Form Approved
OMB No. 2040-0250

JUN 10 2013

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*

FORM 2B NPDES	EPA	U.S. ENVIRONMENTAL PROTECTION AGENCY APPLICATIONS FOR PERMIT TO DISCHARGE WASTEWATER CONCENTRATED ANIMAL FEEDING OPERATIONS AND AQUATIC ANIMAL PRODUCTION FACILITIES

I. GENERAL INFORMATION Applying for: Individual Permit ☒ Coverage Under General Permit ☐

A. TYPE OF BUSINESS	B. CONTACT INFORMATION	C. FACILITY OPERATION STATUS
☒ 1. Concentrated Animal Feeding Operation (complete items B, C, D, and section II) ☐ 2. Concentrated Aquatic Animal Production Facility (complete items B, C, and section III)	Owner/or Operator Name: Murphy-Brown LLC Telephone: (804) 834-2109 Address: P.O. Box 1240 Facsimile: (804) 834-8926 City: Waverly State: VA Zip Code: 23890	☒ 1. Existing Facility ☐ 2. Proposed Facility

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D. FACILITY INFORMATION

Name: Murphy-Brown LLC Farm 6,7 and 8 Telephone: (804) 834-2109

Address: 27409 Berlindory Road Facsimile: (804) 834-8926

City: Wakefield State: Virginia Zip Code: 23888

County: Southampton Latitude: 36 deg. 57 min. 35 sec. Longitude: 77 deg. 02 min. 28 sec.

If contract operation: Name of Integrator: N/A

Address of Integrator: N/A

II. CONCENTRATED ANIMAL FEEDING OPERATION CHARACTERISTICS

A. TYPE AND NUMBER OF ANIMALS

1. TYPE	2. ANIMALS: NO. IN OPEN CONFINEMENT	2. ANIMALS: NO. HOUSED UNDER ROOF
☐ Mature Dairy Cows		
☐ Dairy Heifers		
☐ Veal Calves		
☐ Cattle (not dairy or veal calves)		
☒ Swine (55 lbs. or over)		22,050
☒ Swine (under 55 lbs.)		9,450
☐ Horses		
☐ Sheep or Lambs		
☐ Turkeys		
☐ Chickens (Broilers)		
☐ Chickens (Layers)		
☐ Ducks		
☐ Other: Specify _____		
3. TOTAL ANIMALS		31,500

B. MANURE, LITTER, AND/OR WASTEWATER PRODUCTION AND USE

1. How much manure, litter, and wastewater is generated annually by the facility? N/A tons 30.6M gallons
2. If land applied how many acres of land under the control of the applicant are available for applying the CAFOs manure/litter/wastewater? 256 acres
3. How many tons of manure or litter, or gallons of waste-water produced by the CAFO will be transferred annually to other persons? 0 tons 0 gallons

C. ☒ TOPOGRAPHIC MAP

D. TYPE OF CONTAINMENT, STORAGE AND CAPACITY

1. Type of Containment	Total Capacity (in gallons)
☐ Lagoon	
☐ Holding Pond	
☐ Evaporation Pond	
☐ Other: Specify _____	

2. Report the total number of acres contributing drainage: 256 acres

3. Type of Storage	Total Number of Days	Total Capacity (gallons/tons)
☒ Anaerobic Lagoon	180	106,350,669 gals.
☐ Storage Lagoon		
☐ Evaporation Pond		
☐ Aboveground Storage Tanks		
☐ Belowground Storage Tanks		
☐ Roofed Storage Shed		
☐ Concrete Pad		
☐ Impervious Soil Pad		
☐ Other: Specify _____		

E. NUTRIENT MANAGEMENT PLAN

Note: Effective February 27, 2009, a permit application is not complete until a nutrient management plan is submitted to the Permitting Authority.

1. Please indicate whether a nutrient management plan has been included with this permit application. ☒ Yes ☐ No

2. If no, please explain:

3. Is a nutrient management plan being implemented for the facility? ☒ Yes ☐ No

4. The date of the last review or revision of the nutrient management plan. Date: 05/10/12

5. If not land applying, describe alternative use(s) of manure, litter, and/or wastewater:

F. LAND APPLICATION BEST MANAGEMENT PRACTICES

Please check any of the following best management practices that are being implemented at the facility to control runoff and protect water quality:

☒ Buffers ☒ Setbacks ☒ Conservation tillage ☐ Constructed wetlands ☐ Infiltration field ☒ Grass filter ☐ Terrace

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III. CONCENTRATED AQUATIC ANIMAL PRODUCTION FACILITY CHARACTERISTICS

A. For each outfall give the maximum daily flow, maximum 30-day flow, and the long-term average flow.				B. Indicate the total number of ponds, raceways, and similar structures in your facility.		
1. Outfall No.	2. Flow (*gallons per day*)			1. Ponds	2. Raceways	3. Other
	a. Maximum. Daily	b. Maximum 30 Day	c. Long Term Average	C. Provide the name of the receiving water and the source of water used by your facility.		
				1. Receiving Water	2. Water Source	

D. List the species of fish or aquatic animals held and fed at your facility. For each species, give the total weight produced by your facility per year in pounds of harvestable weight, and also give the maximum weight present at any one time.

1. Cold Water Species			2. Warm Water Species		
a. Species	b. Harvestable Weight (*pounds*)		a. Species	b. Harvestable Weight (*pounds*)	
	(1) Total Yearly	(2) Maximum		(1) Total Yearly	(2) Maximum

E. Report the total pounds of food during the calendar month of maximum feeding.	1. Month	2. Pounds of Food

IV. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. Name and Official Title (*print or type*)	B. Telephone (910) 239-3434
Assistant Vice President of Environment, Health and Safety	
C. Signature	D. Date Signed 4-8-13

VIRGINIA POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
CONCENTRATED ANIMAL FEEDING OPERATIONS

PERMIT APPLICATION ADDENDUM

PLEASE TYPE OR PRINT ALL INFORMATION - ALL PARTS OF THIS FORM MUST BE COMPLETED

For DEQ Use Only:
Complete: Yes ☑ No ☐
Initials:
Date: 4/16/14

I. CONTACT INFORMATION

Owner Name:	Murphy-Brown LLC				
Mailing Address:	P.O. Box 1240				
City:	Waverly	State:	Virginia	Zip Code:	23890
E-Mail Address:	robritt@murphybrownllc.com				
Business Phone:	(804) 834-2109	Mobile Phone:	(804) 731-9603	Home Phone:	
Best day of the week & time to contact the applicant:	Day(s)		Time(s)		☐ AM
	Mon.- Fri.		8:00am – 5:00pm		☐ PM

II. FARM/FACILITY INFORMATION

Farm/Facility Name:	Murphy-Brown LLC Farm 6, 7 and 8		
Location:	27409 Berlindory Road, Wakefield, Virginia, 23888		
Does Farm/Facility have an existing permit?	X Yes ☐ No	If yes, Permit Number:	VPA01075

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III. FARM OPERATING MANUAL

A. Operating Manual been developed for this facility? Has a Farm ☐ Yes X No

B. date of the last review/revision of the Farm Operating Manual. If yes, provide the Date:_____

C. Manual (if already developed) is attached: A copy of the ☐ Yes ☐ No.
The attached copy may be a hard copy or an electronic copy.

IV. GROUNDWATER MONITORING PLAN

A. If the facility has an existing permit, is groundwater monitoring required? X Yes ☐ No

B. If yes, has a Groundwater Monitoring Plan been developed for this facility? ☐ Yes X No ? N/A

C. If yes, provide the date of the last review/revision of the Groundwater Monitoring Plan. Date:_____

D. If no, please explain: A geophysical evaluation of the site is being conducted to establish the framework for a new Groundwater Monitoring Plan.

E.

A copy of the Plan (if already developed) is attached: ? Yes **X** No ? N/A

The attached copy may be a hard copy or an electronic copy.

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IV. DISCHARGE POINT AND BEST MANAGEMENT PRACTICES (BMPs) RELATED TO A DISCHARGE POINT

For each discharge point, provide the following information in the table below:

a) a descriptive name of the discharge point;
b) the latitude and longitude of its location;
c) the name of the nearest potential receiving water;
d) all areas contributing manure, litter, process wastewater, or storm water from the facility; and
e) the treatment received or BMPs utilized, installed or constructed prior to the discharge point.

For DEQ Use: I.D. Number	Discharge Point	Latitude	Longitude	Name of Nearest Potential Receiving Water	Area Contributing Flow	Treatment or BMPs
	001	36°51'23.47" N	77°02'23.27" W	Unnamed tributary to Indigo Branch	Production Area – Farm 6	Secondary Containment
	002	36°51'20.45" N	77° 02'08.62" W	Unnamed tributary to Indigo Branch	Production Area – Farm 6	Secondary Containment
	003	36°51'47.91" N	77° 02'29.07" W	Unnamed tributary to Hoursepen Branch	Production Area – Farm 8	Secondary Containment
	004	36°51'54.06" N	77°02'17.51" W	Unnamed tributary to Hoursepen Branch	Production Area – Farm 8	Secondary Containment
	005	36°52'00.55" N	77° 01'55.59" W	Unnamed tributary to Hoursepen Branch	Production Area – Farm 7	Secondary Containment

V. BEST MANAGEMENT PRACTICES (BMPs)

A.

BMPs are utilized, installed or constructed for each of the areas listed in Section V above. X Yes ☐ No

B.

If no, please explain:_____

C. Attach to this Addendum, a description of the BMPs listed above in Section V or a copy of the Farm Operating Manual (if already developed). *The attached copy may be a hard copy or an electronic copy.*

VI. OTHER ATTACHMENTS (see instructions for requirements)

A. The completed and signed Local Government Ordinance Form (LGOF) is attached: ? Yes ? No X On file with DEQ

B. A copy of the Department of Conservation and Recreation (DCR) Nutrient Management Plan (NMP) approval letter is attached: X Yes ? No

VII. CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed Name: Kraig Westerbeek

Official Title: *Assistant Vice President Environment, Health, & Safety*

Signature:

Date: 4-15-14

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Murphy-Brown LLC
Farm 6
Secondary Containment Diagram

Key

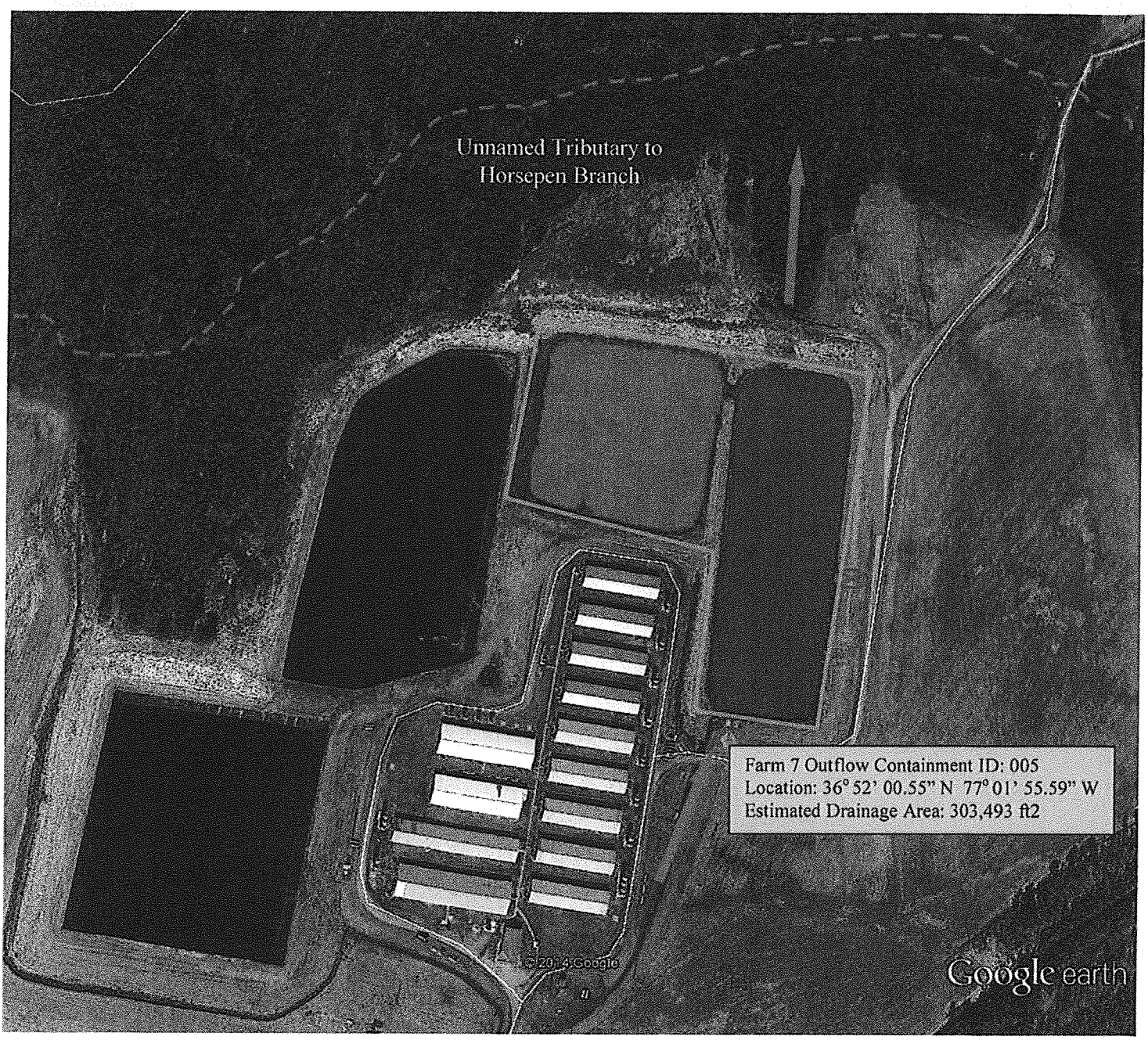
Secondary Containment Location

Intermittent Stream

Containment Valve

Inlet & Direction of Surface Water Flow

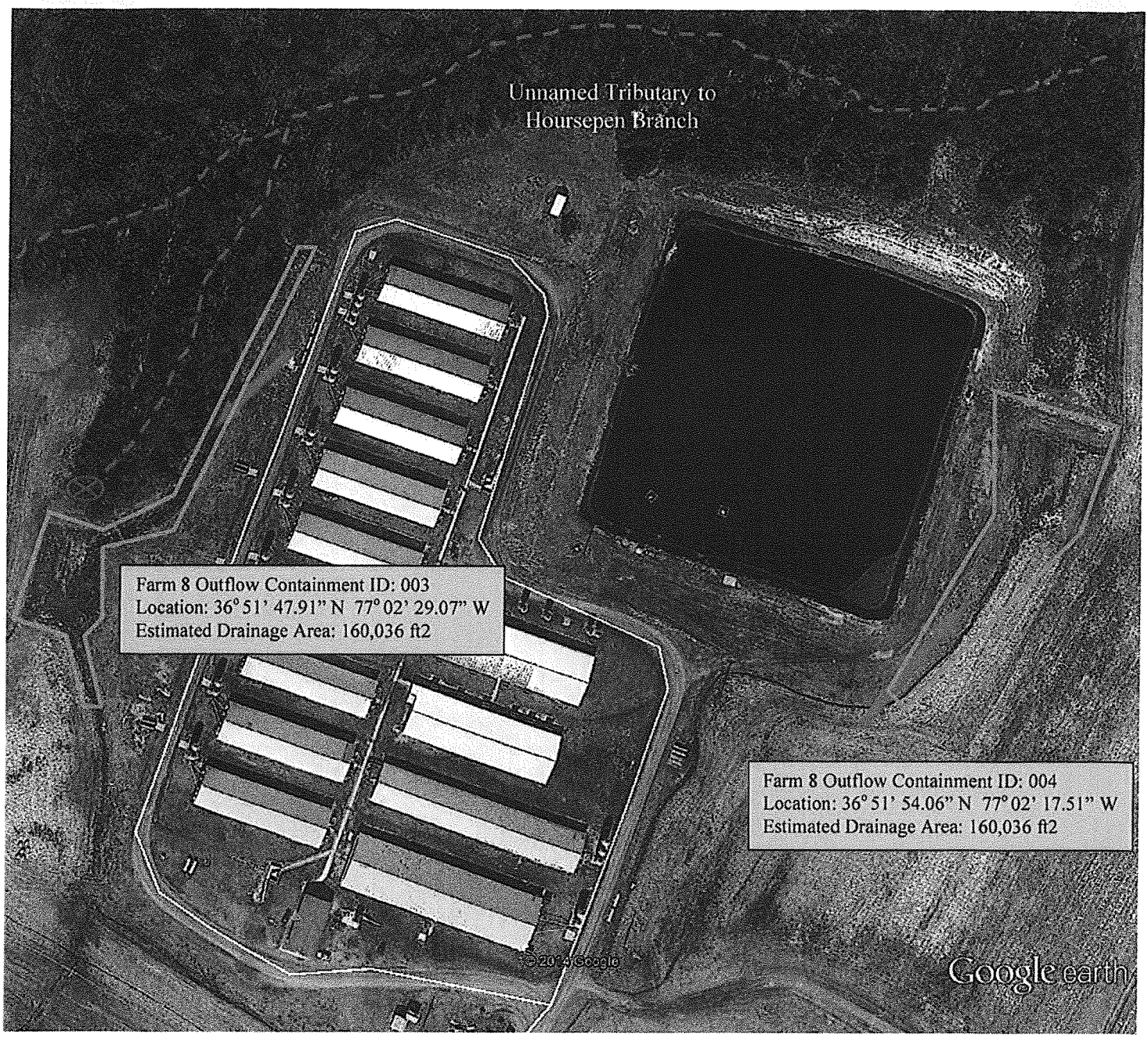
Murphy-Brown LLC
Farm 7
Secondary Containment Diagram



Key

Secondary Containment Location		Intermittent Stream	
Containment Valve	⊗		
Inlet & Direction of Surface Water Flow			

Murphy-Brown LLC
Farm 8
Secondary Containment Diagram



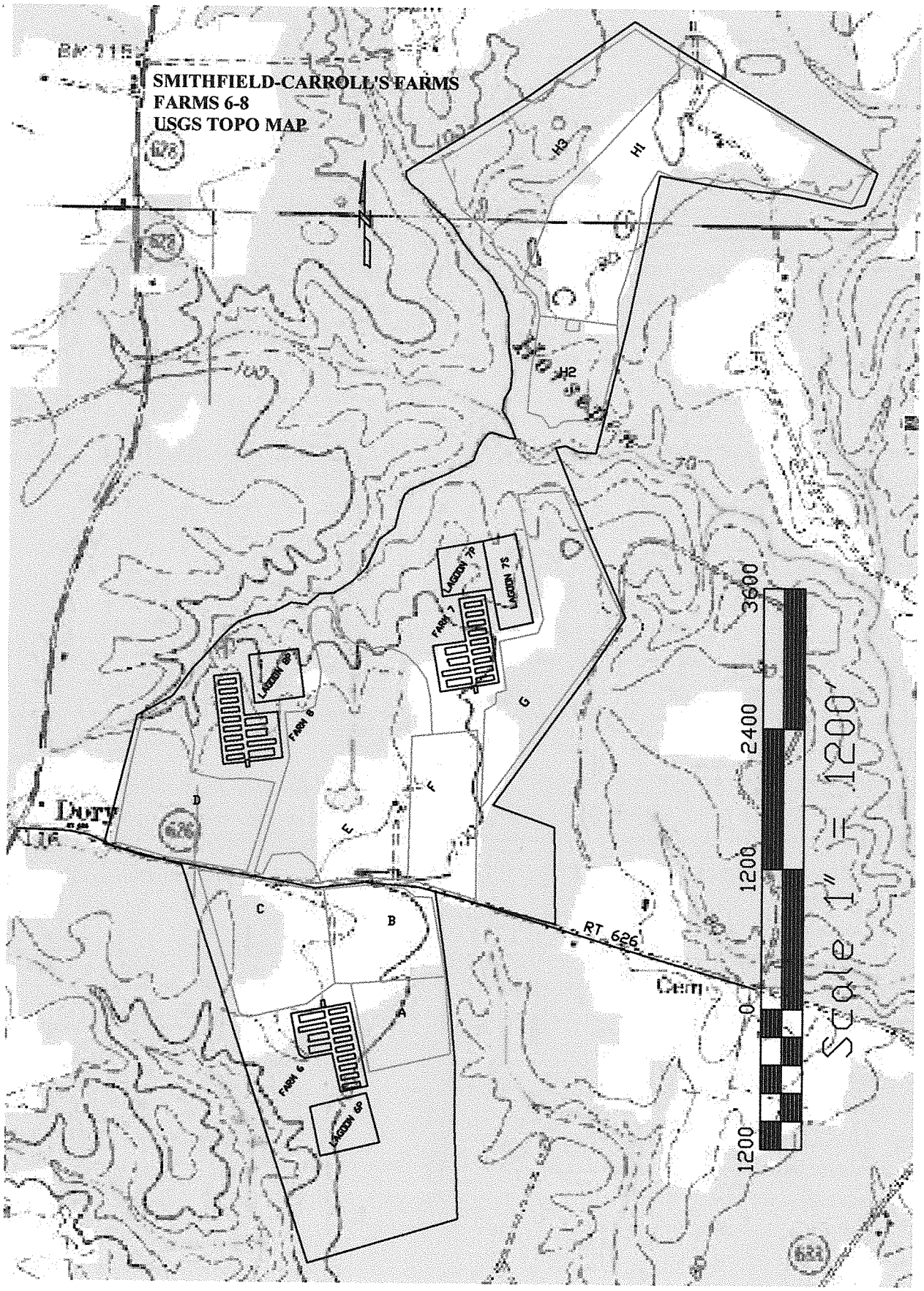
Key

Secondary Containment Location

Intermittent Stream

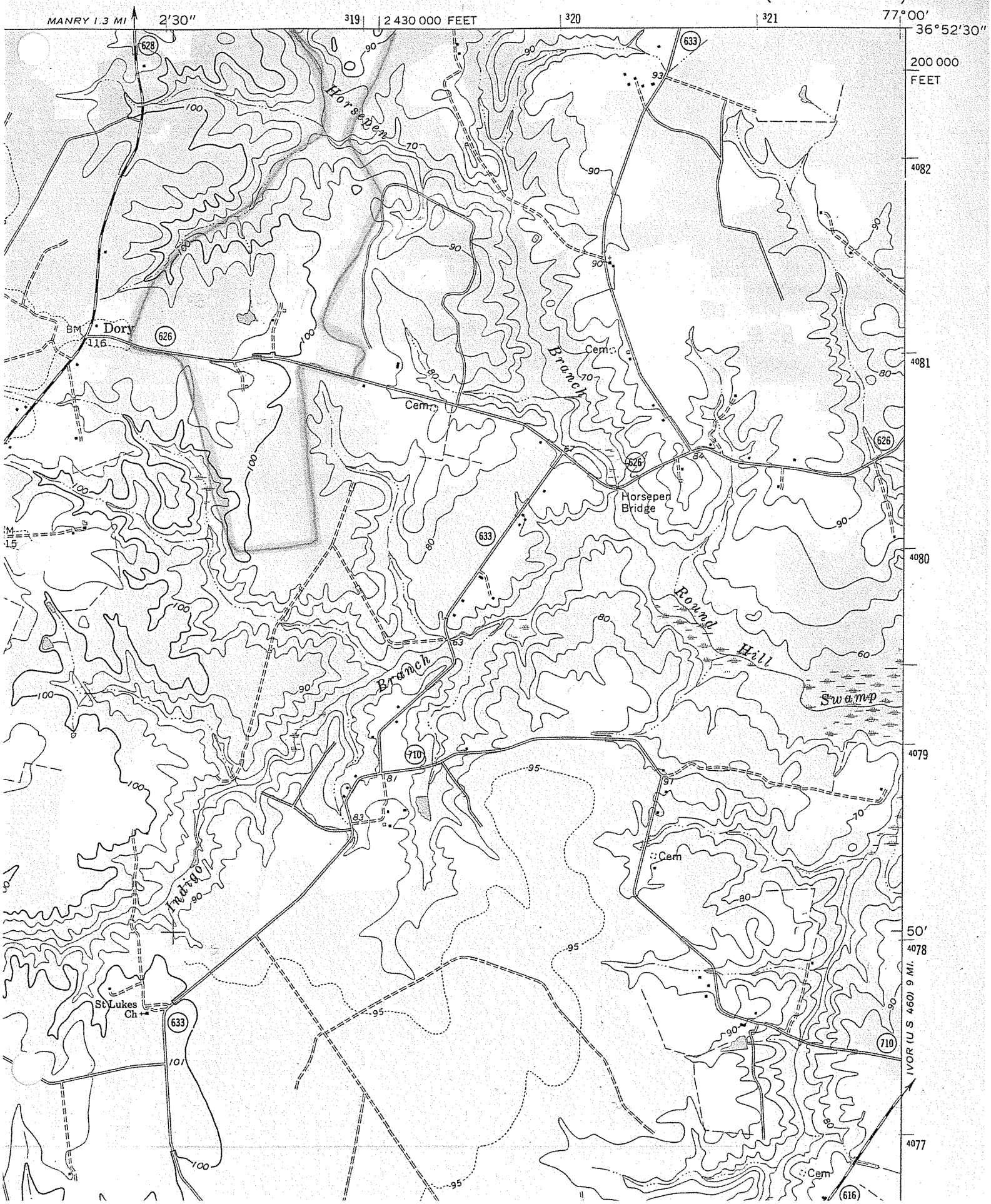
Containment Valve

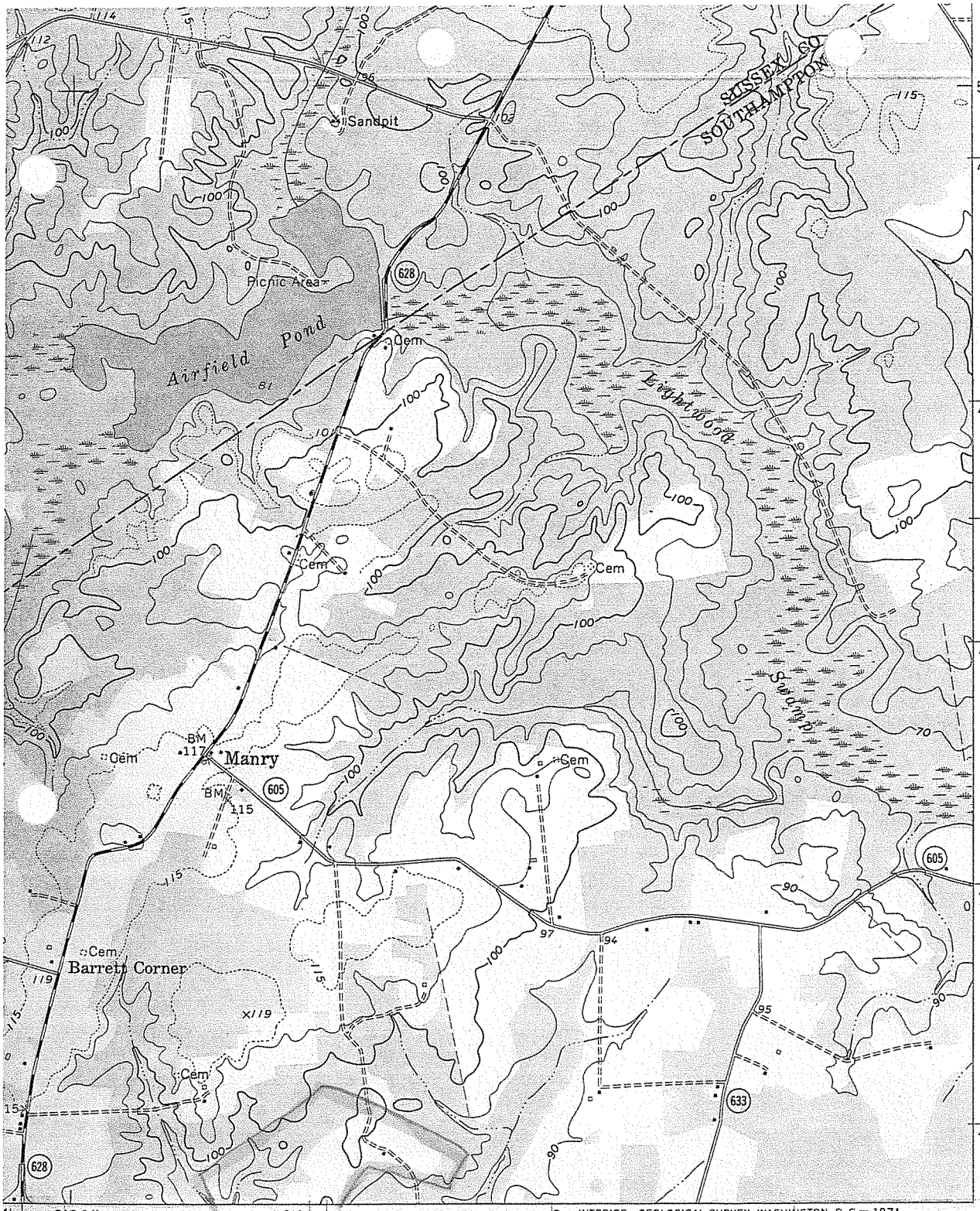
Inlet & Direction of Surface Water Flow


SMITHFIELD-CARROLL'S FARMS
FARMS 6-8
USGS TOPO MAP
BK 715
628
627
626
623
N
H1
H2
H3
LAGOON 7P
LAGOON 7S
FARM 7
LAGOON 6P
FARM 6
LAGOON 6P
FARM 6
A
B
C
D
E
F
G
RT 626
Dam
Scale 1" = 1200'
1200
0
1200
2400
3600

VICKS LE QUADRANGLE
VIRGINIA
7.5 MINUTE SERIES (TOPOGRAPHIC)

5657 IV NW (IVOR)





INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1971

1 MILE

ROAD CLASSIFICATION

Primary highway, all weather, hard surface

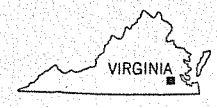
Light-duty road, all weather, improved surface

Secondary highway, all weather, hard surface

Unimproved road, fair or dry weather

U. S. Route

State Route



QUADRANGLE LOCATION

MANRY, VA.

N3652.5—W7700/7.5

1969

AMS 5557 I NE—SERIES V834

BMP Description – Secondary Containment

The BMP is a grass covered earthen containment structure that collects runoff from the production area. The structure has a manually operated value that is maintained as normally closed. The BMP is inspected daily by the farm production staff. Once water collects in the structure it is visually inspected to ensure it does not contain any contaminants and it released. The BMP has an emergency spillway for structural integrity during extreme rainfall events.

Smithson Jr., Robert (DEQ)

From: Smithson Jr., Robert (DEQ)
Sent: Wednesday, March 19, 2014 2:35 PM
To: Sauer, Mark (DEQ)
Subject: FW: M-B Secondary Containment Procedure

Fact sheet excerpt: Storm water runoff is collected in one of ~~ten~~ 5 secondary containment basins (grass covered earthen structures that collect runoff from production area). Each BMP is inspected daily to ensure that there are no visible contaminants prior to being released by gate valve to the receiving ditch/stream. If contaminants are observed, a recovery process is implemented prior to valve opening to release rainwater. These procedures will be addressed in the Farm Operating Manual.

From: RO Britt [mailto:ROBritt@murphybrownllc.com]
Sent: Wednesday, March 19, 2014 2:16 PM
To: Smithson Jr., Robert (DEQ)
Cc: Sauer, Mark (DEQ); Bowles, Betsy (DEQ)
Subject: RE: M-B Secondary Containment Procedure

The recovery process ultimately depends on the contaminant. If it were fuel or oil that is one procedure, if it were waste water there would be another procedure. The foundation of all those are similar and as follows:

1. Stop the source
2. Contain the flow
3. Contact ~~the~~ appropriate authority
4. Stay with the incident until relieved
5. Recovery depends on the contaminant
   Example: For waste water the water would be pumped either back into the lagoon or recovered and land applied to an application field.

I am not aware of any incident caused rainfall that has demonstrated visual contaminants that required recovery.

R. O. Britt

Senior Environmental Resource Manager | Murphy-Brown, LLC | Post Office Box 1240 / 434 East Main | Waverly | VA | 23890
☎: 804-834-1229 (O) | 🖷: 804-834-8926 (F) | ✉: robritt@murphybrownllc.com

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From: Smithson Jr., Robert (DEQ) [mailto:Robert.SmithsonJr@deq.virginia.gov]
Sent: Wednesday, March 19, 2014 1:59 PM
To: RO Britt
Cc: Sauer, Mark (DEQ); Bowles, Betsy (DEQ)
Subject: RE: M-B Secondary Containment Procedure

This stops short of answering the question. What is the "recovery" process? If there are visible contaminants from runoff, what occurs?. To your knowledge has there ever been an occasion where rainwater runoff collection looked contaminated and a recovery process was implemented?

From: RO Britt [mailto:ROBritt@murphybrownllc.com]
Sent: Wednesday, March 19, 2014 1:24 PM
To: Smithson Jr., Robert (DEQ)
Subject: M-B Secondary Containment Procedure

Bob,

The attached procedure describes our Secondary Containment Management Procedure. Please let me know if you have any questions. Thanks

1.0 PURPOSE AND SCOPE

Purpose: To provide guidelines for the management of secondary containment structures where present.

Scope: All Murphy-Brown Eastern Operations sites

2.0 REQUIREMENTS

The goal of secondary containment is to reduce risk. Farms may have two different types of secondary containment, one is for wastewater spills or leaks and the other is for fuel. Each is managed similarly.

Support Operations may also have secondary containment for fuel, liquid fat, or other liquid ingredients.

Principles for operating a secondary containment structure:

1. The knife gate, valve, or other point of outlet control mechanism must be closed when a spill occurs to be effective. Therefore at all possible times the **outlet must be kept closed**, except for when clean rainwater is actively being released from the containment structure, so that it will be empty for a future potential spill or rain event.

2. The secondary containment should be kept in a normally dry condition. If water is in the containment structure prior to a spill then there is 1) less volume available to store the spill, and 2) more contaminated fluid to remove and dispose of properly. Additionally, a containment structure with a dry bottom allows for much easier observation and earlier detection of potential spills. A dry / empty secondary containment is designed to hold the contents of the largest tank within it, or a minimum of 12 hours of operation by the recycle pump.

Operation:

1. **The farm staff or support operation staff is responsible for checking the containment structure each day**. This check should be completed as early as the containment can be observed effectively and safely. In all cases a secondary containment should be checked before noon each day.

2. If any water is found to be in the structure, a careful inspection of the contents within the containment structure shall be performed to ensure that no wastewater or contaminants are present. If there is no evidence of wastewater or contaminants, the valve/gate should be opened to allow the rainwater to drain out. While working the valve, personnel should observe the water outlet to be sure that erosion is not occurring to the dike at the pipe outlet. Upon emptying the valve/gate should be returned to the closed position.

3. The farm manager or designee shall ensure that the gate is closed when the last employee leaves the facility regardless of if the containment pond is dry or partially full of water. **[Note: Valves may not seal if debris, dirt, or trash prevents proper and complete closure of the valve, in which case the secondary containment will not be effective as desired.]**

4. On farms, LNM personnel will inspect the secondary containment specific to structural integrity, accessibility, and general operating condition. This inspection will be documented as a part of their weekly inspection.

5. If wastewater, fuel, fat or other contaminates are found in the containment, make the appropriate contacts as indicated on the Environmental Emergency Contact Plan, ensure that the source has been stopped, and then begin the recovery process.

3.0 REFERENCES

None

4.0 FORMS

EMS Internal Audits
EMS Farm Manager Checklist
Weekly LNM Inspection
Storm Water Qualitative Monitoring Checklist (for mills only)
Supporting Ops Monthly Checklists

5.0 DEFINITIONS

Secondary containment – Secondary containment is designed to capture any liquid that might spill or leak from its intended location. The outlets of these structures will generally be operated in a normally closed position.

6.0 REVISION HISTORY

Revision #1 Dated 9/18/06	Assigned responsibilities and "how to" of valve management for secondary containment.
Revision #2 Dated 5/1/07	Included all types of containment structures.
Revision #3 Dated 3/27/09	Removed references to slam gates; added LNM oversight during weekly inspection.
Revision #4 Dated 4/1/10	Added operational requirements for checking the containment

Soil Map—Southampton County, Virginia
(Farms 6-8)

Map Scale: 1:13,100 if printed on A size (8.5" x 11") sheet.

N

Meters
0 100 200 400 600

Feet
0 500 1,000 2,000 3,000

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features

- Gully
- Short Steep Slope
- Other

Political Features

- Cities

Water Features

- Oceans
- Streams and Canals

Transportation

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

MAP INFORMATION

Map Scale: 1:13,100 if printed on A size (8.5" × 11") sheet.

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 18N NAD83

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

Soil Survey Area: Southampton County, Virginia
Survey Area Data: Version 12, Aug 9, 2010

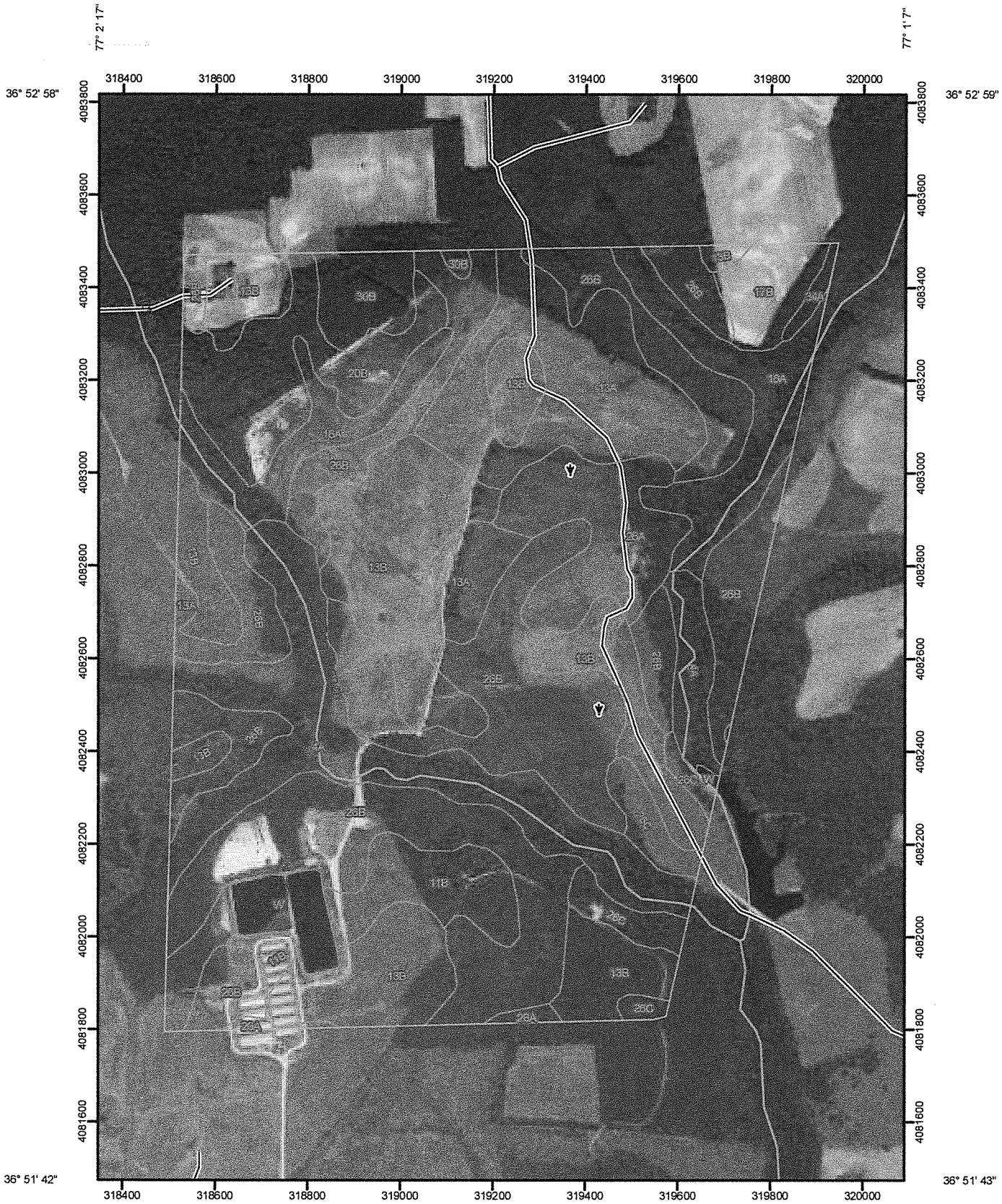
Date(s) aerial images were photographed: 6/25/2003

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

Map Unit Legend

Southampton County, Virginia (VA175)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
4A	Bibb sandy loam, 0 to 2 percent slopes, frequently flooded	36.3	5.5%
10A	Craven fine sandy loam, 0 to 2 percent slopes	6.3	1.0%
10B	Craven fine sandy loam, 2 to 6 percent slopes	27.6	4.2%
11B	Craven clay loam, 2 to 6 percent slopes, severely eroded	35.0	5.3%
13A	Emporia fine sandy loam, 0 to 2 percent slopes	1.0	0.2%
13B	Emporia fine sandy loam, 2 to 6 percent slopes	42.8	6.5%
16A	Myatt loam, 0 to 2 percent slopes	26.2	4.0%
26A	Slagle fine sandy loam, 0 to 2 percent slopes	244.1	36.8%
26B	Slagle fine sandy loam, 2 to 6 percent slopes	192.5	29.0%
26C	Slagle fine sandy loam, 6 to 10 percent slopes	7.2	1.1%
30B	Uchee loamy sand, 0 to 6 percent slopes	26.0	3.9%
30C	Uchee loamy sand, 6 to 10 percent slopes	1.7	0.3%
W	Water	16.1	2.4%
Totals for Area of Interest		**662.8**	**100.0%**

Soil Map—Southampton County, Virginia
(Farm 6-8 Soil Map Warren Tract)



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

N

Meters: 0 100 200 400 600

Feet: 0 400 800 1,600 2,400

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

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- Marsh or swamp
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- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

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- Gully
- Short Steep Slope
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Political Features

- Cities

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- Oceans
- Streams and Canals

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- Rails
- Interstate Highways
- US Routes
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MAP INFORMATION

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Coordinate System: UTM Zone 18N NAD83

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11B	Craven clay loam, 2 to 6 percent slopes, severely eroded	22.1	4.3%
13A	Emporia fine sandy loam, 0 to 2 percent slopes	49.0	9.5%
13B	Emporia fine sandy loam, 2 to 6 percent slopes	95.4	18.5%
16A	Myatt loam, 0 to 2 percent slopes	37.7	7.3%
17B	Nansemond loamy fine sand, 2 to 6 percent slopes	9.1	1.8%
20B	Ocilla loamy sand, 0 to 6 percent slopes	28.0	5.4%
26A	Slagle fine sandy loam, 0 to 2 percent slopes	26.6	5.2%
26B	Slagle fine sandy loam, 2 to 6 percent slopes	157.8	30.7%
26C	Slagle fine sandy loam, 6 to 10 percent slopes	13.0	2.5%
30B	Uchee loamy sand, 0 to 6 percent slopes	10.3	2.0%
34A	Yemassee fine sandy loam, 0 to 2 percent slopes	1.6	0.3%
W	Water	8.5	1.6%
Totals for Area of Interest		**514.9**	**100.0%**

Douglas W. Domenech
Secretary of Natural Resources

David A. Johnson
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

203 Governor Street
Richmond, Virginia 23219-2010
(804) 786-1712

June 28, 2012

RECEIVED – DEQ
MAR 15 2013
Tidewater Regional Office

Mr. R. O. Britt
Murphy-Brown Farms 8506, 8507, & 8508 (6, 7, &8)
P.O. Box 1240
Waverly, VA 23890

Dear Mr. Britt,

Your nutrient management plan (NMP), dated 5/10/2012, for a 31500 head swine operation has been approved by the Virginia Department of Conservation and Recreation for coverage under a Virginia Pollution Abatement (VPA) or Virginia Pollutant Discharge Elimination System (VPDES) permit. Your NMP was written by a nutrient management planner certified by the Virginia Department of Conservation and Recreation.

A copy of this letter must be kept with your nutrient management plan. A copy of this letter and a copy of the approved plan must be sent to the Tidewater Regional Office of the Virginia Department of Environmental Quality (DEQ).

It should be noted that this plan expires 5/10/2015. We recommend the process of revising this nutrient management plan begin at least six months prior to the expiration date.

If you have any questions concerning this letter, please feel free to contact me at bobby.long@dcr.virginia.gov or (434) 547-8172.

Sincerely,

Bobby Long

Bobby Long
Nutrient Management Coordinator – Animal Waste
Division of Stormwater Management

cc: Tim Sexton, DCR Nutrient Management Program Manager
Kurt Elmer, Murphy-Brown LLC
DEQ Tidewater Regional Office

NUTRIENT MANAGEMENT PLAN IDENTIFICATION

Operator
Murphy-Brown LLC
434 East Main Street
Waverly, VA 23890
(804) 834-2109

Integrator:*None*

Farm Coordinates
Easting: 319000, Northing: 4082500, zone: 17

Watershed Summary
watershed: CU65
county: Southampton

Nutrient Management Planner
Kurt Elmer
434 East Main Street
Waverly, VA 23890

Certification Code: 575

Acreage Use Summary
Total Acreage in this plan: 538.7

Cropland:	437.
Hayland:	41.7
Pasture:	60.
Specialty:	0.

Livestock Summary

Beef Cattle	0
Dairy Cattle	0
Poultry	0
Swine	31500
Other	0

Manure Production Balance

	Imported	Produced	Exported	Used	Net
kgals	0.	38625.9	0.	40097.8	-1471.9
tons	0.	0.	0.	0.	0.

Plan written 5/10/2012
Valid until 5/10/2015

Signature: Kurt Elmer 6/22/12
Planner **date**

Murphy-Brown LLC Farms 8506-8508 Narrative

Three Year NMP Revision
Kurt Elmer (Cert. # 575)

This nutrient management plan is an update for Murphy-Brown LLC farms 8506, 8507 and 8508; covered by permit number VPA010075. These farms are located on Rt. 626 in Southampton County, just east of the intersection with Rt. 623 near Dory. This NMP also includes spread agreement acres owned by Virginia Carolina Holding Co. which is located south of the Murphy Brown LLC site on Skyline Drive in Southampton County. The spread agreement fields owned by Virginia Carolina Holding Co. are denoted by the prefix "L" in this NMP.

Swine waste is stored and treated at this site by three primary anaerobic lagoons that are transferred to a common secondary anaerobic lagoon. Under normal circumstances, effluent from the 6-7-8 second stage anaerobic lagoon is land applied with irrigation equipment to wheat, corn, soybeans, grain sorghum and bermuda hay on the Murphy-Brown LLC owned application fields. However, depending on lagoon levels, weather conditions and crop nutrient needs applications can be made from the primary lagoons using the most current waste analysis for that specific lagoon. Applications will be limited to the remaining nitrogen balance for the current crop in the fields. Under normal circumstances effluent from the farm the 7 primary lagoon is utilized for applications to the Virginia Carolina Holding Co. land (denoted by the prefix “L”). However, depending on lagoon levels, weather conditions and crop nutrient needs applications can be made from the 6-7-8 secondary lagoon using the most current waste analysis. Applications will be limited to the remaining nitrogen balance for the current crop in the fields. Nutrient application on the Virginia Carolina Holding Co. property is not conducted on a continuous basis. Nutrient content of the primary and secondary lagoons on this site are analyzed in the months of March, June and September every year. The most current waste analysis is utilized to calculate nutrient application rates to crops.

Approximately 539 acres of row crop, pasture and hay land is available for land application in this plan. The lands owned by Murphy-Brown LLC totals 254 acres of row crops and bermuda hay. The nutrient balance sheet will reflect manure applications that will meet the nutrient needs of the crops. However, depending on lagoon levels, weather conditions and crop nutrient needs commercial fertilizers may be used in place of manure applications. Commercial fertilize applications will be accounted for in nutrient balance calculations of each crop rotation. (Example: Commercial nitrogen starter may be used when corn is planted, commercial nitrogen may be top dress applied to a wheat crop in the spring if soil conditions are too wet for manure applications, crop nutrient needs will be supplemented with commercial fertilizer applications if lagoons lack the volume of waste water to provide the crop nutrient needs, etc.) Cropping notes reflect guidance to be used when utilizing commercial fertilizers in conjunction with manure applications.

The remaining 285 acres of crop and pasture land in this plan owned by Virginia Carolina Holding Co. (fields are denoted by the "L" prefix). These acres are utilized for manure applications on a limited basis. (Example: high lagoon freeboards created by unusual weather events, lowering lagoon levels for lagoon liner repairs). Commercial fertilizers will be utilized in the place of or in conjunction with manure applications during the life of this plan. Manure applications to the Virginia Carolina Holding Co. land will be preformed with an Aerway drag hose system. Applications to the crop acres will be pre-plant applications. Applications to the pasture acres can be preformed anytime within the application window outlined in the Swine Manure Spreading Schedule of the Special Conditions.

Sub acres are included on the Murphy-Brown LLC land in this plan. These acres are not included under permanent irrigation systems. These sub field acres will be applied to on a limited basis by use of an Aerway drag hose system, liquid manure tanker, or portable irrigation guns. Sub acres will be supplimented with commercial fertilizers to meet crop needs in conjunction with effluent applications. If effluent applications are not made on the sub acres commervial fertilizers will be used to meet crop needs.

Murphy-Brown LLC has adopted two new cropping rotation systems that are not addressed in the special conditions manure spreading schedule for swine. Double crop Grain Sorghum and Soy Beans. The Guidance provided by DCR (below) on manure application timing will be followed for the manure spreading schedule for these two crops.

Double-crop sorghum – (planted after Spring harvest of small grain) Effluent applications may begin after the small grain harvest and no more than 30 days prior to planting of the grain sorghum. Effluent applications may continue until ½ of the plants in the field have headed but not later than August 31. Total N applied cannot exceed nutrient needs less the residual N from previous effluent applications, legumes, etc. as defined in Standards and Criteria, revised October 2005.

Soybeans – (double crop and full season) Effluent applications may begin no more than 30 days prior to planting of the soybeans. However, effluent application is not recommended prior to growth stage V6 (six unfolded trifoliate leaves). Nitrogen needs will be established using expected yield for corn based on the soil productivity for the field. Effluent applications may continue until growth stage R6 (full-seed stage) but not later than September 30.

Nutrient Management Plan Balance Sheet
(Spring, 2012-Spring, 2015)
Murphy-Brown LLC Farms 8506-8508
Planner: Kurt Elmer (cert. No. 571)

Tract: 2304 Location: Southampton
(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes	
1/L-1A(N)	12/12	2012	Unimproved Pasture	50-0-0	0/0				50-0-0	N/A			
		2013	... ...	50-0-0	0/0	22.4k 8507 P(Sp)	N/A	48-20-146	0-(20)-(145)	N/A		1,2	
		2014	... ...	50-0-0	0/2	22.k 8507 P(Sp)	N/A	47-19-143	0-(40)-(290)	N/A		1,2	
1/L-1B(N)	4/4	2012	Bermudagrass pasture	200-0-0	0/0				200-0-0	N/A			
		2013	... ...	200-0-0	0/0	82.k 8507 P(Sp)	N/A	175-72-534	25-(70)-(535)	N/A		1,2	
		2014	... ...	200-0-0	0/7	82.k 8507 P(Sp)	N/A	175-72-534	20-(140)-(1070)	N/A		1,2	
1/L-1C(N)	5/5	2012	Bermudagrass pasture	200-0-65	0/0				200-0-65	N/A			
		2013	... ...	200-0-65	0/0	82.k 8507 P(Sp)	N/A	175-72-534	25-(70)-(405)	N/A		3,2	
		2014	... ...	200-0-65	0/7	82.k 8507 P(Sp)	N/A	175-72-534	20-(140)-(875)	N/A		3,2	
2/L-2(N)	5/5	2012	Bermudagrass pasture	200-0-0	0/0				200-0-0	N/A			
		2013	... ...	200-0-0	0/0	82.k 8507 P(Sp)	N/A	175-72-534	25-(70)-(535)	N/A		1,2	
		2014	... ...	200-0-0	0/7	82.k 8507 P(Sp)	N/A	175-72-534	20-(140)-(1070)	N/A		1,2	
3/L-3(N)	4/4	2012	Bermudagrass pasture	200-0-65	0/0				200-0-65	N/A			
		2013	... ...	200-0-65	0/0	82.k 8507 P(Sp)	N/A	175-72-534	25-(70)-(405)	N/A		3,2	
		2014	... ...	200-0-65	0/7	82.k 8507 P(Sp)	N/A	175-72-534	20-(140)-(875)	N/A		3,2	
5/L-5(N)	10/10	2012	Cotton (bolls)	60-30-30	20/0				40-30-30	N/A			
		2013	Peanuts	0-0-0	0/0				0-30-30	N/A			
			Wheat (grain)	100-30-40	45/0				55-60-70	N/A			
		2014	... ...	-- -- --									
			Soybeans (DC)	30-30-40	0/0	14.k 8507 P(Su)	N/A	30-12-91	0-80-20	N/A		1	
		2015	Cotton (bolls)	60-30-30	11/1	12.k 8507 P(Sp)	N/A	26-11-78	20-100-(30)	N/A		1,2	
6/L-6(N)	9/9	2012	Bermudagrass pasture	200-0-0	0/0				200-0-0	N/A			
		2013	... ...	200-0-0	0/0	82.k 8507 P(Sp)	N/A	175-72-534	25-(70)-(535)	N/A		1,2	
		2014	... ...	200-0-0	0/7	82.k 8507 P(Sp)	N/A	175-72-534	20-(140)-(1070)	N/A		1,2	
7/L-7(N)	7/7	2012	Bermudagrass pasture	150-0-0	0/0				150-0-0	N/A			
		2013	... ...	150-0-0	0/0	67.4k 8507 P(Sp)	N/A	144-59-439	5-(60)-(440)	N/A		1,2	
		2014	... ...	150-0-0	0/6	66.2k 8507 P(Sp)	N/A	141-58-431	5-(120)-(870)	N/A		1,2	

Tract: 2304 **Location: Southampton**

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes	
8/L-8(N)	15/15	2012	Cotton (bolls)	60-30-30	20/0				40-30-30	N/A			
		2013	Peanuts	0-0-0	0/0				0-30-30	N/A			
			Wheat (grain)	100-30-30	45/0				55-60-60	N/A			
		2014	... ...	-- -- --									
			Soybeans (DC)	30-30-30	0/0	14.k 8507 P(Su)	N/A	30-12-91	0-80-0	N/A		1	
		2015	Cotton (bolls)	60-30-30	9/1	13.k 8507 P(Sp)	N/A	28-11-85	20-100-(55)	N/A		1,2	
9/L-9(N)	2/2	2012	Bermudagrass pasture	150-0-40	0/0				150-0-40	N/A			
		2013	... ...	150-0-40	0/0	67.4k 8507 P(Sp)	N/A	144-59-439	5-(60)-(360)	N/A		1,2	
		2014	... ...	150-0-40	0/6	66.2k 8507 P(Sp)	N/A	141-58-431	5-(120)-(750)	N/A		1,2	
10/L-10(N)	4/4	2012	Bermudagrass pasture	200-0-0	0/0				200-0-0	N/A			
		2013	... ...	200-0-0	0/0	82.k 8507 P(Sp)	N/A	175-72-534	25-(70)-(535)	N/A		1,2	
		2014	... ...	200-0-0	0/7	82.k 8507 P(Sp)	N/A	175-72-534	20-(140)-(1070)	N/A		1,2	
11/L-11(N)	10/10	2012	Bermudagrass pasture	200-0-0	0/0				200-0-0	N/A			
		2013	... ...	200-0-0	0/0	82.k 8507 P(Sp)	N/A	175-72-534	25-(70)-(535)	N/A		1,2	
		2014	... ...	200-0-0	0/7	82.k 8507 P(Sp)	N/A	175-72-534	20-(140)-(1070)	N/A		1,2	
12/L-12(N)	25/25	2012	Cotton (bolls)	60-30-30	20/0				40-30-30	N/A			
		2013	Peanuts	0-0-0	0/0				0-30-30	N/A			
			Wheat (grain)	100-30-20	45/0				55-60-50	N/A			
		2014	... ...	-- -- --									
			Soybeans (DC)	30-30-20	0/0	14.k 8507 P(Su)	N/A	30-12-91	0-80-(20)	N/A		1	
		2015	Cotton (bolls)	60-30-30	15/1	12.k 8507 P(Sp)	N/A	26-11-78	20-100-(70)	N/A		1,2	
13/L-13(N)	10/10	2012	Peanuts	0-0-0	0/0				0-0-0	N/A			
			Wheat (grain)	100-30-30	45/0				55-30-30	N/A			
		2013	Soybeans (DC)	30-30-30	0/0	14.k 8507 P(Su)	N/A	30-12-91	0-50-(30)	N/A		1	
		2014	Cotton (bolls)	60-30-30	16/1	10.k 8507 P(Sp)	N/A	21-9-65	20-70-(65)	N/A		1,2	
14/L-14-1(N)	16/16	2012	Peanuts	0-0-0	0/0				0-0-0	N/A			
			Wheat (grain)	100-40-40	45/0				55-40-40	N/A			
		2013	Soybeans (DC)	30-40-40	0/0	14.k 8507 P(Su)	N/A	30-12-91	0-70-(10)	N/A		1	
		2014	Cotton (bolls)	60-60-30	16/1	10.k 8507 P(Sp)	N/A	21-9-65	20-120-(45)	N/A		1,2	

Tract: 2304 **Location: Southampton**

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes
14/L-14-2(N)	19/19	2012	Peanuts	0-0-0	0/0				0-0-0	N/A		
			Wheat (grain)	100-40-40	45/0				55-40-40	N/A		
		2013	Soybeans (DC)	30-40-40	0/0	14.k 8507 P(Su)	N/A	30-12-91	0-70-(10)	N/A		1
		2014	Cotton (bolls)	60-30-30	16/1	10.k 8507 P(Sp)	N/A	21-9-65	20-90-(45)	N/A		1,2
14/L-14-3(N)	20/20	2012	Peanuts	0-0-0	0/0				0-0-0	N/A		
			Wheat (grain)	100-30-80	45/0				55-30-80	N/A		
		2013	Soybeans (DC)	30-30-80	0/0	14.k 8507 P(Su)	N/A	30-12-91	0-50-70	N/A		1
		2014	Cotton (bolls)	60-30-60	16/1	10.k 8507 P(Sp)	N/A	21-9-65	20-70-65	N/A		1,2
14/L-14-4(N)	20/20	2012	Peanuts	0-0-0	0/0				0-0-0	N/A		
			Wheat (grain)	100-20-80	45/0				55-20-80	N/A		
		2013	Soybeans (DC)	30-20-80	0/0	14.k 8507 P(Su)	N/A	30-12-91	0-30-70	N/A		1
		2014	Cotton (bolls)	60-30-60	15/1	10.k 8507 P(Sp)	N/A	21-9-65	20-50-65	N/A		1,2
15/L-15(N)	10/10	2012	Cotton (bolls)	60-30-30	20/0				40-30-30	N/A		
		2013	Peanuts	0-0-0	0/0				0-30-30	N/A		
			Wheat (grain)	100-30-30	45/0				55-60-60	N/A		
		2014	... ...	-- -- --								
			Soybeans (DC)	30-30-30	0/0	14.k 8507 P(Su)	N/A	30-12-91	0-80-0	N/A		1
		2015	Cotton (bolls)	60-30-30	15/1	10.k 8507 P(Sp)	N/A	21-9-65	25-100-(35)	N/A		1,2

Commercial Application Methods:

br - Broadcast ba - Banded sd - Sidedress

Notes:

1 Do Not Exceed 0.90" / Application. Allow sufficient drying time between subsequent irrigations so that field capacity is not exceeded due to the irrigation events.

2 Commercial fertilizer applications may be used in addition to or in place of organic fertilizer applications to supplement crop needs and meet yield goals. Total nutrient applications shall not exceed crop needs.

3 Do Not Exceed 0.75" / Application. Allow sufficient drying time between subsequent irrigations so that field capacity is not exceeded due to the irrigation events.

Tract: 2369 Location: Southampton
(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes	
1/L-19(N)	21/21	2012	Cotton (bolls)	60-30-60	20/0				40-30-60	N/A			
		2013	Peanuts	0-0-0	0/0				0-30-60	N/A			
			Wheat (grain)	100-20-60	45/0				55-50-120	N/A			
		2014	... ...	-- -- --									
			Soybeans (DC)	30-20-60	0/0	14.k 8507 P(Su)	N/A	30-12-91	0-60-90	N/A		1	
		2015	Cotton (bolls)	60-30-60	11/1	13.k 8507 P(Sp)	N/A	28-11-85	20-80-65	N/A		1,2	
3/L-20(N)	4/4	2012	Cotton (bolls)	60-30-60	20/0				40-30-60	N/A			
		2013	Peanuts	0-0-0	0/0				0-30-60	N/A			
			Wheat (grain)	100-20-60	45/0				55-50-120	N/A			
		2014	... ...	-- -- --									
			Soybeans (DC)	30-20-60	0/0	14.k 8507 P(Su)	N/A	30-12-91	0-60-90	N/A		1	
		2015	Cotton (bolls)	60-30-60	16/1	10.k 8507 P(Sp)	N/A	21-9-65	20-80-85	N/A		1,2	
4/L-21(N)	1/1	2012	Cotton (bolls)	60-0-60	20/0				40-0-60	N/A			
		2013	Peanuts	0-0-0	0/0				0-0-60	N/A			
			Wheat (grain)	100-0-80	45/0				55-0-140	N/A			
		2014	... ...	-- -- --									
			Soybeans (DC)	30-0-80	0/0	14.k 8507 P(Su)	N/A	30-12-91	0-(10)-130	N/A		1	
		2015	Cotton (bolls)	60-0-60	16/1	10.k 8507 P(Sp)	N/A	21-9-65	20-(20)-125	N/A		1,2	

Commercial Application Methods:

br - Broadcast ba - Banded sd - Sidedress

Notes:

1 Do Not Exceed 0.90" / Application. Allow sufficient drying time between subsequent irrigations so that field capacity is not exceeded due to the irrigation events.

2 Commercial fertilizer applications may be used in addition to or in place of organic fertilizer applications to supplement crop needs and meet yield goals. Total nutrient applications shall not exceed crop needs.

Tract: 2429 Location: Southampton
(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes	
1/L-18(N)	4/4	2012	Cotton (bolls)	60-30-60	20/0				40-30-60	N/A			
		2013	Peanuts	0-0-0	0/0				0-30-60	N/A			
			Wheat (grain)	100-20-40	45/0				55-50-100	N/A			
		2014	... ...	-- -- --									
			Soybeans (DC)	30-20-40	0/0	14.k 8507 P(Su)	N/A	30-12-91	0-60-50	N/A		1	
		2015	Cotton (bolls)	60-30-60	10/1	12.k 8507 P(Sp)	N/A	26-11-78	25-80-30	N/A		1,2	

Commercial Application Methods:

br - Broadcast ba - Banded sd - Sidedress

Notes:

1 Do Not Exceed 0.90" / Application. Allow sufficient drying time between subsequent irrigations so that field capacity is not exceeded due to the irrigation events.

2 Commercial fertilizer applications may be used in addition to or in place of organic fertilizer applications to supplement crop needs and meet yield goals. Total nutrient applications shall not exceed crop needs.

Tract: 2741 Location: Southampton
(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes
1/L22-2(N)	20/20	2012	Wheat (grain)	100-20-60	0/0				100-20-60	N/A		
			Soybeans (DC)	30-20-60	0/0				30-40-120	N/A		
		2013	Cotton (bolls)	60-30-60	16/0	11.k 8507 P(Sp)	N/A	23-10-72	20-60-110	N/A		1,2
		2014	Peanuts	0-0-0	0/1				0-60-110	N/A		
			Wheat (grain)	100-20-60	45/0				55-80-170	N/A		
1/L-22-1(N)	13/13	2012	Wheat (grain)	100-0-80	45/0				55-0-80	N/A		
			Soybeans (DC)	30-0-80	0/0				30-0-160	N/A		
		2013	Cotton (bolls)	60-0-100	16/0	11.k 8507 P(Sp)	N/A	23-10-72	20-(10)-190	N/A		1,2
		2014	Peanuts	0-0-0	0/1				0-(10)-190	N/A		
			Wheat (grain)	100-0-80	45/0				55-(10)-270	N/A		
1/L-22-3(N)	15/15	2012	Wheat (grain)	100-30-80	0/0				100-30-80	N/A		
			Soybeans (DC)	30-30-80	0/0				30-60-160	N/A		
		2013	Cotton (bolls)	60-30-60	12/0	12.k 8507 P(Sp)	N/A	26-11-78	25-80-140	N/A		1,2
		2014	Peanuts	0-0-0	0/1				0-80-140	N/A		
			Wheat (grain)	100-30-80	45/0				55-110-220	N/A		

Commercial Application Methods:

br - Broadcast ba - Banded sd - Sidedress

Notes:

1 Do Not Exceed 0.90" / Application. Allow sufficient drying time between subsequent irrigations so that field capacity is not exceeded due to the irrigation events.

2 Commercial fertilizer applications may be used in addition to or in place of organic fertilizer applications to supplement crop needs and meet yield goals. Total nutrient applications shall not exceed crop needs.

Tract: 26000 Location: Southampton
(N = N based, 1P = P based, 1.5P = P based at 1.5 removal, 0P = No P allowed)

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes
3/1(N)	2/2	2012	Sorghum (grain)	90-0-0	0/0	107.8k 8506-7(Su)	N/A	90-85-726	0-(85)-(725)	N/A		1,2
			Rye (cover)	0-0-0	0/0				0-(85)-(725)	N/A		
		2013	Corn (grain)	120-0-0	0/10	131.1k 8506-7(Sp)	N/A	109-104-884	0-(190)-(1610)	N/A		1,3,4,5,2
			Wheat (grain)	100-0-0	0/20	45.7k 8506-7(Fa)	N/A	38-36-308	0-(265)-(2260)	N/A		1,6,7
		2014	... ...	-- -- --		50.5k 8506-7(Sp)	N/A	42-40-340				1,6,7,2
			Sorghum (grain)	120-0-0	0/0	143.7k 8506-7(Su)	N/A	120-114-969	0-(380)-(3230)	N/A		1,2
			Rye (cover)	0-0-0	0/0				0-(380)-(3230)	N/A		
		2015	Corn (grain)	120-0-0	0/25	51.k 8506-7(Sp)	N/A	43-40-344	55-(420)-(3575)	N/A		1,3,4,5,2
3/2(N)	7/7	2012	Sorghum (grain)	120-0-0	0/0	143.7k 8506-7(Su)	N/A	120-114-969	0-(115)-(970)	N/A		1,2
			Rye (cover)	0-0-0	0/0				0-(115)-(970)	N/A		
		2013	Corn (grain)	150-0-0	0/20	155.6k 8506-7(Sp)	N/A	130-123-1049	0-(240)-(2020)	N/A		1,3,4,5,2
			Wheat (grain)	100-0-0	0/26	42.3k 8506-7(Fa)	N/A	35-33-285	0-(310)-(2620)	N/A		1,6,7
		2014	... ...	-- -- --		46.9k 8506-7(Sp)	N/A	39-37-316				1,6,7,2
			Sorghum (grain)	90-0-0	0/0	107.8k 8506-7(Su)	N/A	90-85-726	0-(395)-(3345)	N/A		1,2
			Rye (cover)	0-0-0	0/0				0-(395)-(3345)	N/A		
		2015	Corn (grain)	100-0-0	0/23	40.4k 8506-7(Sp)	N/A	34-32-272	45-(425)-(3615)	N/A		1,3,4,5,2
3/3(N)	6/6	2012	Bermudagrass hay mt.	235-0-0	0/5	250.k 8506-7(Sp)	N/A	209-198-1685	20-(200)-(1685)	N/A	20-0-0(td)	8,2,
		2013	... ...	235-0-0	0/24	240.k 8506-7(Sp)	N/A	200-190-1618	10-(390)-(3305)	N/A	10-0-0(td)	8,2,
		2014	... ...	235-0-0	0/31	230.k 8506-7(Sp)	N/A	192-182-1550	10-(570)-(4855)	N/A	10-0-0(td)	8,2,
4/4(N)	3/3	2012	Sorghum (grain)	120-0-0	0/0	143.7k 8506-7(Su)	N/A	120-114-969	0-(115)-(970)	N/A		8,2
			Rye (cover)	0-0-0	0/0				0-(115)-(970)	N/A		
		2013	Corn (grain)	150-0-0	0/14	162.3k 8506-7(Sp)	N/A	136-128-1094	0-(245)-(2065)	N/A		8,3,4,5,2
			Wheat (grain)	100-0-0	0/24	43.5k 8506-7(Fa)	N/A	36-34-293	0-(315)-(2680)	N/A		8,6,7
		2014	... ...	-- -- --		47.7k 8506-7(Sp)	N/A	40-38-321				8,6,7,2
			Sorghum (grain)	120-0-0	0/0	143.7k 8506-7(Su)	N/A	120-114-969	0-(430)-(3650)	N/A		8,2
			Rye (cover)	0-0-0	0/0				0-(430)-(3650)	N/A		
		2015	Corn (grain)	140-0-0	0/26	68.k 8506-7(Sp)	N/A	57-54-458	55-(485)-(4110)	N/A		8,3,4,5,2

Tract: 26000 **Location: Southampton**

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes	
4/5(N)	6/6	2012	Sorghum (grain)	120-0-0	0/0	143.7k 8506-7(Su)	N/A	120-114-969	0-(115)-(970)	N/A		8,2	
			Rye (cover)	0-0-0	0/0				0-(115)-(970)	N/A			
		2013	Corn (grain)	150-0-0	0/14	162.3k 8506-7(Sp)	N/A	136-128-1094	0-(245)-(2065)	N/A		8,3,4,5,2	
			Wheat (grain)	100-0-0	0/24	43.k 8506-7(Fa)	N/A	36-34-290	0-(320)-(2690)	N/A		8,6,5	
		2014	... ...	-- -- --		49.5k 8506-7(Sp)	N/A	41-39-334				8,6,7,2	
			Sorghum (grain)	120-0-0	0/0	143.7k 8506-7(Su)	N/A	120-114-969	0-(435)-(3660)	N/A		8,2	
			Rye (cover)	0-0-0	0/0				0-(435)-(3660)	N/A			
		2015	Corn (grain)	140-0-0	0/26	68.k 8506-7(Sp)	N/A	57-54-458	55-(490)-(4120)	N/A		8,3,4,5,2	
4/6(N)	7/7	2012	Sorghum (grain)	120-0-0	0/0	143.7k 8506-7(Su)	N/A	120-114-969	0-(115)-(970)	N/A		9,2	
			Rye (cover)	0-0-0	0/0				0-(115)-(970)	N/A			
		2013	Corn (grain)	150-0-0	0/12	164.7k 8506-7(Sp)	N/A	138-130-1110	0-(245)-(2080)	N/A		9,3,4,5,2	
			Wheat (grain)	100-0-0	0/23	44.k 8506-7(Fa)	N/A	37-35-297	0-(320)-(2710)	N/A		9,6,7	
		2014	... ...	-- -- --		49.2k 8506-7(Sp)	N/A	41-39-332				9,6,5,2	
			Sorghum (grain)	120-0-0	0/0	143.7k 8506-7(Su)	N/A	120-114-969	0-(435)-(3680)	N/A		9,2	
			Rye (cover)	0-0-0	0/0				0-(435)-(3680)	N/A			
		2015	Corn (grain)	130-0-0	0/26	62.k 8506-7(Sp)	N/A	52-49-418	50-(485)-(4100)	N/A		9,3,4,5,2	
4/7(N)	5/5	2012	Sorghum (grain)	120-0-0	0/0	143.k 8506-7(Su)	N/A	119-113-964	0-(115)-(965)	N/A		9,2	
			Rye (cover)	0-0-0	0/0				0-(115)-(965)	N/A			
		2013	Corn (grain)	150-0-0	0/14	126.5k 8506-7(Sp)	N/A	106-100-853	30-(215)-(1820)	N/A	30-0-0(ba)	9,3,4,5,	
			Wheat (grain)	100-0-0	0/17				85-(215)-(1820)	N/A	85-0-0(td)	,6,7	
		2014	... ...	-- -- --									
			Sorghum (grain)	120-0-0	0/0	143.7k 8506-7(Su)	N/A	120-114-969	0-(330)-(2790)	N/A		9,2	
			Rye (cover)	0-0-0	0/0				0-(330)-(2790)	N/A			
		2015	Corn (grain)	130-0-0	0/19	100.k 8506-7(Sp)	N/A	84-79-674	25-(410)-(3465)	N/A	25-0-0(ba)	9,3,4,5,	
5/A-C(N)	35/35	2012	Bermudagrass hay mt.	235-0-0	0/0	250.k 8506-7(Sp)	N/A	209-198-1685	25-(200)-(1685)	N/A	25-0-0(td)	8,2,	
		2013	... ...	235-0-0	0/22	240.k 8506-7(Sp)	N/A	200-190-1618	15-(390)-(3305)	N/A	15-0-0(td)	8,2,	
		2014	... ...	235-0-0	0/30	230.k 8506-7(Sp)	N/A	192-182-1550	15-(570)-(4855)	N/A	15-0-0(td)	8,2,	

Tract: 26000 **Location: Southampton**

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes	
2/D(N)	18/18	2012	Sorghum (grain)	120-0-0	0/0	143.7k 8506-7(Su)	N/A	120-114-969	0-(115)-(970)	N/A		8,2	
			Rye (cover)	0-0-0	0/0				0-(115)-(970)	N/A			
		2013	Corn (grain)	140-0-0	0/14	150.k 8506-7(Sp)	N/A	125-118-1011	0-(235)-(1980)	N/A		8,3,4,5,2	
			Wheat (grain)	100-0-0	0/23	44.k 8506-7(Fa)	N/A	37-35-297	0-(310)-(2610)	N/A		8,6,7	
		2014	... ...	-- -- --		49.6k 8506-7(Sp)	N/A	41-39-334				8,6,7,2	
			Sorghum (grain)	120-0-0	0/0	143.7k 8506-7(Su)	N/A	120-114-969	0-(425)-(3580)	N/A		8,2	
			Rye (cover)	0-0-0	0/0				0-(425)-(3580)	N/A			
		2015	Corn (grain)	140-0-0	0/26	68.k 8506-7(Sp)	N/A	57-54-458	55-(480)-(4040)	N/A		8,3,4,5,2	
3/E(N)	28/28	2012	Sorghum (grain)	120-0-0	0/0	143.7k 8506-7(Su)	N/A	120-114-969	0-(115)-(970)	N/A		8,2	
			Rye (cover)	0-0-0	0/0				0-(115)-(970)	N/A			
		2013	Corn (grain)	140-0-0	0/14	150.k 8506-7(Sp)	N/A	125-118-1011	0-(235)-(1980)	N/A		8,3,4,5,2	
			Wheat (grain)	100-0-0	0/23	44.k 8506-7(Fa)	N/A	37-35-297	0-(310)-(2610)	N/A		8,6,7	
		2014	... ...	-- -- --		49.6k 8506-7(Sp)	N/A	41-39-334				8,6,7,2	
			Sorghum (grain)	120-0-0	0/0	143.7k 8506-7(Su)	N/A	120-114-969	0-(425)-(3580)	N/A		8,2	
			Rye (cover)	0-0-0	0/0				0-(425)-(3580)	N/A			
		2015	Corn (grain)	140-0-0	0/26	68.k 8506-7(Sp)	N/A	57-54-458	55-(480)-(4040)	N/A		8,3,4,5,2	
1/H1(N)	58/58	2012	Corn (grain)	130-0-0	0/8	146.2k 8506-7(Sp)	N/A	122-115-985	0-(115)-(985)	N/A		8,3,4,5,2	
			Wheat (grain)	100-0-0	0/20	46.k 8506-7(Fa)	N/A	38-36-310	0-(190)-(1645)	N/A		8,6,7	
		2013	... ...	-- -- --		51.6k 8506-7(Sp)	N/A	43-41-348				6,7,2	
			Sorghum (grain)	100-0-0	0/0	119.8k 8506-7(Su)	N/A	100-95-807	0-(285)-(2450)	N/A		8,2	
			Rye (cover)	0-0-0	0/0				0-(285)-(2450)	N/A			
		2014	Corn (grain)	130-0-0	0/23	128.1k 8506-7(Sp)	N/A	107-101-863	0-(385)-(3315)	N/A		8,3,4,5,2	
			Wheat (grain)	100-0-0	0/24	44.k 8506-7(Fa)	N/A	37-35-297	0-(460)-(3940)	N/A		8,6,7	
		2015	... ...	-- -- --		48.6k 8506-7(Sp)	N/A	41-38-328				8,6,7,2	

Tract: 26000 **Location: Southampton**

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes	
1/H2(N)	9/9	2012	Corn (grain)	150-20-0	0/8	170.k 8506-7(Sp)	N/A	142-134-1146	0-(115)-(1145)	N/A		8,3,4,5,2	
			Wheat (grain)	100-20-0	0/21	45.k 8506-7(Fa)	N/A	38-36-303	0-(170)-(1785)	N/A		8,6,7	
		2013	... ...	-- -- --		50.2k 8506-7(Sp)	N/A	42-40-338				8,6,7,2	
			Sorghum (grain)	120-20-0	0/0	143.7k 8506-7(Su)	N/A	120-114-969	0-(265)-(2755)	N/A		8,2	
			Rye (cover)	0-0-0	0/0				0-(265)-(2755)	N/A			
		2014	Corn (grain)	150-20-0	0/26	148.8k 8506-7(Sp)	N/A	124-118-1003	0-(365)-(3760)	N/A		8,3,4,5,2	
			Wheat (grain)	100-20-0	0/27	42.k 8506-7(Fa)	N/A	35-33-283	0-(415)-(4360)	N/A		8,6,7	
		2015	... ...	-- -- --		47.3k 8506-7(Sp)	N/A	40-37-319				8,6,7,2	
1/H3(N)	12/12	2012	Corn (grain)	140-30-30	0/8	158.2k 8506-7(Sp)	N/A	132-125-1066	0-(95)-(1035)	N/A		8,3,4,5,2	
			Wheat (grain)	100-30-30	0/20	45.k 8506-7(Fa)	N/A	38-36-303	0-(140)-(1650)	N/A		8,6,7	
		2013	... ...	-- -- --		51.k 8506-7(Sp)	N/A	43-40-344				8,6,7,2	
			Sorghum (grain)	100-30-30	0/0	119.8k 8506-7(Su)	N/A	100-95-807	0-(205)-(2425)	N/A		8,2	
			Rye (cover)	0-0-0	0/0				0-(205)-(2425)	N/A			
		2014	Corn (grain)	140-30-30	0/23	139.7k 8506-7(Sp)	N/A	117-110-942	0-(285)-(3335)	N/A		8,2,4,5,3	
			Wheat (grain)	100-30-30	0/25	43.k 8506-7(Fa)	N/A	36-34-290	0-(325)-(3920)	N/A		8,6,7	
		2015	... ...	-- -- --		48.3k 8506-7(Sp)	N/A	40-38-326				8,6,7,2	
4/Sub 4-7(N)	9/9	2012	Sorghum (grain)	100-0-0	0/0				100-0-0	N/A	100-0-0(td)	,	
			Rye (cover)	0-0-0	0/0				0-0-0	N/A			
		2013	Corn (grain)	140-0-0	0/0	71.8k 8506-7(Sp)	N/A	60-57-484	80-(55)-(485)	N/A	80-0-0(ba)	8,3,4,5,	
			Wheat (grain)	100-0-0	0/11	58.3k 8506-7(Fa)	N/A	49-46-393	40-(100)-(880)	N/A	40-0-0(td)	8,6,7,	
		2014	... ...	-- -- --									
			Sorghum (grain)	100-0-0	0/0	59.8k 8506-7(Su)	N/A	50-47-403	50-(145)-(1285)	N/A	50-0-0(td)	8,2,	
			Rye (cover)	0-0-0	0/0				0-(145)-(1285)	N/A			
		2015	Corn (grain)	140-0-0	0/10	72.k 8506-7(Sp)	N/A	60-57-485	70-(200)-(1770)	N/A	70-0-0(ba)	8,3,4,5,	

Tract: 26000 **Location: Southampton**

Field CFSA No. /Name	Size (ac) Total/ Used	Yr.	Crop	Needs N-P-K (lbs/ac)	Leg /Man Resid	Manure/Biosld Rate & Type (season)	IT (d)	Man/Bios N-P-K (lbs/ac)	Net = Needs - appld N-P-K (lbs/ac)	Sum P rem cred	Commercial N-P-K (lbs/ac)	Notes
5/Sub A-C(N)	13/13	2012	Soybeans (FS)	30-0-0	0/0				30-0-0	N/A		
			Rye (cover)	0-0-0	19/0				(20)-0-0	N/A		
		2013	Soybeans (FS)	30-0-0	0/0	35.9k 8506-7(Su)	N/A	30-28-242	0-(30)-(240)	N/A		8
			Rye (cover)	0-0-0	19/0				(20)-(30)-(240)	N/A		
		2014	Soybeans (FS)	30-0-0	0/0	35.9k 8506-7(Su)	N/A	30-28-242	0-(60)-(480)	N/A		8
			Rye (cover)	0-0-0	19/0				(20)-(60)-(480)	N/A		
2/Sub D(N)	6/6	2012	Soybeans (FS)	30-0-0	0/0				30-0-0	N/A		
			Rye (cover)	0-0-0	20/0				(20)-0-0	N/A		
		2013	Soybeans (FS)	30-0-0	0/0	35.9k 8506-7(Su)	N/A	30-28-242	0-(30)-(240)	N/A		8
			Rye (cover)	0-0-0	20/0				(20)-(30)-(240)	N/A		
		2014	Soybeans (FS)	30-0-0	0/0	35.9k 8506-7(Su)	N/A	30-28-242	0-(60)-(480)	N/A		8
			Rye (cover)	0-0-0	20/0				(20)-(60)-(480)	N/A		
3/Sub E(N)	13/13	2012	Soybeans (FS)	30-0-0	0/0				30-0-0	N/A		
			Rye (cover)	0-0-0	19/0				(20)-0-0	N/A		
		2013	Soybeans (FS)	30-0-0	0/0	35.9k 8506-7(Su)	N/A	30-28-242	0-(30)-(240)	N/A		8
			Rye (cover)	0-0-0	19/0				(20)-(30)-(240)	N/A		
		2014	Soybeans (FS)	30-0-0	0/0	35.9k 8506-7(Su)	N/A	30-28-242	0-(60)-(480)	N/A		8
			Rye (cover)	0-0-0	19/0				(20)-(60)-(480)	N/A		
1/Sub H(N)	18/18	2012	Corn (grain)	130-0-0	0/0				130-0-0	N/A	100-0-0(ba)	,
			Wheat (grain)	100-0-0	0/5	54.2k 8506-7(Fa)	N/A	45-43-365	50-(45)-(365)	N/A	50-0-0(td)	8,6,7,
		2013	... ...	-- -- --								
			Sorghum (grain)	100-0-0	0/0	59.8k 8506-7(Su)	N/A	50-47-403	50-(90)-(770)	N/A	50-0-0(td)	8,2,
			Rye (cover)	0-0-0	0/0				0-(90)-(770)	N/A		
		2014	Corn (grain)	130-0-0	0/7	75.3k 8506-7(Sp)	N/A	63-59-508	60-(150)-(1280)	N/A	60-0-0(ba)	8,3,4,5,
			Wheat (grain)	100-0-0	0/14	54.8k 8506-7(Fa)	N/A	46-43-369	40-(195)-(1650)	N/A	40-0-0(td)	8,6,7,
		2015	... ...	-- -- --								

Commercial Application Methods:

br - Broadcast ba - Banded sd - Sidedress

Notes:

1 Do Not Exceed 0.60" / Application. Allow sufficient drying time between subsequent irrigations so that field capacity is not exceeded due to the irrigation events.
2 Commercial fertilizer applications may be used in addition to or in place of organic fertilizer applications to supplement crop needs and meet yield goals. Total nutrient applications shall not exceed crop needs.
3 Side-dress N with planter.
4 Recommended pre-side-dress soil nitrate test prior to side-dress application of N when corn is 10"-15" tall at the whorl.
5 Apply side-dress N when corn is between 12" and 24" tall.
6 Small grain applications should be split so that half is applied in Fall/Early Winter and half in Early Spring.
7 For intensive management of wheat, pages 72-76 of the Standards and Criteria (pages attached), should be used.
8 Do Not Exceed 0.90" / Application. Allow sufficient drying time between subsequent irrigations so that field capacity is not exceeded due to the irrigation events.
9 Do Not Exceed 0.80" / Application. Allow sufficient drying time between subsequent irrigations so that field capacity is not exceeded due to the irrigation events.

Soil Test Summary

Tract	Field	Acre	Date	P2O5	K2O	Lab	Soil pH	Lime Date	rec. lime tons/Ac
2304	L-1A	12	2012-Sp	H+ (108 P ppm)	H (168 K ppm)	A&L MIII	6.1	2012Fa	0.5
2304	L-1B	4	2012-Sp	VH (153 P ppm)	H- (183 K ppm)	A&L MIII	6.9	2012Fa	0.5
2304	L-1C	5	2012-Sp	VH (129 P ppm)	M (142 K ppm)	A&L MIII	6.5	2012Fa	0.5
2304	L-2	5	2012-Sp	VH (162 P ppm)	H- (193 K ppm)	A&L MIII	6.7	2012Fa	0.5
2304	L-3	4	2012-Sp	VH (118 P ppm)	M (137 K ppm)	A&L MIII	6.2	2012Fa	0.5
2304	L-5	10	2012-Sp	H (69 P ppm)	H- (200 K ppm)	A&L MIII	5.9	2012Fa	0.5
2304	L-6	9	2012-Sp	H (73 P ppm)	H (211 K ppm)	A&L MIII	6.	2012Fa	0.5
2304	L-7	7	2012-Sp	H (70 P ppm)	H- (192 K ppm)	A&L MIII	5.7	2012Fa	0.5
2304	L-8	15	2012-Sp	H (68 P ppm)	H (214 K ppm)	A&L MIII	5.8	2012Fa	0.5
2304	L-9	2	2012-Sp	VH (121 P ppm)	M+ (171 K ppm)	A&L MIII	6.3	2012Fa	0.5
2304	L-10	4	2012-Sp	VH (157 P ppm)	H (195 K ppm)	A&L MIII	6.3	2012Fa	0.5
2304	L-11	10	2012-Sp	VH (159 P ppm)	H (188 K ppm)	A&L MIII	6.3	2012Fa	0.5
2304	L-12	25	2012-Sp	H (80 P ppm)	H+ (202 K ppm)	A&L MIII	6.1	2012Fa	0.5
2304	L-13	10	2012-Sp	H (85 P ppm)	H (186 K ppm)	A&L MIII	6.1	2012Fa	0.5
2304	L-14-1	16	2012-Sp	M+ (45 P ppm)	H- (131 K ppm)	A&L MIII	5.6	2012Fa	0.5
2304	L-14-2	19	2012-Sp	H- (49 P ppm)	H- (128 K ppm)	A&L MIII	5.9	2012Fa	0.5
2304	L-14-3	20	2012-Sp	H (101 P ppm)	M- (55 K ppm)	A&L MIII	5.9	2012Fa	0.5
2304	L-14-4	20	2012-Sp	H+ (125 P ppm)	M- (66 K ppm)	A&L MIII	6.8	2012Fa	0.5
2304	L-15	10	2012-Sp	H (82 P ppm)	H (176 K ppm)	A&L MIII	6.	2012Fa	0.5
2369	L-19	21	2012-Sp	H+ (113 P ppm)	M (95 K ppm)	A&L MIII	5.9	2012Fa	0.5
2369	L-20	4	2012-Sp	H+ (102 P ppm)	M (87 K ppm)	A&L MIII	6.	2012Fa	0.5
2369	L-21	1	2012-Sp	VH (160 P ppm)	M- (61 K ppm)	A&L MIII	5.6	2012Fa	0.5
2429	L-18	4	2012-Sp	H+ (110 P ppm)	M+ (123 K ppm)	A&L MIII	6.2	2012Fa	0.5
2741	L22-2	20	2012-Sp	H+ (103 P ppm)	M (71 K ppm)	A&L MIII	6.2	2012Fa	0.5
2741	L-22-1	13	2012-Sp	VH (150 P ppm)	L+ (40 K ppm)	A&L MIII	5.5	2012Fa	0.5
2741	L-22-3	15	2012-Sp	H (73 P ppm)	M- (56 K ppm)	A&L MIII	5.8	2012Fa	0.5
26000	1	2	2011-Fa	VH (210 P lbs/acre)	VH (983 K lbs/acre)	Virginia Tech	7.4		
26000	2	7	2011-Fa	VH (210 P lbs/acre)	VH (983 K lbs/acre)	Virginia Tech	7.4		
26000	3	6	2011-Fa	VH (226 P lbs/acre)	VH (929 K lbs/acre)	Virginia Tech	7.7		
26000	4	3	2011-Fa	VH (240 P lbs/acre)	VH (633 K lbs/acre)	Virginia Tech	7.3		
26000	5	6	2011-Fa	VH (240 P lbs/acre)	VH (633 K lbs/acre)	Virginia Tech	7.3		
26000	6	7	2011-Fa	VH (329 P lbs/acre)	VH (733 K lbs/acre)	Virginia Tech	7.4		
26000	7	5	2011-Fa	VH (329 P lbs/acre)	VH (733 K lbs/acre)	Virginia Tech	7.4		
26000	A-C	35	2011-Fa	VH (204 P lbs/acre)	VH (910 K lbs/acre)	Virginia Tech	7.5		
26000	D	18	2011-Fa	VH (127 P lbs/acre)	VH (903 K lbs/acre)	Virginia Tech	7.8		
26000	E	28	2011-Fa	VH (163 P lbs/acre)	VH (736 K lbs/acre)	Virginia Tech	7.6		

26000	H1	58	2011-Fa	VH (293 P lbs/acre)	VH (736 K lbs/acre)	Virginia Tech	7.5
26000	H2	9	2011-Fa	H+ (107 P lbs/acre)	VH (319 K lbs/acre)	Virginia Tech	6.6
26000	H3	12	2011-Fa	H (82 P lbs/acre)	H (254 K lbs/acre)	Virginia Tech	6.7
26000	Sub 4-7	9	2011-Fa	VH (240 P lbs/acre)	VH (633 K lbs/acre)	Virginia Tech	7.3
26000	Sub A-C	13	2011-Fa	VH (142 P lbs/acre)	VH (884 K lbs/acre)	Virginia Tech	7.
26000	Sub D	6	2011-Fa	VH (127 P lbs/acre)	VH (903 K lbs/acre)	Virginia Tech	7.8
26000	Sub E	13	2011-Fa	VH (163 P lbs/acre)	VH (736 K lbs/acre)	Virginia Tech	7.6
26000	Sub H	18	2011-Fa	VH (293 P lbs/acre)	VH (736 K lbs/acre)	Virginia Tech	7.5

Manure Production Summary

Manure Name: 8506 Primary

Animal Summary
Feeder Swine: 10500

Manure Storage Capacity: 14234. kgals

Manure Analysis:
TKN: 20.36
P2O5: 35.37
NH4: 8.18
K2O: 7.12

Plant Available Nutrients:
Immediate Incorporation:
13.45 lbs N
35.37 lbs P2O5
7.12 lbs K2O
Surface Applied:
9.77 lbs N
35.37 lbs P2O5
7.12 lbs K2O
Residual N:
yr 1: 1.46 lbs
yr 2: .61 lbs
yr 3: .24 lbs

Manure Production

Dec-Feb	3089
Mar-May	3089
Jun-Aug	3089
Sep-Nov	3089

Total Produced: 12356
Manure Sold/yr: 0
Manure purch./yr: 0

Liquid Manure Production Details

production [kgal/yr] = (# confined)[animals] * (avg wt)[animal-lbs/animal] * (prod factor)[gal/yr/animal-lb] * (0.001)[kgal/gal] + (# confined)[animals] * (waste-water)[gal/day/animal] * (365)[day/yr] * (0.001)[kgal/gal]

Group Name	animal type	%(#) confined	avg wt	prod factor	waste water	production
8506 Wean to Finish	Feeder Swine	100(10500)	145.0	2.74	2.0	11683.4

Net Precipitation Excess

NPE [kgal/yr] = {precip (45.[in/yr]) - evap (41.[in/yr])} * pit/lagoon factor (0.9) * surface area (133225.[sq-ft]) * (1/12)[ft/in] * (7.48)[gal/cu-ft] * (0.001)[kgal/gal] = 672.65[kgal/yr]

Nutrient Management Plan Special Conditions for Virginia Pollution Abatement (VPA) and Virginia Pollutant Discharge Elimination System (VPDES) Permits

September 2011

The following management practices will be utilized for <u>swine operations</u> requiring a VPA or VPDES permit:

1. Soil samples for manure application fields will be analyzed at least once every three (3) years for pH, phosphorus, potassium, calcium, and magnesium in order to maximize the efficient utilization of nutrients. A representative soil sample of each field will be comprised of at least twenty (20) cores randomly sampled throughout the field. Soil sampling core depth will be from 0-4 inches for land which has not been tilled within the past three (3) years, or 0-6 inches for land that has been tilled within the past three (3) years. Soil pH will be maintained at appropriate agronomic levels to promote optimum crop growth and nutrient utilization.

2. Soil test analysis will be performed by one of the laboratories listed below. Soil phosphorus levels must be determined using the Mehlich I or Mehlich III procedure.
   - A&L Eastern Laboratories
   - Agri-Analysis Testing Laboratory
   - AgroLab
   - Brookside Laboratories
   - Logan Labs
   - Midwest Laboratories (must request Mehlich III)
   - Spectrum Analytical Laboratories
   - Virginia Tech Soil Testing Lab
   - Waters Agricultural Laboratories (GA)

3. Representative manure samples will be analyzed at a minimum of once per year for VPA permits and twice per year for VPDES permits for the following: total nitrogen or total Kjeldahl nitrogen (TKN), ammonium nitrogen, total phosphorus, total potassium, calcium, magnesium, and percent (%) moisture. Separate samples shall be taken from all manure sources to be used for application (i.e. under-house, lagoon, compost, etc.). All manure analyses shall be performed using laboratory methods consistent with *Recommended Methods of Manure Analysis*, publication A3769, University of Wisconsin, 2003 or other methods approved by the Virginia Department of Conservation and Recreation (DCR). Manure analysis results will be used to determine actual manure rates that do not exceed the nitrogen and phosphorus application rates specified in the nutrient management plan using either the most recent manure analysis results (not greater than 1 year old) or the facility's average results based on actual manure analysis.

4. All crops will be planted and harvested in a timely manner using commercially acceptable management practices.

5. Make manure applications at or near planting or to existing actively growing crops to ensure that nutrients are properly utilized. Utilize the spreading schedule contained in the nutrient management plan and the spreading schedule in #26 of this document to determine appropriate manure application times and rates. Additional commercial

fertilizer applications (especially nitrogen) should be made as a split application separate from the manure applications, either as a sidedress or topdress application.

6. For permanent hay or pasture, an adequate stand of hay and/or pasture crop species will be established prior to land application of manure. Commercially acceptable stands of the listed species will be maintained and other weeds and grasses controlled. All hay crops will be harvested in a timely and regular manner, removed from fields, and utilized for a suitable purpose.

7. Manure will be applied to application sites in a uniform manner.

8. Do not spread manure within the following setback areas:
   - 100 feet from wells or springs
   - 35 feet from surface waters if the entire setback is a permanent perennial vegetated buffer
   - **OR**
   - 100 feet from surface waters if there is not a permanent perennial vegetated buffer of at least 35 feet in width
   - 50 feet from sinkholes*
   - 50 feet from limestone rock outcrops
   - 25 feet from other rock outcrops
   - 10 feet from agricultural drainage ditches (5 feet if injected)
   - 200 feet from occupied dwellings (unless waived in writing by the occupant)

   *Waste shall not be applied in areas subject to concentrated flow generated by runoff from storm events such that it would discharge into sinkholes in the area.

9. To avoid manure runoff from application fields*:
   - Do not spread manure on soils that are saturated.
   - Do not apply liquid manure (above 85% moisture content) or commercial fertilizers to frozen, ice or snow-covered ground.

   *If runoff is observed, reduce the application rate immediately to prevent overland flow, which reaches buffer areas or accumulates in low-lying areas.

10. For odor control and to reduce drift, avoid spreading on windy days.

11. Liquid irrigation systems will be operated in a manner to prevent runoff into buffered areas and low-lying areas. Use a liquid application rate at or below the specified maximum hydraulic application rate for each field per application. Traveling guns used for irrigation of effluent should be operated in a full circle pattern whenever possible to allow for maximum infiltration. A small wedge shaped area may be left dry ahead of the gun to reduce soil compaction.

12. Spreader calibration is extremely critical to ensure proper application rates. Calibration

of equipment or verification of actual equipment application rates shall occur at a minimum of once per year.

13. New waste storage facilities shall be designed, constructed and operated in accordance with the USDA-NRCS *Field Office Technical Guide* and other appropriate NRCS design criteria.

14. Earthen waste storage structures must be regularly inspected and repaired if leaks, slope failures, excessive embankment settlement, eroded banks, or burrowing animals are detected. A protective cover of appropriate vegetation will be established and maintained on all disturbed areas (lagoon and storage pit embankments, berms, pipe runs, etc.). Vegetation such as trees, shrubs and other woody species are limited to areas considered to be appropriate such as wind breaks or visual screens, and are not to be present on lagoon and storage pit embankments, berms, or pipe runs.

15. New lagoons will be charged to at least ½ of treatment volume capacity with water prior to placement of hogs into production facilities in order to promote biological treatment activity and to reduce odor. When charging lagoons, carefully manage the rate of the water input to avoid damage to lagoon liners.

16. For operations with anaerobic lagoons, pumping shall be managed to maintain the lagoon level between the maximum and minimum operating level. The lagoon level shall be pumped to near the minimum operating level in preparation for the late fall-winter period. The effluent removed shall be uniformly applied, to the designated fields in the nutrient management plan, at or below the maximum rate specified in the plan. Visible markers or another practical method shall be used in new lagoons to indicate the minimum and maximum operating levels based on the lagoon design specifications.

17. Waste discharge from inlet pipe(s) must not have direct contact with clay liner, in order to avoid erosion of the liner. The discharge line(s) must extend past the minimum operating level such that lagoon influent will discharge over the water surface.

18. Waste handling structures, piping, pumps, etc. should be inspected on a regular basis to prevent breakdowns, leaks and spills.

19. Composting of animal mortalities will be conducted in accordance with the latest guidance developed by Virginia Cooperative Extension.

20. Any facility required in the General Permit to monitor groundwater shall monitor groundwater for the following parameters at a frequency of at least once annually: static water level, ammonia nitrogen, nitrate nitrogen, pH and conductivity.

21. Nutrient management plans that contain fields in which row crops will be grown will be revised at least once every three (3) years. Nutrient management plans that contain only hay or pasture fields will be revised at least once every five (5) years. Any such plan revisions will be submitted to DCR for review and approval.

22. This nutrient management plan must be amended or modified and submitted to DCR for review and approval if animal numbers increase above the level specified in the plan; animal types including intended market weights are changed; additional imported manure, biosolids, or industrial waste that was not identified in the existing plan is

applied to fields under the control of the operator; available land area for the utilization of manure decreases below the level necessary to utilize manure in the plan; and/or manure application fields have Mehlich I soil phosphorus levels at or above 55ppm (1 10 lbs/acre) where either cropping systems, rotations, or fields are changed.

23. Minor plan amendments involving changes to the cropping system, crop rotations, specific application fields, manure analysis results or minor fluctuations in animal market weights or animal numbers (10% or less cumulative increases since this original plan was developed) may be made to this nutrient management plan without he prior approval of DCR by the specific certified nutrient management planner that developed this plan. Any such plan amendments must be made prior to subsequent nutrient application to fields impacted by the change. Certified nutrient management planners shall provide a copy of any such plan amendments to DCR within two (2) weeks of the plan modification.

24. All major plan modifications shall be submitted to DCR for review and approval prior to implementing any changes. Major modifications include, but are not limited to, proposed changes to the plan expiration date; increases in animal numbers of greater than 10%; changes in animal type including intended market weight; additional imported manure, biosolids, or industrial wastes not included in the original plan are to be applied; or available land area for the utilization of manure decreases below the level necessary to utilize manure in the plan due to sale of land, expired lease, etc.

25. These conditions do not override any more restrictive plan requirements if required by other specific legislative, regulatory or incentive programs which apply to a specific operator.26. Manure spreading schedule:

CLOSURE OF ANIMAL WASTE STORAGE FACILITIES

When the animal waste storage facility is no longer needed, the owner or operator shall close the storage facility in a manner that minimizes the need for further maintenance, and controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, the post closure escape of uncontrolled leachate, surface runoff, or waste decomposition products to ground water, surface water or to the atmosphere. At closure, the owner or operator shall remove all liquid waste and animal waste residue from the waste storage facility. All devices used to convey animal waste into the animal waste storage facility shall be removed. Removed waste materials shall either be utilized according to this nutrient management plan or disposed of as solid waste according to the requirements of the Virginia Solid Waste Management Regulations, 9 VAC 20-80-10 et seq.

Once the animal waste is removed, the owner or operator is required to follow the procedures outlined below to either backfill the facility or convert the facility to a fresh water pond:

- If the facility will be backfilled, clay liners on interior side slopes will be removed using earth moving equipment or destroyed using sub-soiling equipment and any

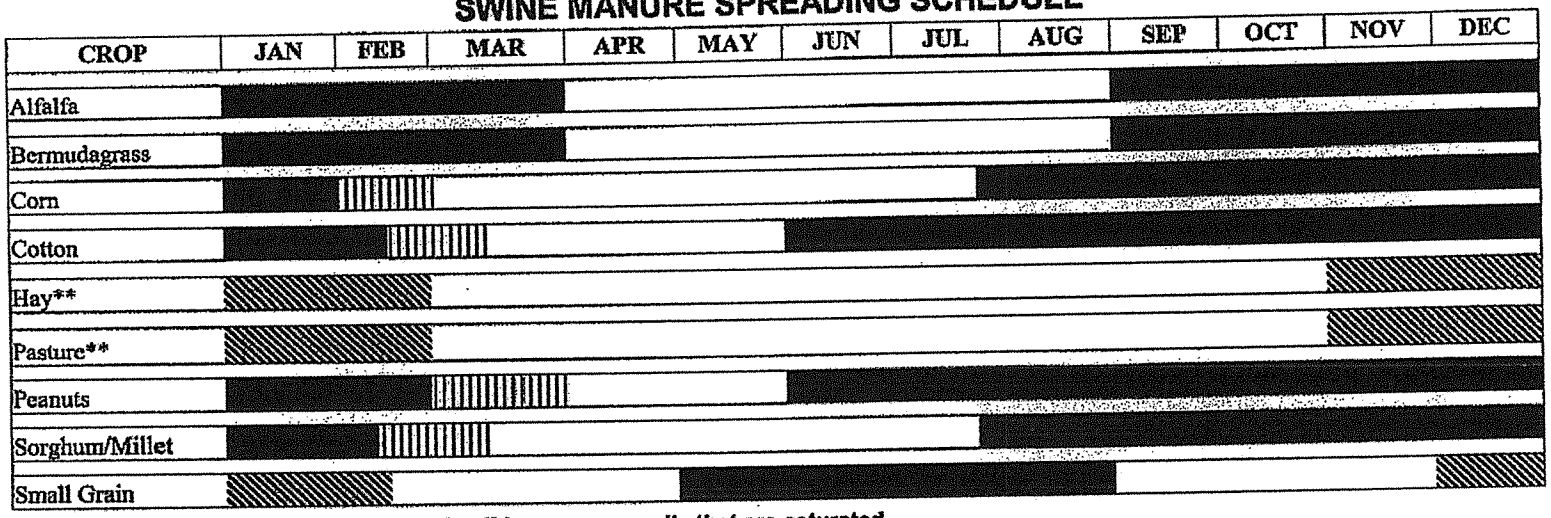
synthetic liners on side slopes will be rolled or folded and placed in the bottom of the structure prior to backfilling. Such liner removal or destruction shall, at a minimum, occur in the area from the top of the structure to a depth of within three feet of the structure bottom or groundwater whichever is greatest in elevation at the time of closure. The storage facility shall be backfilled with clean material. The animal waste storage facility site shall have a final earthen cover that is designed and constructed to: minimize infiltration of rainwater; minimize erosion of the final cover or side slope material; prevent ponding and support a suitable vegetative cover. In order to ensure proper drainage, the final cover shall have a minimum slope of 5%. Following installation, the owner or operator shall maintain the integrity and effectiveness of the final cover, including any repair needed due to settlement, subsistence, erosion or other events and preventing run-on and run-off from eroding or otherwise damaging the final cover.

- If the facility will be converted to a fresh water pond, the structure to be converted shall be reconstructed as necessary to meet the standard specification for ponds (practice #378) as contained in the Natural Resources Conservation Service (NRCS) Field Office Technical Guide and shall include a principle spillway and an emergency spillway if an embankment of three feet or more exists.

The owner or operator shall complete these closure activities within six months after the last date on which animal waste is placed in the waste storage facility unless the nutrient management plan is revised and approved by the Department of Conservation and Recreation (DCR). The owner and operator shall notify the regional office of the Department of Environmental Quality (DEQ) upon completion or grading of the final earthen cover or completion of the converted pond structure.

6. Manure spreading schedule.

SWINE MANURE SPREADING SCHEDULE*



*Do not spread liquid manure, dry or semi solid manure on soils that are saturated.

*Do not spread liquid manure/effluent (above 85.5% moisture content) to frozen, ice or snow covered ground.

*Application of dry or semi solid manure (85.5% moisture content or less) should be avoided on frozen, ice or snow covered ground. If necessary applications may be made to fields that have: (i) slopes not greater than 6.0%, (ii) 60% uniform ground cover from crop residue or an existing actively growing crop such as a small grain or tall fescue with an exposed plant height of ≥ 3", (iii) a minimum 200-foot vegetated or adequate crop residue buffer between the application area and all surface water courses, and (iv) soils characterized by USDA as "well drained".

** Cool season grasses only, Fescue and or Orchardgrass

Spread liquid manure and dry or semi solid manure at the rates and times specified in the nutrient management plan

Do not spread liquid manure and dry or semi solid manure during these shaded months.

Manure applications will not be made earlier than 30 days prior to planting on environmentally sensitive sites.
On fields <u>not listed as environmentally sensitive</u>:

- Liquid manure applications will not occur more than 60 days prior to spring planting.

Manure applications are not recommended during this period (late fall-winter). If necessary uniformly apply a maximum of 3,000 gallons per acre per application. If using an irrigation system apply up to a maximum of a ¼ inch per acre per hour. Do not exceed 40 pounds of plant available nitrogen per acre during this entire period. Allow sufficient drying time between applications. Fields must have greater than 60% uniform live cover with plant height greater than three (3) inches.

Use of hog manure effluent in cropping rotations:

Double-crop sorghum – (planted after Spring harvest of small grain) Effluent applications may begin after the small grain harvest and no more than 30 days prior to planting of the grain sorghum. Effluent applications may continue until ½ of the plants in the field have headed but not later than August 31. Total N applied cannot exceed nutrient needs less the residual N from previous effluent applications, legumes, etc. as defined in Standards and Criteria, revised October 2005.

Soybeans – (double crop and full season) Effluent applications may begin no more than 30 days prior to planting of the soybeans. However, effluent application is not recommended prior to growth stage V6 (six unfolded trifoliate leaves). Nitrogen needs will be established using expected yield for corn based on the soil productivity for the field. Effluent applications may continue until growth stage R6 (full-seed stage) but not later than September 30.