

TEMPLATE FOR PERMIT NUTRIENT MANAGEMENT PLAN

The attached template is designed to assist planners and animal feeding operators in developing permit nutrient management plans that will meet regulatory requirements. The template has been formatted to make the input of information as easy as possible and to insure that required information is included, other tools, knowledge and records will be required to develop the plan. Many of these tools are available from the AWARE web page or in the notebooks that certified nutrient management planners received in their training workshop.

This template provides you with a suggested format that has been reviewed and approved by the Georgia Department of Agriculture and the Georgia Department of Natural Resources Environmental Protection Division. Following the template should help in the development of plans that will be approved by these agencies. However, plan approval is not guaranteed. Other formats and plans may be accepted by these agencies.

This template was developed by the University of Georgia Comprehensive Nutrient Management Task Force.

For more information, please consult the AWARE web page at:
<http://www.engr.uga.edu/service/extension/aware/>
or contact Mark Risse at: 706-542-9067

**PERMIT COMPREHENSIVE NUTRIENT MANAGEMENT PLAN
to
MEET REGULATORY REQUIREMENTS**

Farm Name: _____
 Owner: _____
 Address: _____

Telephone No: _____
 Fax: _____
 E-mail: _____

Farm Physical:
 Address _____
 (if different from above) _____

GPS Coordinates latitude: _____ longitude: _____
 (near manure storage)

“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.”

Owner/Operator _____ date _____

Certified Planner _____ date _____
 GA Dept. of Agriculture # _____

Certified Planner Contact phone _____ e-mail _____

Review:
 GA Dept. of Agriculture _____ date _____

Approval:
 GA Dept. Nat. Res. EPD _____ date _____

Site Location

Directions to Farm (if location map not provided below): _____

Farm Description

Number and type animals, type of buildings, etc.: _____

Do animals have direct access to surface water while in confinement?

YES NO

Attach

- Site Location Map (recommended)
- Soils Map (recommended)
- Topographic Map (recommended)
- Farm Map (required with the following items)
 - Farm property lines
 - Land use - cropland, pasture, etc.
 - Farm field boundaries with field identification
 - Surface water locations including streams, rivers, ponds, ditches, etc.
 - Arrows showing direction of stream or surface water flow
 - Well locations
 - Regulated Buffers
 - North arrow
 - Date prepared
 - Road names or numbers
 - Legend with map symbols
 - Bar scale
 - Any residences or public gathering areas*
 - Environmentally sensitive areas that may be buffered*

*These items recommended

Manure Storage and Handling Facilities Description

(Use a separate form for each structure that holds manure or wastewater)

Type of structure(check one) Manure Slurry Storage Pond Anaerobic Lagoon

Solids Settling Basin Dry Litter Storage Above Ground Tank

Other (describe) _____

*For earthen storage, describe type of liner used (synthetic, compacted clay, none or unknown...). Give design information if available (permeability rate, etc...). _____

Date structure was installed and engineer or design agency (if available) _____

Is the structure designed to hold a 25yr/24hr storm event, above the maximum operating level without intrusion on the freeboard? YES NO

***Total Capacity** and method estimated: gallons, cubic feet (ft³), or tons (if dry storage), give best dimensions available (length, width and depth at maximum liquid level).

***Treatment Capacity** (if structure is not designed for complete removal) _____

***Total Storage Capacity** (days or months based on manure generation) _____

Surface Water Diversions (check one)

All surface water diverted Some surface water allowed into storage

Explain if surface water allowed into storage. (give roof area, animal lot area, grassed area, etc.)

Leakage (prevention and inspection) Are all berms/diversions inspected for leaks, proper vegetative cover, tree growth, and rodent damage at least monthly? YES NO

Operating Levels (liquid systems) Measurements should be made from the top of the berm at its lowest point. IE: the place along the berm or pond edge where a spill or overflow will first occur.

Maximum liquid level (ft below top of berm, at its lowest point) _____

Stop pumping level (ft below top of berm, at its lowest point) _____

Is a staff gauge present in the lagoon, which clearly indicates these levels? YES NO

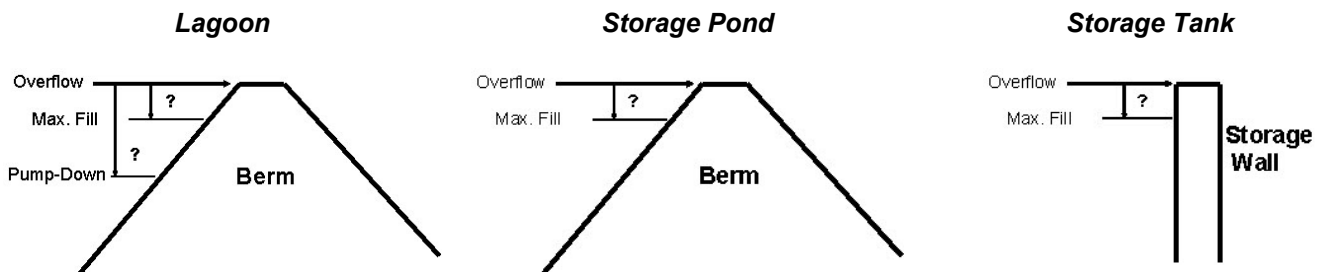
**See figures and explanation in Help Box next page.*

Manure Storage and Handling Facilities Description

HELP BOX

Manure Storage Descriptions

- Complete a “Manure Storage and Handling Facilities Description Form” for each structure on the farm. (For dairies with a solids separator, there would be a form for each lagoon/storage pond and one for the solids separator. For operations with multiple lagoon/storage ponds, one form for each structure.)
- NRCS has issued the following statement related to the subject of liners for older lagoons and storage ponds constructed to NRCS standards. *“No available information on the installation of a liner. Lagoon/storage pond was designed and constructed according to NRCS standards and specifications.”* This statement should be used if NRCS installed the lagoon/storage pond but no information is available.
- Anaerobic Lagoons have a total capacity that is divided into treatment volume and storage capacity. The treatment volume remains in the lagoon at all times and should be more than six (6) feet in depth. The total storage capacity is the volume between the maximum operating level and the stop pumping level. The total storage capacity is the volume that is pumped from the lagoon. The attached figure shows a berm with the Max. Fill and Pump-down levels marked. Always measure down from the top of the berm. Measurements should be made from the top of the berm at its lowest point. IE: the place along the berm or pond edge where a spill or overflow will first occur. *See figures.*
- Manure Slurry Storage Ponds have a total capacity. (Manure Slurry Storage Ponds don’t have a treatment volume.) The total storage capacity is equal to the volume of the storage pond. Since these are usually emptied totally, you should only identify a max. fill level and not a pump-down level. Also, please remember that if you call it a storage here then you must use availability factors for slurry as opposed to lagoon effluent when doing your application rate calculations. *See figures.*



Part A: NUTRIENTS PRODUCED

This section can be completed using actual data or worksheets. If actual manure generation amounts are known and manure analysis has been completed, then this data is preferred. If manure amounts and data from analysis are not available, use number of animals and calculate values for nutrient concentrations and storage/handling losses*. Worksheets or spreadsheets used for calculations or records and analysis may be attached. If not attached briefly describe how these values were determined.

Nutrients Present after Storage and Handling Losses

Total nitrogen: _____ lbs
 Total phosphorus as P₂O₅: _____ lbs
 Total potassium as K₂O: _____ lbs

* These calculations can be obtained from a number of sources including ASAE standards, NRCS field office technical guides, or published design procedures.

Part B: NITROGEN AVAILABLE FOR LAND APPLICATION

All inputs on annual basis.

	Total Nitrogen (lbs) from Part A	Availability Coefficient (based on app. method)	Available Nutrients (lbs)
Lagoon wastewater or slurry			
Lagoon Solids (sludge)			
Dry Manure or Litter			

Comments:

Part C: LAND APPLICATION AND SITE MANAGEMENT

Application Methods

Lagoon wastewater or slurry:

System type: _____

Irrigation frequency: _____ (weekly, monthly, etc)

Other info (flow rates, pipe size & spray diameter): _____

Calibration frequency (annually, every 5 years, etc.): _____

Lagoon solids (sludge):

System type: _____

Application frequency: _____ (yearly, every 5 yrs etc)

Calibration frequency and method (annually, every 5 years, etc.): _____

Dry Manure:

System type: _____

Capacity: _____

Application frequency: _____ (annually, semiannually, etc)

Calibration frequency and method (annually, every 5 years, etc.): _____

Is the application interval equal to or less than the storage capacity? _____

Complete a Nutrient On-farm Nutrient Utilization Table and Nutrient Budget sheets for each field. Attach most recent manure analysis. If nutrient budget worksheets for each field were not attached, then briefly describe how the application rates were determined. An example nutrient budget worksheet is attached to the end of this document.

Table C1 . Annual On-Farm Nutrient Utilization: This Table is for planning and not actual applications. Please record all fields that you intend to use manure on. For each field there should be a corresponding Nutrient Budget Sheet.

Field #	Crop (or rotation if two crops grown in one year)	BMP's used ¹	Sprdbl. acres	App Rate	Annual Manure N Use (lbs) ²	Application Method	Application timing (record season and splits)
Total							

¹: Insert BMP numbers from listing of BMP's in Table C2 or write in additional practices.

²: From Nutrient Budget Worksheets, spreadsheet, or other recommendations.

Table C2: Listing of BMP's used on Land Application Fields

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Plant sampling/tissue analysis 2. Manure injection or incorporation 3. Manure treatments such as alum 4. Conservation or reduced tillage 5. Contour plantings 6. Terraces or other water control structures 7. Critical area plantings/vegetated waterways without manure applications | <ol style="list-style-type: none"> 8. Upslope water diversions or down-slope ponds or retention structures 9. Riparian buffers or filter strips around field perimeter where water leaves field or application area. 10. Winter "scavenger" or cover crops (without nutrient application) 11. Rotational grazing 12. Application timing <ol style="list-style-type: none"> A. no wet weather application B. apply only within 1 month of maximum plant nutrient uptake C. apply in less than 15 mph winds |
|---|--|

Part D: NUTRIENT BALANCE AND OTHER UTILIZATION OPTIONS

- A) Total Manure N Used On-farm _____ lbs. (From Land Application Section)
- B) Total Manure N Generated _____ lbs. (From Nutrient Available Section)
- C) Difference: (A-B) _____ lbs.

Note: If difference is greater than zero, your nutrient balance is complete. If difference is less than zero (negative) then excess nitrogen will need to be transported off-farm. These off-farm uses need to be documented on off-farm utilization record sheets or through other manure utilization agreements.

Table D1: Off-farm Nutrient Utilization Plan

Amount Removed from Farm		Person or company that will purchase or remove manure, and end use.
Amount (tons, gal...)	Total N (lbs)	

Part E: MORTALITY MANAGEMENT

Typical annual mortality rates: _____ animals/yr

* Attach or show calculations used to obtain estimate.

Disposal practice methods:

Burial/Pit	_____ %	Rendering	_____ %
Composting	_____ %	Other	_____ %
Incineration	_____ %		

Please describe other methods: _____

Catastrophic mortality plan: _____

Dept. Agriculture Permit Number (if applicable): _____

Part F: RECORD KEEPING

Records kept on farm:

Yields	Y	N	NA
Soil tests	Y	N	NA
Manure analysis	Y	N	NA
Water quality monitoring (if required)	Y	N	NA
Land application (IRR1&2, SLUR1&2, or SLD1&2)	Y	N	NA
Monthly lagoon/storage/diversions insp. checklist	Y	N	NA
Equipment calibration	Y	N	NA
Equipment maintenance	Y	N	NA
Farm*A*Syst or other environmental assessments	Y	N	NA
Field nutrient budget sheets	Y	N	NA
Off-farm nutrient utilization sheets	Y	N	NA

Comments or additional records kept on farm: _____

Part G: EMERGENCY RESPONSE PLAN

Describe emergency response plan or attach emergency response worksheets. An example of emergency response worksheets are attached at the end of this document.

Part H: CLOSURE PLAN

Briefly describe plans for closure of the manure storage and handling facility: _____

Instructions for completing a Georgia Field Level Nutrient Budget Worksheet

1. Enter data into appropriate blanks in the blue section of the worksheet.
2. Use mouse to click on the button along the left column for additional information on data entry.
3. Click the print button to produce a Nutrient Budget Worksheet

Georgia Field Level Nutrient Budget Worksheet

A Worksheet for Managing the Nutrients in Manures from Georgia's Farms

Producer:	County:	Date:	
Farm #:	Tract #:	Field #:	Acres:
Soil Series:		Surface Soil Texture:	
Planned Crop:		Realistic Yield Expectation:	Units/A
Soil Test Index:	P =	K =	pH =
	(Lb/A)	(Lb/A)	
Manure Type:		Application Method:	
		N	P2O5
			K2O
Crop Nutrients Needs:			Lb/A
Commercial Fertilizer Applications:			Lb/A
Residual N from Legumes:			Lb/A
Manure Nutrient Concentration:			Lb/Ton
Availability Coefficients:			NA
Equivalent Fertilizer Price:	0.34	0.25	0.16
			\$/Lb
Net Manure Nutrient Needs of Crop:			Lb/A
Manure Nutrients Available to Crop:	Please insert your own report		
Fertilizer Value:	from Excel® here.		
			Lb/Ton
			Total =

SAMPLE SPREADSHEET ONLY

Manure application rate for supplying crop :	N needs =	Ton/A
	P2O5 needs=	

<u>N based Application</u>		<u>P2O5 based Application</u>	
<u>Nutrients Applied</u>	<u>Balance</u>	<u>Nutrients Applied</u>	<u>Balance</u>
N			Lb/A
P2O5			Lb/A
K2O			Lb/A

Total manure applied to field based on:	N needs =	Tons
	P2O5 needs =	Tons

* If peanuts or tobacco are included in your crop rotation be sure to test soil following each manure application for recommendations on avoiding nutrient toxicity from high soil concentrations of Zn, or other micronutrients.

* See Farm*A*Syst Publications for information on applying animal waste, especially around streams, wells and on other environmentally sensitive areas.

* When making liquid manure applications, proper irrigation techniques must be used to prevent manure liquids from running off into surface water or leaching into groundwater.

Sincerely,

Name
 Title
 County, District, etc.

General Emergency Action Plan

Farm Name:

Owner/Operator:

Phone Number:

2nd Contact Person if owner/operator is not available:

Name:

Phone Number:

Permit Number (if applicable):

Size and type of operation:

Fire Emergency Response Information

Farm Fire Protection District:

911 Coordinates for farm:

Electrical Power Company Name:

Electrical Power Company Phone Number:

Is there a disconnect between the meter base and the buildings? Y N

If so, where?

Size of Electrical Service:

Do you have a standby alternator? Y N

Give the location (sketch preferable) of electrical panels in buildings:

Propane Company Name:

Propane Company Phone Number:

Location and size of propane tanks:

Other fuels and locations:

Are there hazardous materials stored in facilities: Y N

If yes, provide the location(s) and list of materials:

(If you have any medical conditions the EMS personnel should know about, please list them below):

Name: Condition:

Name: Condition:

Name: Condition:

Emergency Action Plan Checklist

As part of this plan, the following is made available and each employee is trained and aware of the following procedures. Check all that apply:

- Emergency Phone Number List Posted at Each Phone:** An emergency phone notification list, *which includes telephone number of the operator, local offices for fire dept, sheriff dept., EMS, Public Health Office, State Water Quality Agency and State Dept of Agriculture.*
- General Farm Information Sheet and Facility Map:** *Facility layout including location of: telephone locations, location of shutoffs for water, electric, natural gas and propane tanks, re-cycle systems, schematic of waste management system, pumping pits, **areas of no entrance without assisted breathing devices**, hazardous materials, ingress/egress for emergency vehicles, identity of immediately adjacent landowners with emergency phone numbers.*
- Location of Pre-Arranged Emergency Supply Equipment and Supplies:** List of equipment owners, phone numbers and location of individuals and equipment that may be used in an emergency.
- Runoff Retention Plan:** Instructions detailing the **ACTION PLAN** to be taken in an emergency involving runoff of contaminated water that may result from fire or other emergency. *Maps of the facility and surrounding areas including drainage patterns and locations of spoil materials for forming emergency dikes, location of surface waters, waterways, wells, and any other environmentally sensitive areas should also be included.*
- Fire Emergency Information and Response Plan**
- Power Outage Information**
- Personal Information and Medical Emergency Response Procedures:** *Any medical conditions you or your farm personnel may have that emergency medical personnel should be made aware (i.e., diabetes, heart or respiratory problems, medications, etc.).*

Emergency Action Plan (Liquid Manure)

The following is posted, clearly by every phone on farm:

IF There is an EMERGENCY.....

1) Shut off all flow into storage area or lagoon or going out to land application areas

2) Assess the extent of the emergency and determine how much help is needed

3) Contact Farm Supervisors

Name:

Phone #:

Name:

Phone #:

4) Give supervisor the following information:

Your name

Description of Emergency

Estimates of the amounts, area covered, and distance traveled from manure storage

Whether manure has reached ditches, waterways, streams or crossed property lines

Any obvious damage: employee injury, fish kill, or property damage?

What is being done, any assistance needed

5) Contact state environmental protection division, contractors, emergency officials, technical specialists and media, as needed.

a) Georgia Environmental Protection Division-

i) SPILL REPORTING: 800-241-4113

ii) LOCAL OFFICE Phone _____

b) Local County Health Department Phone _____

c) Pumping- Name _____ Phone _____

d) NRCS- Name _____ Phone _____

e) Extension Office- Name _____ Phone _____

f) Consultants- Name _____ Phone _____

Provide directions that anybody can direct someone to the site by telephone.

Complete Post-Emergency Assessment and Documentation or other State reporting requirements.