

Swine Farm Waste Management – Odor Control Checklist

Permit No.: _____

Date: _____

Owner Signature: _____

INSTRUCTIONS FOR USE

- ◆ Odor Control Checklist is required by General Statute 143-215.10C(e)(1)
- ◆ Check any/all the BMPs you will implement on this facility. Items checked/selected become a requirement of the CAWMP.
- ◆ Items in bold or pre-selected are required.
- ◆ Add any site-specific details related to the selected BMPs
- ◆ Include any other odor control measures not listed
- ◆ **NOTE:** Not all BMPs may be cost-effective for every facility. Evaluate each BMP prior to selecting for your facility.

Cause/Source	BMP Option to Minimize Odor	Comments	Site Specific Practices
FARMSTEAD			
◆ Swine Production	<input type="checkbox"/> Maintain vegetative or wooded buffers at or near property boundary	<ul style="list-style-type: none"> • Traps dust and gases, provides dilution and visual screening • May require third party input/approval 	
◆ Improper drainage	<input type="checkbox"/> Grade and landscape so water drains away from facilities and prevent ponding	<ul style="list-style-type: none"> • Reduce odors and vectors that occur with stagnant conditions 	
	<input type="checkbox"/> Maintain farm access roads and prevent traffic in waste application area	<ul style="list-style-type: none"> • Prevents spillage during transport and tracking of waste onto public roads 	
	<input type="checkbox"/> Other BMPs – please describe		

MORTALITY MANAGEMENT

- | | | |
|---------------------------|--|---|
| ◆ Carcass Decomposition | <input checked="" type="checkbox"/> Dispose of mortality using method approved by NCDA&CS State Veterinarian. Manage According to CAWMP (Mortality Management Checklist) and permit(s). | <ul style="list-style-type: none"> • Required by statute and permit • May require third party input/approval |
| | <input type="checkbox"/> Put carcasses in refrigerated (or freezer) dead boxes within 24 hours for short-term mortality storage. | |
| ◆ Incomplete Incineration | <input type="checkbox"/> Use incinerators with secondary burners for complete combustion. | <ul style="list-style-type: none"> • Reduce odors by complete incineration |
| | <input type="checkbox"/> Other BMPs – please describe | |

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HOUSE / BARN – WASTE HANDLING			
◆ Flush tanks	<input type="checkbox"/> Install flush tank covers	• Pit-flush systems	
◆ Odorous Gases	<input type="checkbox"/> Flush pits at least 4 times per day	• Pit-flush systems	
◆ Partial microbial decomposition	<input type="checkbox"/> Empty pits at least once every 7 days	• Pit-recharge or “pull-plug” systems	
◆ Agitation of wastes	<input type="checkbox"/> Underfloor flush with pit ventilation		
	<input type="checkbox"/> Install/extend fill lines to near bottom of tanks with anti-siphon vents		
	<input type="checkbox"/> Install covers on outside waste collection or junction box		
	<input type="checkbox"/> Install sump tank covers for lift stations		
◆ Ammonia	<input type="checkbox"/> Flush/recharge with treated effluent		
	<input type="checkbox"/> Treat waste in pits with proven biological or chemical additive	• Monitor for any solids accumulation in pit	
	<input type="checkbox"/> Other BMPs – please describe		
HOUSE / BARN – FLOOR AND INDOOR SURFACES			
◆ Manure covered floors	<input type="checkbox"/> Scrape manure from alleys into pens daily	• Will move with other manure via pits	
	<input type="checkbox"/> Install fully slotted floor system		
	<input type="checkbox"/> Install waterers over slotted floor area		
	<input type="checkbox"/> Install feeders at high end of solid floors	• Where applicable	
◆ Odorous Gases	<input type="checkbox"/> Scrape manure buildup from floors and walls	• Aids in animal cleanliness	
	<input type="checkbox"/> Keep floors dry	• Aids in animal cleanliness	
	<input type="checkbox"/> Install underfloor ventilation for drying		
	<input type="checkbox"/> Replace bedding/scrape at frequency to keep bedding dry	• Solid floor/bedding systems	
	<input type="checkbox"/> Other BMPs – please describe		

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HOUSE / BARN – VENTILATION			
<ul style="list-style-type: none"> ◆ Dust ◆ Volatile/odorous gases 	<ul style="list-style-type: none"> <input type="checkbox"/> Clean fans regularly – specify frequency <input type="checkbox"/> Efficient air movement <input type="checkbox"/> Install temperature and humidity sensors to control ventilation <input type="checkbox"/> Treat barn exhaust <input type="checkbox"/> Other BMPs – please describe 	<ul style="list-style-type: none"> • Examples: biofilters, wet scrubbing, windbreaks • May reduce ventilation rate depending on method 	
HOUSE / BARN – FEED			
<ul style="list-style-type: none"> ◆ Dust ◆ Adsorbed Gases ◆ Ammonia 	<ul style="list-style-type: none"> <input type="checkbox"/> Install feed covers <input checked="" type="checkbox"/> Keep outdoor feed storage covered except When necessary to add/remove feed <input type="checkbox"/> Minimize free-fall height of dry feed <input type="checkbox"/> Install feed delivery downspout extenders to the feed covers <input type="checkbox"/> Remove spoiled/unusable feed on regular basis <input type="checkbox"/> Feed pellets instead of dry meal <input type="checkbox"/> Use feed additives <input type="checkbox"/> Use feed-reduced crude protein diet <input type="checkbox"/> Other BMPs – please describe 	<ul style="list-style-type: none"> • Required by rule 15A NCAC 02D .1802 • May require third party input/approval • May require third party input/approval • May require third party input/approval 	
HOUSE / BARN – GENERAL			
<ul style="list-style-type: none"> ◆ Dust ◆ Odorous Gases 	<ul style="list-style-type: none"> <input type="checkbox"/> Install temperature and humidity sensors to control ventilation <input type="checkbox"/> Use ultraviolet light to treat indoor air <input type="checkbox"/> Use indoor or outdoor electrostatic space charge system <input type="checkbox"/> Other BMPs – please describe 	<ul style="list-style-type: none"> • Maintain relative humidity at 40 to 65% • Can be used to treat exhaust air 	

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LAGOON / WASTE STORAGE STRUCTURE			
◆ Volatile Gases	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Maintain proper lagoon volume <input type="checkbox"/> Minimize free-fall height of waste from discharge pipe to lagoon surface <input type="checkbox"/> Extend discharge point of pipe to below lagoon liquid level <input type="checkbox"/> Maintain proper surface area-to-volume ratio <input type="checkbox"/> Use correct lagoon start-up procedures <input type="checkbox"/> Aerate for odor control <input checked="" type="checkbox"/> Manage sludge levels based on annual sludge survey as required by permit <input type="checkbox"/> Keep spilled feed or foreign debris out of lagoon to prevent excess sludge accumulation <input type="checkbox"/> Install/use solids separation system <input type="checkbox"/> Use proven biological or chemical additives <input type="checkbox"/> Use permeable lagoon covers (not a digester) <input type="checkbox"/> Use impermeable lagoon cover or anaerobic digester <input type="checkbox"/> Other BMPs – please describe 	<ul style="list-style-type: none"> • Sufficient liquid volume/depth is required for proper anaerobic treatment • Use caution not to scour or damage lagoon liner • Monitor for any increase in rate of solids accumulation • Methane can be flared if not utilized 	

LAND APPLICATION

◆ Odorous gases	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Perform land application in accordance with CAWMP 	<ul style="list-style-type: none"> • Required by rule 15A NCAC 02D .1802 	
◆ Wind drift	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Pump intake near lagoon surface <input type="checkbox"/> Pump from second stage lagoon <input type="checkbox"/> Follow good neighbor policy <input type="checkbox"/> Operate at minimum recommended pressure <input type="checkbox"/> Increase setbacks beyond those required by statute, rule, or permit 	<ul style="list-style-type: none"> • Avoid application on known weekends, special days, or holidays/eves if possible 	

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LAND APPLICATION (CONTINUED)

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| <ul style="list-style-type: none"> <input type="checkbox"/> Apply during favorable wind conditions, (especially for traveling guns or impact sprinklers) <input type="checkbox"/> When practical, apply waste on sunny days rather than cool, overcast days <input type="checkbox"/> When possible, apply waste mid-morning to late-afternoon <input type="checkbox"/> For traveling guns, use taper-ring or taper-bore nozzles <input type="checkbox"/> For traveling guns, use largest-available nozzle that provides acceptable application uniformity <input type="checkbox"/> Replace impact sprinklers with low-drift nozzles on center pivots and linear move systems. <input type="checkbox"/> Use hose-drag system <input type="checkbox"/> Use injection method for waste application <input type="checkbox"/> Other BMPs – please describe | <ul style="list-style-type: none"> • Recommend checking predicted average hourly wind speed within 24 hours prior to anticipated start • Allows for vertical dissipation of odor • Allows for better vertical dissipation of odor • Less odor and drift than ring nozzles |
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SLUDGE DISPOSAL

- | | |
|--|---|
| <ul style="list-style-type: none"> ◆ Odorous gases <ul style="list-style-type: none"> <input type="checkbox"/> Transport sludge in covered vehicles or tankers <input type="checkbox"/> Apply in thin, uniform layers <input type="checkbox"/> Incorporate land-applied sludge as soon as practical after application, and in accordance with permit. <input type="checkbox"/> Use injection method for sludge application <input type="checkbox"/> Dewater sludge prior to application <input type="checkbox"/> Use alternatives to land application, such as compost, gasification, energy generation, etc. <input type="checkbox"/> Other BMPs – please describe | <ul style="list-style-type: none"> • Speeds drying and prevents ponding • Required within 48 hours or prior to next rain event, whichever is first, for conventionally tilled bare soils |
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ADDITIONAL INFORMATION**AVAILABLE FROM:**

Air Management Practices Assessment Tool (AMPAT)
AHG-538-A Certification Training for Animal Waste Management Systems: Type A
EBAE 103-83 – Lagoon Design and Management for Livestock Manure Treatment and Storage
EBAE 128-88 – Swine Production Facility Manure Management: Pit Recharge-Lagoon Treatment
EBAE 129-88 – Swine Production Facility Manure Management: Underfloor Flush-Lagoon Treatment
EBAE Fact Sheet – Calibration of Manure and Wastewater Application Equipment
EBAE Fact Sheet – Swine Production Farm Potential Odor Sources and Remedies
NC NRCS Standard 359 – Waste Treatment Lagoon
NC NRCS Standard 380 – Windbreak/Shelterbelt Establishment
NC NRCS Standard 422 – Hedgerow Planting
NC NRCS Standard 442 – Sprinkler System
Nuisance Concerns in Animal Manure Management: Odors and Flies; PRO107 1995 Conference Proceedings
Options for Managing Odor: A Report from the Swine Odor Task Force

www.extension.iastate.edu/ampat/
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