for compilation 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 the Environmental Department 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:	Environmental
PERSON(S) ACCOUNTABLE:	Environmental 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 that replicates the formula in the University of Missouri nutrient application planner ("nmplanner") referenced in MU Guide Publication G9186 (https://nmplanner.missouri.edu/pan-calculator/). The program compiles data from the lagoon analysis, soil analysis, yield data, field acres and crops, and the nmplanner Plant Available Nitrogen (PAN) equation calculates the allowable nitrogen application for each field. The total nitrogen capacity of each facility is also totaled. The program compiles the PAN that can be applied based on the formulas detailed in the MDNR Operating Permits. All tracts are managed using the nmplanner 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 and soil conditions are favorable.

NUTRIENT REQUIREMENTS FOR COW/CALF GRAZING

DEPARTMENT:	Environmental
PERSON(S) ACCOUNTABLE:	Environmental Personnel
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.

NUTRIENT MANAGEMENT-WORK ORDER SYSTEM

DEPARTMENT:	Environmental
PERSON(S) ACCOUNTABLE:	Environmental Personnel
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. Environmental personnel 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 Environmental department. Designated Environmental personnel check the request to close the work order. When the work order is closed it is saved to the Land Application Database.

NUTRIENT MANAGEMENT – YIELD MONITORING

DEPARTMENT:	Environmental
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.

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

Smithfield Hog Production Missouri
17999 US Hwy 65
Princeton, MO 64673
Attn: Nacaela Berndt

Email: nberndt@smithfield.com
Fax: 660-748-7186

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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)

Smithfield Hog Production Missouri
17999 US Hwy 65
Princeton, MO 64673
Attn: Nacaela Berndt

Email: nberndt@smithfield.com
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

Smithfield Hog Production Missouri
17999 US Hwy 65
Princeton, MO 64673
Attn: Nacaela Berndt

Email: nberndt@smithfield.com
Fax #: 660-748-7186

Smithfield.

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LAND APPLICATION – CHECKLIST AND DAILY RUN SHEET

DEPARTMENT:	Environmental
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.

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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.

_____

EHS Director

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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
Locust Ridge 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:
   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
Locust Ridge 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 Monitoring – Secondary Containment Release.
2. Land Application Map
3. SOP – DEHS-0018 Land Application – Soil Moisture and Climate Conditions.
4. SOP – DEHS-0023 Land Application – Slopes Greater Than 10%.
5. Table 3: Animal Inventory
6. Table 4: Five Year Crop History
7. Table 5: Five Year Crop Projection

MONITORING – SECONDARY CONTAINMENT RELEASE

DEPARTMENT:	Environmental
PERSON(S) ACCOUNTABLE:	Land Nutrient Management Associate
WHEN:	As required after storm events.
GOAL / PURPOSE:	To maintain secondary containment structures to prevent contamination of 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.

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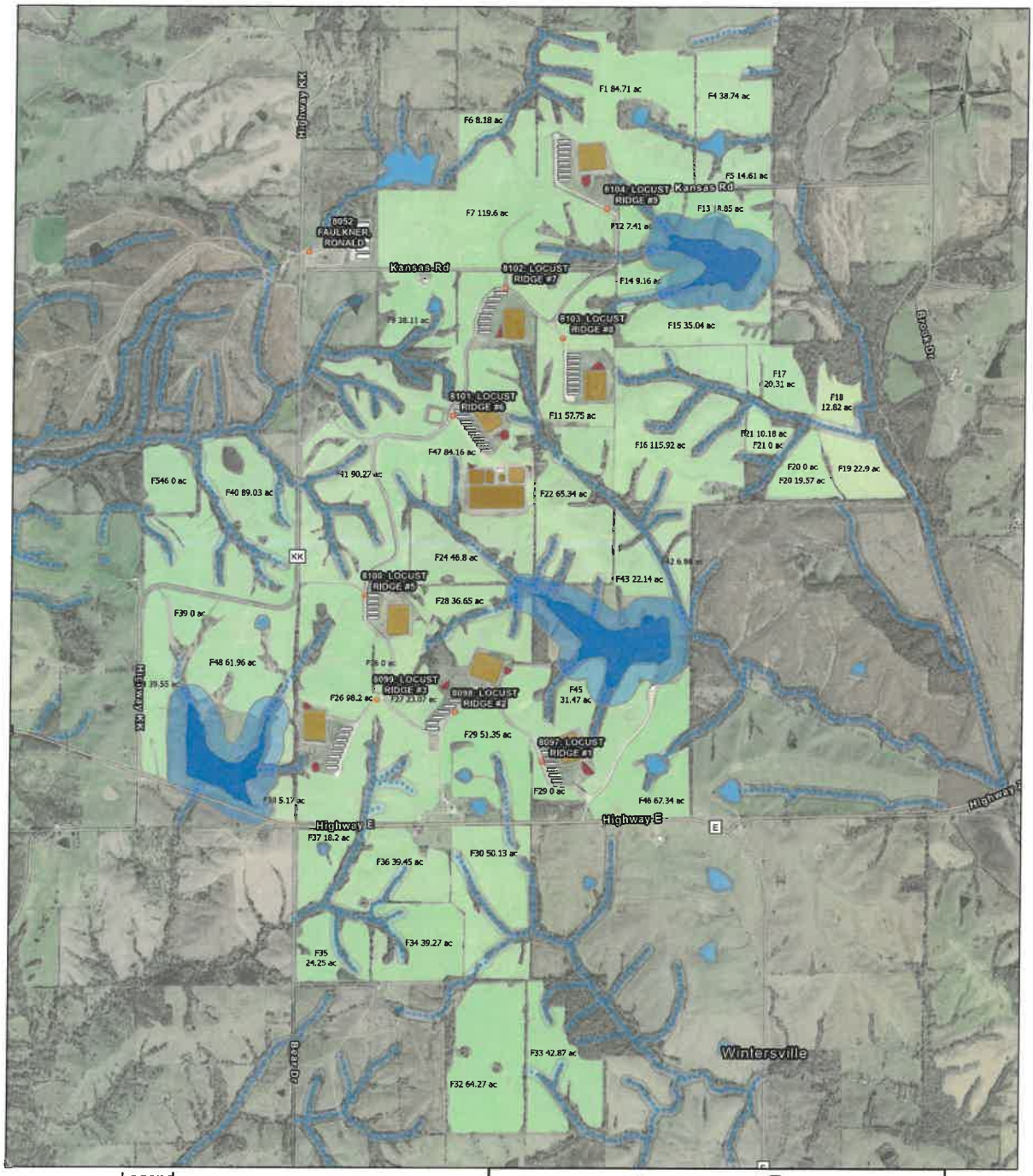
CONTAINMENT RELEASE FORM

CONTAINMENTS DRAINED

Containment ID	Outfall ID	Initials	Time Opened	NH3 Ammonia Reading	Time Closed	Initials	Action Taken: Pumped back to lagoon, Land applied or awaiting analysis

EHS Director

Locust Ridge



Legend

- Water Reservoirs
- Freshwater Ponds
- Freshwater Lakes
- Pond Buffers
- Lake Buffer
- MO_Ditch_Buffer

Stormwater Drainage - Drainage

- Ditch
- Pipe
- Dam
- Check Dam
- Lagoons
- Barns
- Farm Routing Points
- Secondary Containment

Irrigation - SprayFields

- Spray Field
- Spread Agreement
- Company Owned
- Other

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0 0.25 0.5 1 1.5 Miles

Created on Wednesday, May 17, 2023
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

LAND APPLICATION – SOIL MOISTURE AND CLIMATIC CONDITIONS

DEPARTMENT:	Environmental
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:	Environmental
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	Average Weight (Lbs)	Confinement Period	Manure Collected (%)	Type of manure storage
Locust Ridge 1	Swine	Nursery-Grow	8,832	150	Year round	100	Anaerobic Lagoon
Locust Ridge 2	Swine	Nursery-Grow	8,832	150	Year round	100	Anaerobic Lagoon
Locust Ridge 3	Swine	Nursery-Grow	8,832	150	Year round	100	Anaerobic Lagoon
Locust Ridge 5	Swine	Nursery-Grow	8,832	150	Year round	100	Anaerobic Lagoon
Locust Ridge 6	Swine	Nursery-Grow	8,832	150	Year round	100	Anaerobic Lagoon
Locust Ridge 7	Swine	Nursery-Grow	8,832	150	Year round	100	Anaerobic Lagoon
Locust Ridge 8	Swine	Nursery-Grow	8,832	150	Year round	100	Anaerobic Lagoon
Locust Ridge 9	Swine	Nursery-Grow	8,832	150	Year round	100	Anaerobic Lagoon

Table 4: Five Year Crop History

Tract Name	Field	Year	Crop	Acres	Crop Removal (Tons/Bu per Acre)	Nitrogen Uptake (Lbs/acre)
Locust Ridge	1	2019	Pasture	84.71	2.47	113.62
Locust Ridge	1	2020	Pasture	84.71	2.87	131.00
Locust Ridge	1	2021	Hay	84.71	2.45	112.70
Locust Ridge	1	2022	Hay	84.71	2.62	120.52
Locust Ridge	1	2023	Hay	84.71	2.64	121.44
Locust Ridge	4	2019	Pasture	38.74	2.65	121.90
Locust Ridge	4	2020	Pasture	38.74	2.84	131.00
Locust Ridge	4	2021	Hay	38.74	2.73	125.58
Locust Ridge	4	2022	Hay	38.74	2.57	118.22
Locust Ridge	4	2023	Hay	38.74	2.17	99.82
Locust Ridge	5	2019	Pasture	14.61	2.65	121.90
Locust Ridge	5	2020	Pasture	14.61	2.87	131.00
Locust Ridge	5	2021	Hay	14.61	2.45	112.70
Locust Ridge	5	2022	No Yield	14.61	0.00	0.00
Locust Ridge	5	2023	No Yield	14.61	0.00	0.00
Locust Ridge	6	2019	Pasture	8.18	2.65	121.90
Locust Ridge	6	2020	Pasture	8.18	2.87	131.00
Locust Ridge	6	2021	Prairie	8.18	0.00	0.00
Locust Ridge	6	2022	Prairie	8.18	0.00	0.00
Locust Ridge	6	2023	Prairie	8.18	0.00	0.00
Locust Ridge	7	2019	Pasture	119.60	2.65	121.90
Locust Ridge	7	2020	Pasture	119.60	1.72	79.00
Locust Ridge	7	2021	Hay	119.60	3.08	141.68
Locust Ridge	7	2022	Hay	119.60	.28	12.88
Locust Ridge	7	2023	Hay	119.60	1.53	70.38
Locust Ridge	9	2019	Or/Cl	38.11	3.14	153.86
Locust Ridge	9	2020	Or/Cl	38.11	2.59	126.00
Locust Ridge	9	2021	Or/Cl	38.11	1.97	96.53
Locust Ridge	9	2022	Or/Cl	38.11	3.62	177.38
Locust Ridge	9	2023	Or/Cl	38.11	2.44	119.56
Locust Ridge	11	2019	Or/Cl	57.75	1.85	90.65
Locust Ridge	11	2020	Or/Cl	57.75	2.13	104.00
Locust Ridge	11	2021	Or/Cl	57.75	1.96	96.04
Locust Ridge	11	2022	Or/Cl	57.75	1.50	73.50
Locust Ridge	11	2023	Or/Cl	57.75	1.89	92.61
Locust Ridge	12	2019	Prairie	7.41	0.00	0.00
Locust Ridge	12	2020	Prairie	7.41	0.00	0.00
Locust Ridge	12	2021	Prairie	7.41	0.00	0.00
Locust Ridge	12	2022	Prairie	7.41	0.00	0.00
Locust Ridge	12	2023	Prairie	7.41	0.00	0.00

Table 4: Five Year Crop History

Locust Ridge	13	2019	Prairie	18.85	0.00	0.00
Locust Ridge	13	2020	Prairie	18.85	0.00	0.00
Locust Ridge	13	2021	Prairie	18.85	0.00	0.00
Locust Ridge	13	2022	Prairie	18.85	0.00	0.00
Locust Ridge	13	2023	Prairie	18.85	0.00	0.00
Locust Ridge	14	2019	Prairie	9.16	0.00	0.00
Locust Ridge	14	2020	Prairie	9.16	0.00	0.00
Locust Ridge	14	2021	Prairie	9.16	0.00	0.00
Locust Ridge	14	2022	Prairie	9.16	0.00	0.00
Locust Ridge	14	2023	Prairie	9.16	0.00	0.00
Locust Ridge	15	2019	Prairie	35.04	0.00	0.00
Locust Ridge	15	2020	Prairie	35.04	0.00	0.00
Locust Ridge	15	2021	Prairie	35.04	0.00	0.00
Locust Ridge	15	2022	Prairie	35.04	0.00	0.00
Locust Ridge	15	2023	Prairie	35.04	0.00	0.00
Locust Ridge	16	2019	Pasture	115.92	3.01	138.46
Locust Ridge	16	2020	Pasture	115.92	2.89	132.00
Locust Ridge	16	2021	Hay	115.92	2.64	121.44
Locust Ridge	16	2022	Hay	115.92	1.32	60.72
Locust Ridge	16	2023	Hay	115.92	2.16	99.36
Locust Ridge	17	2019	Fescue	20.31	2.10	96.60
Locust Ridge	17	2020	Fescue	20.31	1.24	57.00
Locust Ridge	17	2021	Fescue	20.31	1.59	73.14
Locust Ridge	17	2022	Fescue	20.31	1.34	61.64
Locust Ridge	17	2023	Fescue	20.31	1.96	90.16
Locust Ridge	18	2019	No Yield	12.82	0.00	0.00
Locust Ridge	18	2020	Soybeans	12.82	39.00	160.00
Locust Ridge	18	2021	Soybeans	12.82	49.00	200.90
Locust Ridge	18	2022	Soybeans	12.82	46.00	188.00
Locust Ridge	18	2023	Soybeans	12.82	59.00	241.90
Locust Ridge	19	2019	Fescue	22.90	2.04	93.84
Locust Ridge	19	2020	Soybeans	22.90	29.00	160.00
Locust Ridge	19	2021	Soybeans	22.90	49.00	200.90
Locust Ridge	19	2022	Soybeans	22.90	47.00	192.00
Locust Ridge	19	2023	Soybeans	22.90	59.00	241.90
Locust Ridge	20	2019	Or/Cl	19.57	2.11	103.39
Locust Ridge	20	2020	Or/Cl	19.57	1.57	77.00
Locust Ridge	20	2021	Or/Cl	19.57	1.72	84.28
Locust Ridge	20	2022	Or/Cl	19.57	1.54	75.46
Locust Ridge	20	2023	Or/Cl	19.57	2.25	110.25
Locust Ridge	21	2019	Fescue	10.18	1.88	86.48
Locust Ridge	21	2020	Fescue	10.18	1.79	82.00
Locust Ridge	21	2021	Fescue	10.18	2.27	104.42
Locust Ridge	21	2022	No Yield	10.18	0.00	0.00

Table 4: Five Year Crop History

Locust Ridge	21	2023	Fescue	10.18	1.86	85.56
Locust Ridge	22	2019	Pasture	65.34	2.57	118.22
Locust Ridge	22	2020	Pasture	65.34	2.69	123.00
Locust Ridge	22	2021	Pasture	65.34	2.60	119.60
Locust Ridge	22	2022	Pasture	65.34	1.03	47.38
Locust Ridge	22	2023	Pasture	65.34	2.21	101.66
Locust Ridge	24	2019	Hay/Pasture	46.80	2.87	132.02
Locust Ridge	24	2020	Hay/Pasture	46.80	1.11	51.00
Locust Ridge	24	2021	Hay/Pasture	46.80	1.30	59.80
Locust Ridge	24	2022	Hay	46.80	1.47	67.62
Locust Ridge	24	2023	Hay	46.80	1.94	89.24
Locust Ridge	26	2019	Or/Cl	98.20	1.88	92.12
Locust Ridge	26	2020	Or/Cl	98.20	2.44	119.00
Locust Ridge	26	2021	Or/Cl	98.20	3.11	152.39
Locust Ridge	26	2022	Or/Cl	98.20	3.99	195.51
Locust Ridge	26	2023	Or/Cl	98.20	3.65	178.85
Locust Ridge	27	2019	Brome	23.07	2.06	107.12
Locust Ridge	27	2020	Brome	23.07	2.73	143.00
Locust Ridge	27	2021	Brome	23.07	2.40	124.80
Locust Ridge	27	2022	Brome	23.07	2.46	127.92
Locust Ridge	27	2023	Brome	23.07	3.34	173.68
Locust Ridge	28	2019	Hay/Pasture	36.65	1.97	90.62
Locust Ridge	28	2020	Hay/Pasture	36.65	1.55	71.00
Locust Ridge	28	2021	Hay/Pasture	36.65	2.41	110.86
Locust Ridge	28	2022	Hay	36.65	1.01	46.46
Locust Ridge	28	2023	Hay	36.65	2.39	109.94
Locust Ridge	29	2019	Fescue	51.35	4.31	198.26
Locust Ridge	29	2020	Fescue	51.35	3.18	146.00
Locust Ridge	29	2021	Fescue	51.35	4.63	212.98
Locust Ridge	29	2022	Fescue	51.35	4.73	217.58
Locust Ridge	29	2023	Fescue	51.35	3.74	172.04
Locust Ridge	30	2019	Hay/Pasture	50.13	3.25	149.50
Locust Ridge	30	2020	Hay/Pasture	50.13	5.05	232.00
Locust Ridge	30	2021	Hay/Pasture	50.13	3.45	158.70
Locust Ridge	30	2022	Hay	50.13	4.50	207.00
Locust Ridge	30	2023	Hay	50.13	3.60	165.60
Locust Ridge	32	2019	Fescue	64.27	2.08	95.68
Locust Ridge	32	2020	Fescue	64.27	6.13	281.00
Locust Ridge	32	2021	Fescue	64.27	2.41	110.86
Locust Ridge	32	2022	Fescue	64.27	3.51	161.46
Locust Ridge	32	2023	Fescue	64.27	3.10	142.60
Locust Ridge	33	2019	Fescue	42.87	3.06	140.76
Locust Ridge	33	2020	Fescue	42.87	4.88	224.00

Table 4: Five Year Crop History

Locust Ridge	33	2021	Fescue	42.87	1.47	67.62
Locust Ridge	33	2022	Fescue	42.87	2.94	135.24
Locust Ridge	33	2023	Fescue	42.87	2.66	122.36
Locust Ridge	34	2019	Hay/Pasture	39.27	2.84	130.64
Locust Ridge	34	2020	Hay/Pasture	39.27	3.60	165.00
Locust Ridge	34	2021	Hay/Pasture	39.27	2.00	92.00
Locust Ridge	34	2022	Hay	39.27	4.22	194.12
Locust Ridge	34	2023	Hay	39.27	2.94	135.24
Locust Ridge	35	2019	Brome	24.25	2.23	115.96
Locust Ridge	35	2020	Brome	24.25	2.02	105.04
Locust Ridge	35	2021	Brome	24.25	1.79	93.08
Locust Ridge	35	2022	Brome	24.25	1.79	93.08
Locust Ridge	35	2023	Brome	24.25	2.34	121.68
Locust Ridge	36	2019	Al/Br	39.45	1.12	60.48
Locust Ridge	36	2020	Al/Br	39.45	1.85	99.00
Locust Ridge	36	2021	Al/Br	39.45	2.50	135.00
Locust Ridge	36	2022	Al/Br	39.45	3.87	208.98
Locust Ridge	36	2023	Al/Br	39.65	3.32	179.28
Locust Ridge	37	2019	Fescue	18.20	1.65	75.90
Locust Ridge	37	2020	Fescue	18.20	1.58	72.00
Locust Ridge	37	2021	Fescue	18.20	1.35	62.10
Locust Ridge	37	2022	Fescue	18.20	1.04	47.84
Locust Ridge	37	2023	Fescue	18.20	2.35	108.10
Locust Ridge	38	2019	Prairie	5.17	0.00	0.00
Locust Ridge	38	2020	Prairie	5.17	0.00	0.00
Locust Ridge	38	2021	Prairie	5.17	0.00	0.00
Locust Ridge	38	2022	Prairie	5.17	0.00	0.00
Locust Ridge	38	2023	Prairie	5.17	0.00	0.00
Locust Ridge	39	2019	Prairie	39.55	0.00	0.00
Locust Ridge	39	2020	Prairie	39.55	0.00	0.00
Locust Ridge	39	2021	Prairie	39.55	0.00	0.00
Locust Ridge	39	2022	Prairie	39.55	0.00	0.00
Locust Ridge	39	2023	Prairie	39.55	0.00	0.00
Locust Ridge	40	2019	Brome	89.03	3.14	163.28
Locust Ridge	40	2020	Brome	89.03	2.08	107.00
Locust Ridge	40	2021	Brome	89.03	2.19	113.88
Locust Ridge	40	2022	Brome	89.03	2.29	119.08
Locust Ridge	40	2023	Brome	89.03	1.92	99.84
Locust Ridge	41	2019	Brome	90.27	2.64	137.28
Locust Ridge	41	2020	Brome	90.27	1.60	83.00
Locust Ridge	41	2021	Brome	90.27	1.59	82.68
Locust Ridge	41	2022	Brome	90.27	2.15	111.80
Locust Ridge	41	2023	Brome	90.27	2.37	123.24

Table 4: Five Year Crop History

Locust Ridge	42	2019	Or/Cl	6.98	3.12	152.88
Locust Ridge	42	2020	Or/Cl	6.98	2.41	117.00
Locust Ridge	42	2021	Or/Cl	6.98	3.71	181.79
Locust Ridge	42	2022	No Yield	6.98	0.00	0.00
Locust Ridge	42	2023	Or/Cl	6.98	3.81	186.69
Locust Ridge	43	2019	Pasture	22.14	2.05	94.30
Locust Ridge	43	2020	Pasture	22.14	3.35	154.00
Locust Ridge	43	2021	Pasture	22.14	3.22	148.12
Locust Ridge	43	2022	Hay	22.14	2.50	115.00
Locust Ridge	43	2023	Hay	22.14	2.72	125.12
Locust Ridge	45	2019	Or/Cl	31.47	3.11	152.39
Locust Ridge	45	2020	Or/Cl	31.47	2.60	127.00
Locust Ridge	45	2021	Or/Cl	31.47	3.31	162.19
Locust Ridge	45	2022	Or/Cl	31.47	3.18	155.82
Locust Ridge	45	2023	Or/Cl	31.47	2.60	127.40
Locust Ridge	46	2019	Or/Cl	67.34	3.66	179.34
Locust Ridge	46	2020	Or/Cl	67.34	2.81	137.00
Locust Ridge	46	2021	Or/Cl	67.34	3.80	186.20
Locust Ridge	46	2022	Or/Cl	67.34	3.86	189.14
Locust Ridge	46	2023	Or/Cl	67.34	3.15	154.35
Locust Ridge	47	2019	Or/Cl	84.16	1.16	56.84
Locust Ridge	47	2020	Or/Cl	84.16	1.83	89.00
Locust Ridge	47	2021	Or/Cl	84.16	1.75	85.75
Locust Ridge	47	2022	Or/Cl	84.16	1.80	88.20
Locust Ridge	47	2023	Or/Cl	84.16	2.55	124.95
Locust Ridge	48	2019	Prairie	61.96	0.00	0.00
Locust Ridge	48	2020	Prairie	61.96	0.00	0.00
Locust Ridge	48	2021	Prairie	61.96	0.00	0.00
Locust Ridge	48	2022	Prairie	61.96	0.00	0.00
Locust Ridge	48	2023	Prairie	61.96	0.00	0.00

Table 5: Five Year Crop Projection

Tract Name	Field	Year	Crop	Acres	N Limit
Locust Ridge	1	2024	Mixed Grasses	84.71	131.00
Locust Ridge	1	2025	Mixed Grasses	84.71	131.00
Locust Ridge	1	2026	Mixed Grasses	84.71	131.00
Locust Ridge	1	2027	Mixed Grasses	84.71	131.00
Locust Ridge	1	2028	Mixed Grasses	84.71	131.00
Locust Ridge	4	2024	Mixed Grasses	38.74	131.00
Locust Ridge	4	2025	Mixed Grasses	38.74	131.00
Locust Ridge	4	2026	Mixed Grasses	38.74	131.00
Locust Ridge	4	2027	Mixed Grasses	38.74	131.00
Locust Ridge	4	2028	Mixed Grasses	38.74	131.00
Locust Ridge	5	2024	Mixed Grasses	14.61	80.00
Locust Ridge	5	2025	Mixed Grasses	14.61	80.00
Locust Ridge	5	2026	Mixed Grasses	14.61	80.00
Locust Ridge	5	2027	Mixed Grasses	14.61	80.00
Locust Ridge	5	2028	Mixed Grasses	14.61	80.00
Locust Ridge	6	2024	Native Grasses	8.18	40.00
Locust Ridge	6	2025	Native Grasses	8.18	40.00
Locust Ridge	6	2026	Native Grasses	8.18	40.00
Locust Ridge	6	2027	Native Grasses	8.18	40.00
Locust Ridge	6	2028	Native Grasses	8.18	40.00
Locust Ridge	7	2024	Mixed Grasses	119.60	93.00
Locust Ridge	7	2025	Mixed Grasses	119.60	93.00
Locust Ridge	7	2026	Mixed Grasses	119.60	93.00
Locust Ridge	7	2027	Mixed Grasses	119.60	93.00
Locust Ridge	7	2028	Mixed Grasses	119.60	93.00
Locust Ridge	9	2024	Mixed Grasses	38.11	148.00
Locust Ridge	9	2025	Mixed Grasses	38.11	148.00
Locust Ridge	9	2026	Mixed Grasses	38.11	148.00
Locust Ridge	9	2027	Mixed Grasses	38.11	148.00
Locust Ridge	9	2028	Mixed Grasses	38.11	148.00
Locust Ridge	11	2024	Mixed Grasses	57.75	100.00
Locust Ridge	11	2025	Mixed Grasses	57.75	100.00
Locust Ridge	11	2026	Mixed Grasses	57.75	100.00
Locust Ridge	11	2027	Mixed Grasses	57.75	100.00
Locust Ridge	11	2028	Mixed Grasses	57.75	100.00
Locust Ridge	12	2024	Native Grasses	7.41	40.00
Locust Ridge	12	2025	Native Grasses	7.41	40.00
Locust Ridge	12	2026	Native Grasses	7.41	40.00
Locust Ridge	12	2027	Native Grasses	7.41	40.00
Locust Ridge	12	2028	Native Grasses	7.41	40.00
Locust Ridge	13	2024	Native Grasses	18.85	40.00
Locust Ridge	13	2025	Native Grasses	18.85	40.00
Locust Ridge	13	2026	Native Grasses	18.85	40.00

Table 5: Five Year Crop Projection

Locust Ridge	13	2027	Native Grasses	18.85	40.00
Locust Ridge	13	2028	Native Grasses	18.85	40.00
Locust Ridge	14	2024	Native Grasses	9.16	40.00
Locust Ridge	14	2025	Native Grasses	9.16	40.00
Locust Ridge	14	2026	Native Grasses	9.16	40.00
Locust Ridge	14	2027	Native Grasses	9.16	40.00
Locust Ridge	14	2028	Native Grasses	9.16	40.00
Locust Ridge	15	2024	Native Grasses	35.04	40.00
Locust Ridge	15	2025	Native Grasses	35.04	40.00
Locust Ridge	15	2026	Native Grasses	35.04	40.00
Locust Ridge	15	2027	Native Grasses	35.04	40.00
Locust Ridge	15	2028	Native Grasses	35.04	40.00
Locust Ridge	16	2024	Mixed Grasses	115.92	121.00
Locust Ridge	16	2025	Mixed Grasses	115.92	121.00
Locust Ridge	16	2026	Mixed Grasses	115.92	121.00
Locust Ridge	16	2027	Mixed Grasses	115.92	121.00
Locust Ridge	16	2028	Mixed Grasses	115.92	121.00
Locust Ridge	17	2024	Mixed Grasses	20.31	83.00
Locust Ridge	17	2025	Mixed Grasses	20.31	83.00
Locust Ridge	17	2026	Mixed Grasses	20.31	83.00
Locust Ridge	17	2027	Mixed Grasses	20.31	83.00
Locust Ridge	17	2028	Mixed Grasses	20.31	83.00
Locust Ridge	18	2024	Corn	12.82	150.00
Locust Ridge	18	2025	Soybeans	12.82	120.00
Locust Ridge	18	2026	Corn	12.82	150.00
Locust Ridge	18	2027	Soybeans	12.82	120.00
Locust Ridge	18	2028	Corn	12.82	150.00
Locust Ridge	19	2024	Corn	22.90	150.00
Locust Ridge	19	2025	Soybeans	22.90	120.00
Locust Ridge	19	2026	Corn	22.90	150.00
Locust Ridge	19	2027	Soybeans	22.90	120.00
Locust Ridge	19	2028	Corn	22.90	150.00
Locust Ridge	20	2024	Mixed Grasses	19.57	99.00
Locust Ridge	20	2025	Mixed Grasses	19.57	99.00
Locust Ridge	20	2026	Mixed Grasses	19.57	99.00
Locust Ridge	20	2027	Mixed Grasses	19.57	99.00
Locust Ridge	20	2028	Mixed Grasses	19.57	99.00
Locust Ridge	21	2024	Mixed Grasses	10.18	78.00
Locust Ridge	21	2025	Mixed Grasses	10.18	78.00
Locust Ridge	21	2026	Mixed Grasses	10.18	78.00
Locust Ridge	21	2027	Mixed Grasses	10.18	78.00
Locust Ridge	21	2028	Mixed Grasses	10.18	78.00
Locust Ridge	22	2024	Mixed Grasses	65.34	112.00

Table 5: Five Year Crop Projection

Locust Ridge	22	2025	Mixed Grasses	65.34	112.00
Locust Ridge	22	2026	Mixed Grasses	65.34	112.00
Locust Ridge	22	2027	Mixed Grasses	65.34	112.00
Locust Ridge	22	2028	Mixed Grasses	65.34	112.00
Locust Ridge	24	2024	Mixed Grasses	46.80	87.00
Locust Ridge	24	2025	Mixed Grasses	46.80	87.00
Locust Ridge	24	2026	Mixed Grasses	46.80	87.00
Locust Ridge	24	2027	Mixed Grasses	46.80	87.00
Locust Ridge	24	2028	Mixed Grasses	46.80	87.00
Locust Ridge	26	2024	Mixed Grasses	98.20	162.00
Locust Ridge	26	2025	Mixed Grasses	98.20	162.00
Locust Ridge	26	2026	Mixed Grasses	98.20	162.00
Locust Ridge	26	2027	Mixed Grasses	98.20	162.00
Locust Ridge	26	2028	Mixed Grasses	98.20	162.00
Locust Ridge	27	2024	Mixed Grasses	23.07	148.00
Locust Ridge	27	2025	Mixed Grasses	23.07	148.00
Locust Ridge	27	2026	Mixed Grasses	23.07	148.00
Locust Ridge	27	2027	Mixed Grasses	23.07	148.00
Locust Ridge	27	2028	Mixed Grasses	23.07	148.00
Locust Ridge	28	2024	Mixed Grasses	36.65	94.00
Locust Ridge	28	2025	Mixed Grasses	36.65	94.00
Locust Ridge	28	2026	Mixed Grasses	36.65	94.00
Locust Ridge	28	2027	Mixed Grasses	36.65	94.00
Locust Ridge	28	2028	Mixed Grasses	36.65	94.00
Locust Ridge	29	2024	Mixed Grasses	51.35	184.00
Locust Ridge	29	2025	Mixed Grasses	51.35	184.00
Locust Ridge	29	2026	Mixed Grasses	51.35	184.00
Locust Ridge	29	2027	Mixed Grasses	51.35	184.00
Locust Ridge	29	2028	Mixed Grasses	51.35	184.00
Locust Ridge	30	2024	Mixed Grasses	50.13	184.00
Locust Ridge	30	2025	Mixed Grasses	50.13	184.00
Locust Ridge	30	2026	Mixed Grasses	50.13	184.00
Locust Ridge	30	2027	Mixed Grasses	50.13	184.00
Locust Ridge	30	2028	Mixed Grasses	50.13	184.00
Locust Ridge	32	2024	Mixed Grasses	64.27	174.00
Locust Ridge	32	2025	Mixed Grasses	64.27	174.00
Locust Ridge	32	2026	Mixed Grasses	64.27	174.00
Locust Ridge	32	2027	Mixed Grasses	64.27	174.00
Locust Ridge	32	2028	Mixed Grasses	64.27	174.00
Locust Ridge	33	2024	Mixed Grasses	42.87	151.00
Locust Ridge	33	2025	Mixed Grasses	42.87	151.00
Locust Ridge	33	2026	Mixed Grasses	42.87	151.00
Locust Ridge	33	2027	Mixed Grasses	42.87	151.00
Locust Ridge	33	2028	Mixed Grasses	42.87	151.00

Table 5: Five Year Crop Projection

Locust Ridge	34	2024	Mixed Grasses	39.27	157.00
Locust Ridge	34	2025	Mixed Grasses	39.27	157.00
Locust Ridge	34	2026	Mixed Grasses	39.27	157.00
Locust Ridge	34	2027	Mixed Grasses	39.27	157.00
Locust Ridge	34	2028	Mixed Grasses	39.27	157.00
Locust Ridge	35	2024	Mixed Grasses	24.25	116.00
Locust Ridge	35	2025	Mixed Grasses	24.25	116.00
Locust Ridge	35	2026	Mixed Grasses	24.25	116.00
Locust Ridge	35	2027	Mixed Grasses	24.25	116.00
Locust Ridge	35	2028	Mixed Grasses	24.25	116.00
Locust Ridge	36	2024	Mixed Grasses	39.45	150.00
Locust Ridge	36	2025	Mixed Grasses	39.45	150.00
Locust Ridge	36	2026	Mixed Grasses	39.45	150.00
Locust Ridge	36	2027	Mixed Grasses	39.45	150.00
Locust Ridge	36	2028	Mixed Grasses	39.45	150.00
Locust Ridge	37	2024	Mixed Grasses	18.20	80.00
Locust Ridge	37	2025	Mixed Grasses	18.20	80.00
Locust Ridge	37	2026	Mixed Grasses	18.20	80.00
Locust Ridge	37	2027	Mixed Grasses	18.20	80.00
Locust Ridge	37	2028	Mixed Grasses	18.20	80.00
Locust Ridge	38	2024	Native Grasses	5.17	40.00
Locust Ridge	38	2025	Native Grasses	5.17	40.00
Locust Ridge	38	2026	Native Grasses	5.17	40.00
Locust Ridge	38	2027	Native Grasses	5.17	40.00
Locust Ridge	38	2028	Native Grasses	5.17	40.00
Locust Ridge	39	2024	Native Grasses	39.55	40.00
Locust Ridge	39	2025	Native Grasses	39.55	40.00
Locust Ridge	39	2026	Native Grasses	39.55	40.00
Locust Ridge	39	2027	Native Grasses	39.55	40.00
Locust Ridge	39	2028	Native Grasses	39.55	40.00
Locust Ridge	40	2024	Mixed Grasses	89.03	132.00
Locust Ridge	40	2025	Mixed Grasses	89.03	132.00
Locust Ridge	40	2026	Mixed Grasses	89.03	132.00
Locust Ridge	40	2027	Mixed Grasses	89.03	132.00
Locust Ridge	40	2028	Mixed Grasses	89.03	132.00
Locust Ridge	41	2024	Mixed Grasses	90.27	118.00
Locust Ridge	41	2025	Mixed Grasses	90.27	118.00
Locust Ridge	41	2026	Mixed Grasses	90.27	118.00
Locust Ridge	41	2027	Mixed Grasses	90.27	118.00
Locust Ridge	41	2028	Mixed Grasses	90.27	118.00
Locust Ridge	42	2024	Mixed Grasses	6.98	140.00
Locust Ridge	42	2025	Mixed Grasses	6.98	140.00
Locust Ridge	42	2026	Mixed Grasses	6.98	140.00

Table 5: Five Year Crop Projection

Locust Ridge	42	2027	Mixed Grasses	6.98	140.00
Locust Ridge	42	2028	Mixed Grasses	6.98	140.00
Locust Ridge	43	2024	Mixed Grasses	22.14	140.00
Locust Ridge	43	2025	Mixed Grasses	22.14	140.00
Locust Ridge	43	2026	Mixed Grasses	22.14	140.00
Locust Ridge	43	2027	Mixed Grasses	22.14	140.00
Locust Ridge	43	2028	Mixed Grasses	22.14	140.00
Locust Ridge	45	2024	Mixed Grasses	31.47	159.00
Locust Ridge	45	2025	Mixed Grasses	31.47	159.00
Locust Ridge	45	2026	Mixed Grasses	31.47	159.00
Locust Ridge	45	2027	Mixed Grasses	31.47	159.00
Locust Ridge	45	2028	Mixed Grasses	31.47	159.00
Locust Ridge	46	2024	Mixed Grasses	67.34	184.00
Locust Ridge	46	2025	Mixed Grasses	67.34	184.00
Locust Ridge	46	2026	Mixed Grasses	67.34	184.00
Locust Ridge	46	2027	Mixed Grasses	67.34	184.00
Locust Ridge	46	2028	Mixed Grasses	67.34	184.00
Locust Ridge	47	2024	Mixed Grasses	84.16	97.00
Locust Ridge	47	2025	Mixed Grasses	84.16	97.00
Locust Ridge	47	2026	Mixed Grasses	84.16	97.00
Locust Ridge	47	2027	Mixed Grasses	84.16	97.00
Locust Ridge	47	2028	Mixed Grasses	84.16	97.00
Locust Ridge	48	2024	Native Grasses	61.96	40.00
Locust Ridge	48	2025	Native Grasses	61.96	40.00
Locust Ridge	48	2026	Native Grasses	61.96	40.00
Locust Ridge	48	2027	Native Grasses	61.96	40.00
Locust Ridge	48	2028	Native Grasses	61.96	40.00

Terms of the NMP Attachment A

Permit Number: MO-G010900

Field Name	Legal Desc.	12-digit HUC[1]	Spreadable Acres	P Loss Risk[2]	N or P Based Application	Crop #1		Crop #2	
						Crop	Yield Goal[3]	Crop	Yield Goal[3]
1	Secs. 19 & 20 Twn. 64N Rng. 21W	102801030801	84.71	Low	P	Mixed Grasses	4 t		
4	Sec. 20 Twn. 64N Rng. 21W	102801030801	38.74	Low	P	Mixed Grasses	4 t		
5	Sec. 20 Twn. 64N Rng. 21W	102801030801	14.61	Low	P	Mixed Grasses	4 t		
6	Sec. 19 Twn. 64N Rng. 21W	102801030801	8.18	Very Low	P	Native Grasses	4 t		
7	Sec. 19 Twn. 64N Rng. 21W	102801030801 and 102801030207	119.6	Low	P	Mixed Grasses	4 t		
9	Sec. 19 Twn. 64N Rng. 21W	102801030207	38.11	Low	P	Mixed Grasses	4 t		
11	Secs. 19 & 30 Twn. 64N Rng. 21W	102801030801 and 102801030802	57.75	Very Low	P	Mixed Grasses	4 t		
12	Sec. 20 Twn. 64N Rng. 21W	102801030801	7.41	Very Low	P	Native Grasses	4 t		
13	Sec. 20 Twn. 64N Rng. 21W	102801030801	18.85	Very Low	P	Native Grasses	4 t		
14	Sec. 20 Twn. 64N Rng. 21W	102801030801	9.16	Low	P	Native Grasses	4 t		
15	Sec. 20 Twn. 64N Rng. 21W	102801030801 and 102801030802	35.04	Very Low	P	Native Grasses	4 t		
16	Sec. 29 Twn. 64N Rng. 21W	102801030802	115.92	Very Low	P	Mixed Grasses	4 t		
17	Sec. 29 Twn. 64N Rng. 21W	102801030802	20.31	Very Low	P	Mixed Grasses	4 t		
18	Sec. 29 Twn. 64N Rng. 21W	102801030802	12.82	Low	P	Corn	170 bu	Soybeans	50 bu
19	Sec. 29 Twn. 64N Rng. 21W	102801030802	22.90	Medium	P	Corn	170 bu	Soybeans	50 bu
20	Sec. 29 Twn. 64N Rng. 21W	102801030802	19.57	Very Low	P	Mixed Grasses	4 t		
21	Sec. 29 Twn. 64N Rng. 21W	102801030802	10.18	Very Low	P	Mixed Grasses	4 t		
22	Sec. 30 Twn. 64N Rng. 21W	102801030802	65.34	Very Low	P	Mixed Grasses	4 t		
24	Sec. 30 Twn. 64N Rng. 21W	102801030802	46.80	Very Low	P	Mixed Grasses	4 t		
26	Secs. 30 & 31 Twn. 64N Rng. 21W	102801030202 and 102801030207	98.20	Low	P	Mixed Grasses	4 t		
27	Secs. 30 & 31 Twn. 64N Rng. 21W	102801030802	23.07	Very Low	P	Mixed Grasses	4 t		
28	Sec. 30 Twn. 64N Rng. 21W	102801030802	36.65	Very Low	P	Mixed Grasses	4 t		
29	Sec. 31 Twn. 64N Rng. 21W	102801030802	51.35	Very Low	P	Mixed Grasses	4 t		
30	Sec. 31 Twn. 64N Rng. 19W	102801030802	50.13	Low	P	Mixed Grasses	4 t		
32	Sec. 6 Twn. 63N Rng. 21W	102801030802	64.27	Low	P	Mixed Grasses	4 t		

[1] Hydrologic Unit Code12: a specific, small sub-watershed defined by the United States Geologic Survey, representing the land area draining to a specific point.
[2] Soil Test P Rating or P Index Rating may be used.
[3] Express yield in bu = bushels or t = tons per acre.

Field Name	Legal Desc.	12-digit HUC[1]	Spreadable Acres	P Loss Risk[2]	N or P Based Application	Crop #1		Crop #2	
						Crop	Yield Goal[3]		
33	Sec. 6 Twn. 63N Rng. 21W	102801030802	42.87	Low	P	Mixed Grasses	4 t		
34	Sec. 31 Twn. 64N Rng. 21W	102801030802 and 102801030207	39.27	Very Low	P	Mixed Grasses	4 t		
35	Sec. 31 Twn. 64N Rng. 21W	102801030207	24.25	Very Low	P	Mixed Grasses	4 t		
36	Sec. 31 Twn. 64N Rng. 21W	102801030802 and 102801030807	39.45	Low	P	Mixed Grasses	4 t		
37	Sec. 31 Twn. 64N Rng. 21W	102801030207	18.20	Very Low	P	Mixed Grasses	4 t		
38	Sec. 36 Twn. 64N Rng. 22W	102801030207	5.17	Very Low	P	Native Grasses	4 t		
39	Secs. 25 & 36 Twn. 64N Rng. 22W	102801030207	39.55	Very Low	P	Native Grasses	4 t		
40	Sec. 25 Twn. 64N Rng. 22W	102801030207	89.03	Low	P	Mixed Grasses	4 t		
41	Sec. 30 Twn. 64N Rng. 21W	102801030207	90.27	Low	P	Mixed Grasses	4 t		
42	Sec. 29 Twn. 64N Rng. 21W	102801030802	6.98	Very Low	P	Mixed Grasses	4 t		
43	Sec. 29 Twn. 64N Rng. 21W	102801030802	22.14	Very Low	P	Mixed Grasses	4 t		
45	Sec. 31 Twn. 64N Rng. 21W	102801030802	31.47	Very Low	P	Mixed Grasses	4 t		
46	Sec. 25 Twn. 64N Rng. 21W	102801030802	67.34	Very Low	P	Mixed Grasses	4 t		
47	Sec. 30 Twn. N Rng. 21W	102801030802 and 102801030207	84.16	Very Low	P	Mixed Grasses	4 t		
48	Secs. 25 & 36 Twn. N Rng. 21W	102801030207	61.96	Very Low	P	Native Grasses	4 t		

[1] Hydrologic Unit Code12: a specific, small sub-watershed defined by the United States Geologic Survey, representing the land area draining to a specific point.
[2] Soil Test P Rating or P Index Rating may be used.
[3] Express yield in bu = bushels or t = tons per acre.

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

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

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

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

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

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

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

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

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

Section B – Reporting Requirements

1. **Planned Changes.**
   a. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility when:
      i. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
      ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42(a)(1);
      iii. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;
      iv. Any facility expansions, production increases, or process modifications which will result in a new or substantially different discharge or sludge characteristics must be reported to the Department 60 days before the facility or process modification begins. Notification may be accomplished by application for a new permit. If the discharge does not violate effluent limitations specified in the permit, the facility is to submit a notice to the Department of the changed discharge at least 30 days before such changes. The Department may require a construction permit and/or permit modification as a result of the proposed changes at the facility.

2. **Non-compliance Reporting.**
   a. The permittee shall report any noncompliance which may endanger health or the environment. Relevant information shall be provided orally or via the current electronic method approved by the Department, within 24 hours from the time the permittee becomes aware of the circumstances, and shall be reported to the appropriate Regional Office during normal business hours or the Environmental Emergency Response hotline at 573-634-2436 outside of normal business hours. A written submission shall also be provided within five (5) business days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

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.

STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
August 1, 2019

PART III – BIOSOLIDS AND SLUDGE FROM DOMESTIC TREATMENT FACILITIES

SECTION A – GENERAL REQUIREMENTS

1. PART III Standard Conditions pertain to biosolids and sludge requirements under the Missouri Clean Water Law and regulations for domestic and municipal wastewater and also incorporates federal sludge disposal requirements under 40 CFR Part 503 for domestic wastewater. The Environmental Protection Agency (EPA) has principal authority for permitting and enforcement of the federal sludge regulations under 40 CFR Part 503 for domestic biosolids and sludge.
2. PART III Standard Conditions apply only to biosolids and sludge generated at domestic wastewater treatment facilities, including public owned treatment works (POTW) and privately owned facilities.
3. Biosolids and Sludge Use and Disposal Practices:
    a. The permittee is authorized to operate the biosolids and sludge generating, treatment, storage, use, and disposal facilities listed in the facility description of this permit.
    b. The permittee shall not exceed the design sludge/biosolids volume listed in the facility description and shall not use biosolids or sludge disposal methods that are not listed in the facility description, without prior approval of the permitting authority.
    c. For facilities operating under general operating permits that incorporate Standard Conditions PART III, the facility is authorized to operate the biosolids and sludge generating, treatment, storage, use and disposal facilities identified in the original operating permit application, subsequent renewal applications or subsequent written approval by the department.
4. Biosolids or Sludge Received from other Facilities:
    a. Permittees may accept domestic wastewater biosolids or sludge from other facilities as long as the permittee's design sludge capacity is not exceeded and the treatment facility performance is not impaired.
    b. The permittee shall obtain a signed statement from the biosolids or sludge generator or hauler that certifies the type and source of the sludge
5. Nothing in this permit precludes the initiation of legal action under local laws, except to the extent local laws are preempted by state law.
6. This permit does not preclude the enforcement of other applicable environmental regulations such as odor emissions under the Missouri Air Pollution Control Law and regulations.
7. This permit may (after due process) be modified, or alternatively revoked and reissued, to comply with any applicable biosolids or sludge disposal standard or limitation issued or approved under Section 405(d) of the Clean Water Act or under Chapter 644 RSMo.
8. In addition to Standard Conditions PART III, the Department may include biosolids and sludge limitations in the special conditions portion or other sections of a site specific permit.
9. Exceptions to Standard Conditions PART III may be authorized on a case-by-case basis by the Department, as follows:
    a. The Department may modify a site-specific permit following permit notice provisions as applicable under 10 CSR 20-6.020, 40 CFR § 124.10, and 40 CFR § 501.15(a)(2)(ix)(E).
    b. Exceptions cannot be granted where prohibited by the federal sludge regulations under 40 CFR Part 503.

SECTION B – DEFINITIONS

1. Best Management Practices are practices to prevent or reduce the pollution of waters of the state and include agronomic loading rates (nitrogen based), soil conservation practices, spill prevention and maintenance procedures and other site restrictions.
2. Biosolids means organic fertilizer or soil amendment produced by the treatment of domestic wastewater sludge.
3. Biosolids land application facility is a facility where biosolids are spread onto the land at agronomic rates for production of food, feed or fiber. The facility includes any structures necessary to store the biosolids until soil, weather, and crop conditions are favorable for land application.
4. Class A biosolids means a material that has met the Class A pathogen reduction requirements or equivalent treatment by a Process to Further Reduce Pathogens (PFRP) in accordance with 40 CFR Part 503.
5. Class B biosolids means a material that has met the Class B pathogen reduction requirements or equivalent treatment by a Process to Significantly Reduce Pathogens (PSRP) in accordance with 40 CFR Part 503.
6. Domestic wastewater means wastewater originating from the sanitary conveniences of residences, commercial buildings, factories and institutions; or co-mingled sanitary and industrial wastewater processed by a (POTW) or a privately owned facility.
7. Feed crops are crops produced primarily for consumption by animals.
8. Fiber crops are crops such as flax and cotton.
9. Food crops are crops consumed by humans which include, but is not limted to, fruits, vegetables and tobacco.
10. Industrial wastewater means any wastewater, also known as process wastewater, not defined as domestic wastewater. Per 40 CFR Part 122.2, process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product. Land application of industrial wastewater, residuals or sludge is not authorized by Standard Conditions PART III.
11. Mechanical treatment plants are wastewater treatment facilities that use mechanical devices to treat wastewater, including, sand filters, extended aeration, activated sludge, contact stabilization, trickling filters, rotating biological contact systems, and other similar facilities. It does not include wastewater treatment lagoons or constructed wetlands for wastewater treatment.
12. Plant Available Nitrogen (PAN) is nitrogen that will be available to plants during the growing seasons after biosolids application.
13. Public contact site is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.
14. Sludge is the solid, semisolid, or liquid residue removed during the treatment of wastewater. Sludge includes septage removed from septic tanks or equivalent facilities. Sludge does not include carbon coal byproducts (CCBs), sewage sludge incinerator ash, or grit/screenings generated during preliminary treatment of domestic sewage.
15. Sludge lagoon is part of a mechanical wastewater treatment facility. A sludge lagoon is an earthen or concrete lined basin that receives sludge that has been removed from a wastewater treatment facility. It does not include a wastewater treatment lagoon or sludge treatment units that are not a part of a mechanical wastewater treatment facility.
16. Septage is the sludge pumped from residential septic tanks, cesspools, portable toilets, Type III marine sanitation devices, or similar treatment works such as sludge holding structures from residential wastewater treatment facilities with design populations of less than 150 people. Septage does not include grease removed from grease traps at a restaurant or material removed from septic tanks and other similar treatment works that have received industrial wastewater. The standard for biosolids from septage is different from other sludges. See Section H for more information.

SECTION C – MECHANICAL WASTEWATER TREATMENT FACILITIES

1. Biosolids or sludge shall be routinely removed from wastewater treatment facilities and handled according to the permit facility description and the requirements of Standard Conditions PART III or in accordance with Section A.3.c., above.
2. The permittee shall operate storage and treatment facilities, as defined by Section 644.016(23), RSMo, so that there is no biosolids or sludge discharged to waters of the state. Agricultural storm water discharges are exempt under the provisions of Section 644.059, RSMo.
3. Mechanical treatment plants shall have separate biosolids or sludge storage compartments in accordance with 10 CSR 20, Chapter 8. Failure to remove biosolids or sludge from these storage compartments on the required design schedule is a violation of this permit.

SECTION D – BIOSOLIDS OR SLUDGE DISPOSED AT OTHER TREATMENT FACILITY OR BY CONTRACT HAULER

1. Permittees that use contract haulers, under the authority of their operating permit, to dispose of biosolids or sludge, are responsible for compliance with all the terms of this permit. Contract haulers that assume the responsibility of the final disposal of biosolids or sludge, including biosolids land application, must obtain a Missouri State Operating Permit unless the hauler transports the biosolids or sludge to another permitted treatment facility.
2. Testing of biosolids or sludge, other than total solids content, is not required if biosolids or sludge are hauled to a permitted wastewater treatment facility, unless it is required by the accepting facility.

SECTION E – INCINERATION OF SLUDGE

1. Please be aware that sludge incineration facilities may be subject to the requirements of 40 CFR Part 503 Subpart E, Missouri Air Conservation Commission regulations under 10 CSR 10, and solid waste management regulations under 10 CSR 80, as applicable.
2. Permittee may be authorized under the facility description of this permit to store incineration ash in lagoons or ash ponds. This permit does not authorize the disposal of incineration ash. Incineration ash shall be disposed in accordance with 10 CSR 80; or, if the ash is determined to be hazardous, with 10 CSR 25.
3. In addition to normal sludge monitoring, incineration facilities shall report the following as part of the annual report, mass of sludge incinerated and mass of ash generated. Permittee shall also provide the name of the ash disposal facility and permit number if applicable.

SECTION F – SURFACE DISPOSAL SITES AND BIOSOLIDS AND SLUDGE LAGOONS

1. Please be aware that surface disposal sites of biosolids or sludge from wastewater treatment facilities may be subject to other laws including the requirements in 40 CFR Part 503 Subpart C, Missouri Air Conservation Commission regulations under 10 CSR 10, and solid waste management regulations under 10 CSR 80, as applicable.
2. Biosolids or sludge storage lagoons are temporary facilities and are not required to obtain a permit as a solid waste management facility under 10 CSR 80. In order to maintain biosolids or sludge storage lagoons as storage facilities, accumulated biosolids or sludge must be removed routinely, but not less than once every two years unless an alternate schedule is approved in the permit. The amount of biosolids or sludge removed will be dependent on biosolids or sludge generation and accumulation in the facility. Enough biosolids or sludge must be removed to maintain adequate storage capacity in the facility.
    a. In order to avoid damage to the lagoon seal during cleaning, the permittee may leave a layer of biosolids or sludge on the bottom of the lagoon, upon prior approval of the Department; or
    b. Permittee shall close the lagoon in accordance with Section I.

SECTION G – LAND APPLICATION OF BIOSOLIDS

1. The permittee shall not land apply biosolids unless land application is authorized in the facility description, the special conditions of the issued NPDES permit, or in accordance with Section A.3.c., above.
2. This permit only authorizes "Class A" or "Class B" biosolids derived from domestic wastewater to be land applied onto grass land, crop land, timber, or other similar agricultural or silviculture lands at rates suitable for beneficial use as organic fertilizer and soil conditioner.
3. Class A Biosolids Requirements: Biosolids shall meet Class A requirements for application to public contact sites, residential lawns, home gardens or sold and/or given away in a bag or other container.
4. Class B biosolids that are land applied to agricultural and public contact sites shall comply with the following restrictions:
    a. Food crops that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of biosolids.
    b. Food crops below the surface of the land shall not be harvested for 20 months after application of biosolids when the biosolids remain on the land surface for four months or longer prior to incorporation into the soil.
    c. Food crops below the surface of the land shall not be harvested for 38 months after application of biosolids when the biosolids remain on the land surface for less than four months prior to incorporation into the soil.
    d. Animal grazing shall not be allowed for 30 days after application of biosolids.
    e. Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of biosolids.
    f. Turf shall not be harvested for one year after application of biosolids if used for lawns or high public contact sites in close proximity to populated areas such as city parks or golf courses.
    g. After Class B biosolids have been land applied to public contact sites with high potential for public exposure, as defined in 40 CFR § 503.31, such as city parks or golf courses, access must be restricted for 12 months.
    h. After Class B biosolids have been land applied public contact sites with low potential for public exposure as defined in 40 CFR § 503.31, such as a rural land application or reclamation sites, access must be restricted for 30 days.

5. Pollutant limits
    a. Biosolids shall be monitored to determine the quality for regulated pollutants listed in Table 1, below. Limits for any pollutants not listed below may be established in the permit.
    b. The number of samples taken is directly related to the amount of biosolids or sludge produced by the facility (See Section J, below). Samples should be taken only during land application periods. When necessary, it is permissible to mix biosolids with lower concentrations of biosolids as well as other suitable Department approved material to achieve pollutant concentration below those identified in Table 1, below.
    c. Table 1 gives the ceiling concentration for biosolids. Biosolids which exceed the concentrations in Table 1 may not be land applied.

TABLE 1

Biosolids ceiling concentration	
Pollutant	Milligrams per kilogram dry weight
Arsenic	75
Cadmium	85
Copper	4,300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7,500

d. Table 2 below gives the low metal concentration for biosolids. Because of its higher quality, biosolids with pollutant concentrations below those listed in Table 2 can safely be applied to agricultural land, forest, public contact sites, lawns, home gardens or be given away without further analysis. Biosolids containing metals in concentrations above the low metals concentrations but below the ceiling concentration limits may be land applied but shall not exceed the annual loading rates in Table 3 and the cumulative loading rates in Table 4. The permittee is required to track pollutant loading onto application sites for parameters that have exceeded the low metal concentration limits.

TABLE 2

Biosolids Low Metal Concentration	
Pollutant	Milligrams per kilogram dry weight
Arsenic	41
Cadmium	39
Copper	1,500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2,800

e. Annual pollutant loading rate.

Table 3

Biosolids Annual Loading Rate	
Pollutant	Kg/ha (lbs./ac) per year
Arsenic	2.0 (1.79)
Cadmium	1.9 (1.70)
Copper	75 (66.94)
Lead	15 (13.39)
Mercury	0.85 (0.76)
Nickel	21 (18.74)
Selenium	5.0 (4.46)
Zinc	140 (124.96)

f. Cumulative pollutant loading rates.

Table 4

Biosolids Cumulative Pollutant Loading Rate	
Pollutant	Kg/ha (lbs./ac)
Arsenic	41 (37)
Cadmium	39 (35)
Copper	1500 (1339)
Lead	300 (268)
Mercury	17 (15)
Nickel	420 (375)
Selenium	100 (89)
Zinc	2800 (2499)

6. Best Management Practices. The permittee shall use the following best management practices during land application activities to prevent the discharge of biosolids to waters of the state.
   a. Biosolids shall not be applied to the land if it is likely to adversely affect a threatened or endangered species listed under § 4 of the Endangered Species Act or its designated critical habitat.
   b. Apply biosolids only at the agronomic rate of nitrogen needed (see 5.c. of this section).
   c. The applicator must document the Plant Available Nitrogen (PAN) loadings, available nitrogen in the soil, and crop

nitrogen removal when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kgTN; or 2) When biosolids are land applied at an application rate greater than two dry tons per acre per year.

i. PAN can be determined as follows:

(Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor[1]).

[1] Volatilization factor is 0.7 for surface application and 1 for subsurface application. Alternative volitalization factors and mineralization rates can be utilized on a case-by-case basis.

ii. Crop nutrient production/removal to be based on crop specific nitrogen needs and realistic yield goals. **NOTE:** There are a number of reference documents on the Missouri Department of Natural Resources website that are informative to implement best management practices in the proper management of biosolids, including crop specific nitrogen needs, realistic yields on a county by county basis and other supporting references.

iii. Biosolids that are applied at agronomic rates shall not cause the annual pollutant loading rates identified in Table 3 to be exceeded.

d. Buffer zones are as follows:

i. 300 feet of a water supply well, sinkhole, water supply reservoir or water supply intake in a stream;

ii. 300 feet of a losing stream, no discharge stream, stream stretches designated for whole body contact recreation, wild and scenic rivers, Ozark National Scenic Riverways or outstandingstate resource waters as listed in the Water Quality Standards, 10 CSR 20-7.031;

iii. 150 feet of dwellings or public use areas;

iv. 100 feet (35 feet if biosolids application is down-gradient or the buffer zone is entirely vegetated) of lake, pond, wetlands or gaining streams (perennial or intermittent);

v. 50 feet of a property line. Buffer distances from property lines may be waived with written permission from neighboring property owner.

vi. For the application of dry, cake or liquid biosolids that are subsurface injected, buffer zones identified in 5.d.i. through 5.d.iii above, may be reduced to 100 feet. The buffer zone may be reduced to 35 feet if the buffer zone is permanently vegetated. Subsurface injection does not include methods or technology reflective of combination surface/shallow soil incorporation.

e. Slope limitation for application sites are as follows:

i. For slopes less than or equal to 6 percent, no rate limitation;

ii. Applied to a slope 7 to 12 percent, the applicator may apply biosolids when soil conservation practices are used to meet the minimum erosion levels;

iii. Slopes > 12 percent, apply biosolids only when grass is vegetated and maintained with at least 80 percent ground cover at a rate of two dry tons per acre per year or less.

iv. Dry, cake or liquid biosolids that are subsurface injected, may be applied on slopes not to exceed 20 percent. Subsurface injection does not include the use of methods or technology reflective of combination surface/shallow soil incorporation.

f. No biosolids may be land applied in an area that it is reasonably certain that pollutants will be transported into waters of the state.

g. Biosolids may be land applied to sites with soil that are snow covered, frozen, or saturated with liquid when site restrictions or other controls are provided to prevent pollutants from being discharged to waters of the state during snowmelt or stormwater runoff. During inclement weather or unfavorable soil conditions use the following management practices:

i. A maximum field slope of 6% and a minimum 300 feet grass buffer between the application site and waters of the state. A 35 feet grass buffer may be utilized for the application of dry, cake or liquid biosolids that are subsurface injected. Subsurface injection does not include the use of mthods or technology refletive of combination surface/shallow soil incorporation;

ii. A maximum field slope of 2% and 100 feet grass buffer between the application site and waters of the state. A 35 feet grass buffer may be used for the application of dry, cake or liquid biosolids that are subsurface injected. Subsurface injection does not included the use of methods or technology refletive of combination surface/shallow soil incorporation;

iii. Other best management practices approved by the Department.

SECTION H – SEPTAGE

1. Haulers that land apply septage must obtain a state permit. An operating permit is not required for septage haulers who transport septage to another permitted treatment facility for disposal.
2. Do not apply more than 30,000 gallons of septage per acre per year or the volume otherwise stipulated in the operating permit.
3. Septic tanks are designed to retain sludge for one to three years which will allow for a larger reduction in pathogens and vectors, as compared to mechanical treatment facilities.
4. Septage must comply with Class B biosolids regarding pathogen and vector attraction reduction requirements before it may be applied to crops, pastures or timberland. To meet required pathogen and vector reduction requirements, mix 50 pounds of hydrated lime for every 1,000 gallons of septage and maintain a septage pH of at least 12 pH standard units for 30 minutes or more prior to application.
5. Lime is to be added to the pump truck and not directly to the septic tanks, as lime would harm the beneficial bacteria of the septic tank.
6. As residential septage contains relatively low levels of metals, the testing of metals in septage is not required.

SECTION I– CLOSURE REQUIREMENTS

1. This section applies to all wastewater facilities (mechanical and lagoons) and sludge or biosolids storage and treatment facilities. It does not apply to land application sites.
2. Permittees of a domestic wastewater facility who plan to cease operation must obtain Department approval of a closure plan which addresses proper removal and disposal of all sludges and/or biosolids. Permittee must maintain this permit until the facility is closed in accordance with the approved closure plan per 10 CSR 20 – 6. 010 and 10 CSR 20 – 6.015.
3. Biosolids or sludge that are left in place during closure of a lagoon or earthen structure or ash pond shall not exceed the agricultural loading rates as follows:
    a. Biosolids and sludge shall meet the monitoring and land application limits for agricultural rates as referenced in Section G, above.
    b. If a wastewater treatment lagoon has been in operation for 15 years or more without sludge removal, the sludge in the lagoon qualifies as a Class B biosolids with respect to pathogens due to anaerobic digestion, and testing for fecal coliform is not required. For other lagoons, testing for fecal coliform is required to show compliance with Class B biosolids limitations. In order to reach Class B biosolids requirements, fecal coliform must be less than 2,000,000 colony forming units or 2,000,000 most probable number. All fecal samples must be presented as geometric mean per gram.
    c. The allowable nitrogen loading that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. For a grass cover crop, the allowable PAN is 300 pounds/acre. Alternative, site-specific application rates may be included in the closure plan for department consideration.
        i. PAN can be determined as follows:
        (Nitrate + nitrite nitrogen) + (organic nitrogen x 0.2) + (ammonia nitrogen x volatilization factor[1]).
        [1] Volatilization factor is 0.7 for surface application and 1 for subsurface application. Alternative volitalization factors and mineralization rates can be utilized on a case-by-case basis
4. Domestic wastewater treatment lagoons with a design treatment capacity less than or equal to 150 persons, are "similar treatment works" under the definition of septage. Therefore the sludge within the lagoons may be treated as septage during closure activities. See Section B, above. Under the septage category, residuals may be left in place as follows:
    a. Testing for metals or fecal coliform is not required.
    b. If the wastewater treatment lagoon has been in use for less than 15 years, mix lime with the sludge at a rate of 50 pounds of hydrated lime per 1000 gallons (134 cubic feet) of sludge.
    c. The amount of sludge that may be left in the lagoon shall be based on the plant available nitrogen (PAN) loading. 100 dry tons/acre of sludge may be left in the basin without testing for nitrogen. If 100 dry tons/acre or more will be left in the lagoon, test for nitrogen and determine the PAN using the calculation above. Allowable PAN loading is 300 pounds/acre.
5. Biosolids or sludge left within the domestic lagoon shall be mixed with soil on at least a 1 to 1 ratio, and unless otherwise approved, the lagoon berm shall be demolished, and the site shall be graded and contain ≥70% vegetative density over 100% of the site so as to avoid ponding of storm water and provide adequate surface water drainage without creating erosion. Alternative biosolids or sludge and soil mixing ratios may be included in the closure plan for department consideration.
6. Lagoon and earthen structure closure activities shall obtain a storm water permit for land disturbance activities that equal or exceed one acre in accordance with 10 CSR 20-6.200.
7. When closing a mechanical wastewater plant, all biosolids or sludge must be cleaned out and disposed of in accordance with the Department approved closure plan before the permit for the facility can be terminated.
    a. Land must be stabilized which includes any grading, alternate use or fate upon approval by the Department, remediation, or other work that exposes sediment to stormwater per 10 CSR 20-6.200. The site shall be graded and contain ≥70% vegetative density over 100% of the site, so as to avoid ponding of storm water and provide adequate

surface water drainage without creating erosion.

b. Hazardous Waste shall not be land applied or disposed during mechanical plant closures unless in accordance with Missouri Hazardous Waste Management Law and Regulations pursuant to 10 CSR 25.

c. After demolition of the mechanical plant, the site must only contain clean fill defined in Section 260.200.1(6) RSMo as uncontaminated soil, rock, sand, gravel, concrete, asphaltic concrete, cinderblocks, brick, minimal amounts of wood and metal, and inert solids as approved by rule or policy of the Department for fill, reclamation, or other beneficial use. Other solid wastes must be removed.

8. If biosolids or sludge from the domestic lagoon or mechanical treatment plant exceeds agricultural rates under Section G and/or I, a landfill permit or solid waste disposal permit must be obtained if the permittee chooses to seek authorization for on-site sludge disposal under the Missouri Solid Waste Management Law and regulations per 10 CSR 80, and the permittee must comply with the surface disposal requirements under 40 CFR Part 503, Subpart C.

SECTION J – MONITORING FREQUENCY

1. At a minimum, biosolids or sludge shall be tested for volume and percent total solids on a frequency that will accurately represent sludge quantities produced and disposed. Please see the table below.

TABLE 5

Biosolids or Sludge produced and disposed (Dry Tons per Year)	Monitoring Frequency (See Notes 1, and 2)		
	Metals, Pathogens and Vectors, Total Phosphorus, Total Potassium	Nitrogen TKN, Nitrogen PAN[1]	Priority Pollutants[2]
319 or less	1/year	1 per month	1/year
320 to 1650	4/year	1 per month	1/year
1651 to 16,500	6/year	1 per month	1/year
16,501+	12/year	1 per month	1/year

[1]Calculate plant available nitrogen (PAN) when either of the following occurs: 1) when biosolids are greater than 50,000 mg/kg TN; or 2) when biosolids are land applied at an application rate greater than two dry tons per acre per year.

[2] Priority pollutants (40 CFR 122.21, Appendix D, Tables II and III) are required only for permit holders that must have a pre-treatment program. Monitoring requirements may be modified and incorporated into the operating permit by the Department on a case-by-case basis.

Note 1: Total solids: A grab sample of sludge shall be tested one per day during land application periods for percent total solids. This data shall be used to calculate the dry tons of sludge applied per acre.
Note 2: Table 5 is not applicable for incineration and permit holders that landfill their sludge.

2. Permittees that operate wastewater treatment lagoons, peak flow equalization basins, combined sewer overflow basins or biosolids or sludge lagoons that are cleaned out once a year or less, may choose to sample only when the biosolids or sludge is removed or the lagoon is closed. Test one composite sample for each 319 dry tons of biosolids or sludge removed from the lagoon during the reporting year or during lagoon closure. Composite sample must represent various areas at one-foot depth.
3. Additional testing may be required in the special conditions or other sections of the permit.
4. Biosolids and sludge monitoring shall be conducted in accordance with federal regulation 40 CFR § 503.8, Sampling and analysis.

SECTION K – RECORD KEEPING AND REPORTING REQUIREMENTS

1. The permittee shall maintain records on file at the facility for at least five years for the items listed in Standard Conditions PART III and any additional items in the Special Conditions section of this permit. This shall include dates when the biosolids or sludge facility is checked for proper operation, records of maintenance and repairs and other relevant information.
2. Reporting period
   a. By February 19th of each year, applicable facilities shall submit an annual report for the previous calendar year period for all mechanical wastewater treatment facilities, sludge lagoons, and biosolids or sludge disposal facilities.
   b. Permittees with wastewater treatment lagoons shall submit the above annual report only when biosolids or sludge are removed from the lagoon during the report period or when the lagoon is closed.
3. Report Form. The annual report shall be prepared on report forms provided by the Department or equivalent forms approved by the Department.
4. Reports shall be submitted as follows:
   Major facilities, which are those serving 10,000 persons or more or with a design flow equal to or greater than 1 million gallons per day or that are required to have an approved pretreatment program, shall report to both the Department and EPA if the facility land applied, disposed of biosolids by surface disposal, or operated a sewage sludge incinerator. All other facilities shall maintain their biosolids or sludge records and keep them available to Department personnel upon request. State reports shall be submitted to the address listed as follows:

   DNR regional or other applicable office listed in the
   permit (see cover letter of permit)
   ATTN: Sludge Coordinator

Reports to EPA must be electronically submitted online via the Central Data Exchange at: https://cdx.epa.gov/ Additional information is available at: https://www.epa.gov/biosolids/compliance-and-annual-reporting-guidance-about-clean-water-act-laws

5. Annual report contents. The annual report shall include the following:
    a. Biosolids and sludge testing performed. If testing was conducted at a greater frequency than what is required by the permit, all test results must be included in the report.
    b. Biosolids or sludge quantity shall be reported as dry tons for the quantity produced and/or disposed.
    c. Gallons and % solids data used to calculate the dry ton amounts.
    d. Description of any unusual operating conditions.
    e. Final disposal method, dates, and location, and person responsible for hauling and disposal.
        i. This must include the name and address for the hauler and sludge facility. If hauled to a municipal wastewater treatment facility, sanitary landfill, or other approved treatment facility, give the name of that facility.
        ii. Include a description of the type of hauling equipment used and the capacity in tons, gallons, or cubic feet.
    f. Contract Hauler Activities:
    If using a contract hauler, provide a copy of a signed contract from the contractor. Permittee shall require the contractor to supply information required under this permit for which the contractor is responsible. The permittee shall submit a signed statement from the contractor that he has complied with the standards contained in this permit, unless the contract hauler has a separate biosolids or sludge use permit.
    g. Land Application Sites:
        i. Report the location of each application site, the annual and cumulative dry tons/acre for each site, and the landowners name and address. The location for each spreading site shall be given as a legal description for nearest ¼, ¼, Section, Township, Range, and county, or UTM coordinates. The facility shall report PAN when either of the following occurs: 1) When biosolids are greater than 50,000 mg/kg TN; or 2) when biosolids are land applied at an application rate greater than two dry tons per acre per year.
        ii. If the "Low Metals" criteria are exceeded, report the annual and cumulative pollutant loading rates in pounds per acre for each applicable pollutant, and report the percent of cumulative pollutant loading which has been reached at each site.
        iii. Report the method used for compliance with pathogen and vector attraction requirements.
        iv. Report soil test results for pH and phosphorus. If no soil was tested during the year, report the last date when tested and the results.