Tenth Senate Bill (SB) 1217 Interagency Group Guidance Document March 25th, 2026

In an effort to address questions from technical specialists and provide uniform interpretations to technical specialists regarding the requirements of the animal waste management rules, the 1996 session of the General Assembly created an interagency committee. The SB 1217 Interagency Group consists of two (2) representatives from each of the following agencies: the Division of Soil and Water Conservation (DSWC); the Division of Water Resources (DWR), the Department of Agriculture & Consumer Services (NCDA&CS); and Cooperative Extension Service (NCCES), and the Natural Resources Conservation Service (NRCS).

The foundation for this Guidance Document is the previous Guidance Documents developed by the agencies represented on SB 1217 dated June 20, 1995, May 3, 1996, August 9, 1996, January 2, 1997, May 21, 1997, August 18, 1997, the Sixth Guidance Memo, Revision One (January 8, 1998), Revision Two (August 25, 1998), Revision Three (October 29, 1998), Revision Four (April 12, 1998), Revision Five (January 12, 2000), the Seventh Guidance Memo (January 9, 2001), Revision One (March 26, 2003), Revision Two (June 30, 2003), the Eighth Guidance Memo (April 20, 2007), and the Ninth Guidance Memo (October 1, 2009). The committee adopted these documents as the foundation for this and future guidance documents. Outdated items were deleted or brought to current status. Due to the large number of changes and reorganization, the Ninth Guidance will be available online for historical reference, but this Tenth Guidance takes precedence from the date of adoption.

This guidance is intended to address the common issues involved in implementing animal waste management rules and statutes. Additional guidance will be provided as necessary to continue to clarify the issues contained in this memorandum as well as new issues that may arise. The nature of the rules will require judgment on the part of technical specialists.

Guidance developed by the SB 1217 Interagency Group represent guidelines to address questions from technical specialists and provides uniform interpretations regarding requirements of animal waste management rules. However, for areas where no standards exist, DWR acknowledges these guidelines as acceptable criteria to base a Certified Animal Waste Management Plan (CAWMP). Any requested deviations from this guidance must be considered by DWR on a case-by-case basis to ensure that the proposal provides equal or better protection. These guidelines may also be incorporated by DWR as permit conditions for an operation's Individual Permit or General Permit.

If there is a need for any additional information or clarification, please do not hesitate to contact any of the following members of the Senate Bill 1217 Interagency Group:

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1 WASTE UTILIZATION PLANS

1.1 Parts of a Certified Animal Waste Management Plan (except for dry litter poultry – see 5.3)

A waste utilization plan (WUP) is one part of a total Certified Animal Waste Management Plan (CAWMP) as defined in G.S. 143-215.10C. The WUP should be reported in a format comparable to the current Nutrient Management Software developed by the North Carolina Department of Agriculture and Consumer Services (NCDA&CS) and North Carolina Cooperative Extension Service (NCCES). The plan shall be consistent with applicable North Carolina Natural Resource Conservation Service (NC NRCS) Conservation Practice Standard (CPS) 590-Nutrient Management criteria for manure nutrient application rates.

The list below provides references to assist with the development of a CAWMP.

- List of all fields receiving waste by tract number, field number, and acres receiving waste. For irrigated spray fields, show wettable or effective acres as appropriate (see Irrigated Acreage Determination Procedures for Wastewater Application Equipment for Stationary Sprinkler (AG-553-6) or Hard Hose Traveler (AG-553-7) (required by NC NRCS CPS 590)
- Maps of all fields to be used for waste application (required by NC NRCS CPS 590)
- Amount of manure produced and used annually (required by G.S. 143-215.10C)
- Waste application method (required by NC NRCS CPS 590)
- All crops to be grown by field (required by NC NRCS CPS 590)
- Realistic yield expectations (RYE) for intended crops when available and/or applicable. (required by NC NRCS CPS 590)
- Dominant soil series for each waste application field (see county soil survey) (required by NC NRCS CPS 590)
- N application rate by field; based on RYE, actual yields, or NCDA&CS or NCCES recommendation if RYE data is not available (required by G.S. 143-215.10C)
- Amount of Plant Available Nitrogen (PAN) produced and used by the facility.
- Annual N balance which equals pounds of N generated by animals minus pounds of N taken up by crops (N balance must be zero or in a deficit) (required by G.S. 143-215.10C)
- Waste application windows (Appendix 1.1 A, 1.21A, 1.21B, & 1.21C) (required by NC NRCS CPS 590)
- Irrigation parameters where irrigation is used (see Appendix 6.5) (required by General Permit)
- Calibration information (see Field Calibration Procedures for Stationary AG 553-1, Traveler AG 553-2, Stationary and Traveling AG 553-9, Center Pivots & Linear AG 553-3, and Spreaders/Tankers – Weight Area Method AG 553-4 and Load Area Method AG 553-5) (required by General Permit)

- Required specifications from NC NRCS CPS 590 – Nutrient Management listed in Appendix 1.1B
- Emergency Action Plan (Appendix 1.1C) (required by G.S. 143-215.10C)
- Odor Control Checklist (Appendix 1.1D (cattle), 1.1E (swine), or 1.1F (poultry) depending on animal type) (required by G.S. 143-215.10C)
- Insect Control Checklist (Appendix 1.1G) (required by G.S. 143-215.10C)
- Mortality Management Methods checklist (Appendix 1.1H). Waste sampling within 60 days of land application (required by G.S. 143-215.10C)
- Soil sampling at least once every three years for all land application fields: 1) lime requirement, 2) measurement of copper accumulation, 3) measurement of zinc accumulation (required by G.S. 143-215.10C)

In addition to the above items, facilities covered by National Pollutant Discharge Elimination System (NPDES) permits must also include:

- A plan to deal with mass mortality events (required by G.S. 143-215.10C)
- A phosphorus loss assessment using the Phosphorus Loss Assessment Tool (PLAT). The WUP must be updated to show PLAT results, as well as any management changes as a result of PLAT (e.g., No-till, additional land application setbacks, etc.). For example, if a farmer implements no-till on a field in order to reduce the PLAT rating from High to Medium, the no-till practice becomes a requirement of the WUP. In addition, any management changes made to Facilities covered by State Non-Discharge Permits that receive notification from the Division of Water Resources (DWR) requiring PLAT assessments must also demonstrate compliance with Phosphorus Loss criteria.
- Total amount of P produced and used by the facility
- A list of any site-specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants
- Chemical storage and disposal plan
- Mass mortality plan

1.2 WUP Format

All WUPs must contain a table documenting tract name(s) or number(s), field number(s) and/or pull etc., soil type(s), crop(s), application windows, residual legume N credits, N utilized per acre based on RYE, total N utilized in field, and useable/wettable acres in field. All crops receiving waste must be in the table, including interseeded and cover crops. All crops in the rotation receiving waste must be included in the table by field. All fields receiving waste, including those not needed to utilize N (and P for NPDES and other subject facilities as identified by DWR) generated by the animal operation must be included. Plans for sludge application will use the above format.

The narrative in the WUP must explain or clarify information contained in the above referenced table. The narrative must provide additional information needed by the operator and/or inspector to understand N (and P for NPDES and other subject facilities as identified by DWR)

and water balance for the documented cropping system(s) and the animal operation. Exceptions to specific requirements in the WUP must be included.

This guidance pertains to all new or revised WUPs whether on new, expanding, or existing operations.

Nutrient Management Software developed jointly by NCDA&CS, NCCES, NC NRCS, and Division of Soil and Water Conservation (DSWC) is available for preparing WUPs. Find a technical specialist or contact your local NCCES office or the DSWC Technical Services Section for information.

1.3 Validity of WUP approved before February 1, 1993

Approved WUPs that met NC NRCS standards prior to February 1, 1993 meet the operation and maintenance requirements of rule 2T .1300 only if the design specifications in the original plan approved by NC NRCS are being followed. This includes maintaining the original steady state live weight of animals (SSLW). Appendix 1.3 shows the average weight for each class of production from 1996 NC NRCS CPS 633 Waste Recycling.

If the WUP is not consistent with the original NC NRCS approved specifications, a new WUP must be developed to comply with 2T .1300 rules.

1.4 Waste Utilization Plan Revisions (Major Modifications)

Note: Sections 1.4 - 1.6 apply to farms that are covered by State General or Individual permits, except those statements that specifically apply to NPDES permitted facilities. Farms that are covered by NPDES Permits are required to submit any/all WUP changes to DWR and receive approval prior to implementation. Major changes for NPDES permitted farms (as defined by EPA rules) will require public notice and issuance of a new COC or Individual Permit prior to implementation.

A WUP revision or major modification is a required change to an entire plan to meet current applicable standards, current PAN application rates and acceptable WUP formatting. A WUP must be revised if the operation cannot utilize all PAN (Plant Available Nitrogen) generated by the animal production in accordance with the existing WUP, except for the specific conditions noted in the WUP amendment section (see section 1.5).

As of July 1, 2013, some of the N coefficients and PAN generation numbers used to develop WUPs have changed. For most swine facilities, this elective change would result in less PAN generated, and a greater PAN deficit in the WUP. At the same time, many existing WUPs use grandfathered or user-defined RYEs and PAN application rates that are in excess of those currently recommended by the Nutrient Management Software or the NCSU website.

In addition, typical facility-specific wastes sample values may be higher than the updated waste tables “mean” value. If a WUP is revised to include the new PAN generation numbers, the current recommended RYE and PAN application rates must also be used. Thus, the implications of plan modifications using the new tables – whether the proposed modification is a plan Amendment (see section 1.5) or plan Revision (see section 1.4) - should be carefully considered by the producer and the Technical Specialist prior to plan modification.

Preparation of a WUP using on-site Actual Yield and PAN data is allowed, and information is available in Sections 1.16 and 1.23 respectively.

For an existing WUP, a change in crops and/or cropping pattern that utilizes more than 25% of the PAN generated by the operation is considered a plan revision. To determine if a change meets the 25% criteria:

1. Multiply the annual PAN generated by the animals by 25%. For example - a 4,896 head feeder-to-finish operation generates 11,261 lbs PAN/year. Multiply by 25% = 2,815 lbs PAN. Add the amount (2,815 lbs PAN) to the farm's overall PAN deficit to calculate an adjusted PAN deficit.
2. If the adjusted PAN deficit results in a surplus of PAN, any cropping change will require the entire WUP to be revised. If the adjusted PAN balance remains in a deficit, go to the next step.
3. Add the amount of PAN affected by the cropping change to the adjusted PAN deficit. For example - if a producer plans to change a 55.2-acre field of Coastal Bermuda on a Goldsboro soil from hay to row crops, the PAN affected is the maximum lbs of PAN utilized by 55.2 acres Coastal Bermuda hay field. For this example, 16,339 lbs PAN for a GoA soil is added to the adjusted PAN deficit.
4. If the re-adjusted PAN deficit results in a surplus of PAN, the cropping change will require the WUP to be revised. If the adjusted PAN deficit remains in a deficit, the WUP may be amended to reflect the cropping change. See item 1.5 for additional WUP Amendment information.

Change in crops and/or cropping pattern include:

- Change in crop types (e.g. Fescue to Hybrid Bermuda, grass to row systems, etc.)
- Converting from hay to grazing systems. It is not considered a cropping change converting from a grazing to hay system as long as the operation uses the current PAN rate in the WUP.
- Fields affected by "High" PLAT ratings for NPDES farms and other subject facilities as identified by DWR. For example - the 55.2-acre Coastal Bermuda hay field on GoA soils can use 296 lbs PAN/acre but only 80 lbs P/acre for phosphorus removal. Balancing for phosphorus will result in 73% reduction of animal waste PAN that can be applied to the Bermudagrass and equates to a reduction of 11,927 lbs PAN for crop uptake in the overall farm PAN balance.

- Removal of fields that were PLAT rated as “Very High” from the WUP for NPDES farms and other subject facilities as identified by DWR.

Any change to an existing WUP, whether an amendment or revision must incorporate the most current approved Animal Waste Application Windows (see Appendix 1.1A) and must be signed and dated by both the owner and a technical specialist for the new WUP to be valid.

A revision of the WUP only does not require recertification. Recertification is only required for major changes to the CAWMP (Appendix 2.5A). Major changes include but are not limited to:

1. An increase in the number of animals (or decrease in animal numbers due to lack of available acreage and/or receiving crops, and/or an overall farm PAN balance that results in surplus PAN)
2. Change in type of operation (e.g. converting from a feeder-to-finish operation to wean-to-feeder operation - see Section 2.2)
3. Retrofit of an existing animal waste management system (e.g. major repair of dike walls and/or installation of a new component)
4. Installation of a new irrigation system

For systems that have been issued an individual permit or Certificate of Coverage (COC) under a General Permit for Animal Waste, major changes to a facility must first be approved by DWR. The new CAWMP and the certification must be submitted with a request that the permit or COC be amended to reflect the changes. The facility may not make the changes until a new or amended permit or COC has been issued.

If changes are made to an existing WUP, the most recent version of a CAWMP (including the WUP) must be kept on file with DWR, local SWCD office and on the farm.

1.5 WUP Amendments (Minor Modifications)

A WUP amendment or minor modification is a change and/or addition to part(s) of the plan and requires that the change and/or addition adhere to current applicable standards.

- In an existing WUP, a change in crops and/or cropping pattern that utilizes 25% or less of the PAN generated is considered a plan amendment. Adding more acreage to facilitate the change in crops and/or cropping pattern is permissible and considered part of the amendment.
- The addition of winter crops and/or interseeded perennial crops are considered amendments to an existing WUP when the operation can meet the waste system's designed storage capacity (e.g. 180 days) and does not require the additional acreage and/or crops for PAN utilization.
- When a WUP cannot meet PAN utilization requirements due to land lost to irrigation inefficiency (useable versus total acres), then the WUP may be amended to increase available acreage and/or change the crop for N utilization. This is the only exception to

the 25% N criteria for plan revision and does not apply to NPDES facilities effective July 1, 2007.

- Inclusions of emergency action plans, and insect, odor and mortality checklists are considered amendments to the CAWMP.
- Including additional acreage for land application beyond what is required in the existing WUP is considered a plan amendment.
- Any change to an existing WUP must incorporate the most current approved Animal Waste Application Windows (see Appendix 1.1A) and must be signed and dated by both the owner and a technical specialist for the new WUP to be valid.
- Pen and ink changes may be made under the following conditions:
  1. Changes to the WUP fall within the definition of a plan amendment (see above).
  2. For farms operating under State General Permits only. Pen and ink changes are unacceptable for NPDES facilities.
  3. The changes are initialed and dated by the owner and the technical specialist.
  4. The changes are made in the appropriate places in the plan (see Section 1.2).
  5. The nitrogen balance must be brought forward to reflect the change, if applicable.
  6. The changes must be legible and understandable to the technical specialist, the farm's owner/operator and DWR /DSWC permitting and field personnel.
  7. An updated copy must be submitted to DWR Regional Office, local SWCD office and maintained at the farm.

1.6 WUP Temporary Amendment

The producer may secure a temporary one-year amendment (either in table format or as a one-page narrative) attached to the certified plan, which outlines the temporary measures. The temporary amendment must be signed by a technical specialist, kept at the farm, filed with DWR and the local SWCD office, and include the following:

- If temporary crop(s) are needed to replace specified crops, include intended crop(s), related soil type(s), RYE(s) based on current standards, useable acres, N utilized, PLAT rating for NPDES and other subject facilities as identified by DWR, month of application, application rate, tract number, field number, and location;
- Revised PAN balance for the proposed time period;
- Third party lease or receiver agreements when applicable;
- Confirmation statement that irrigation equipment is available and capable to apply waste to temporary crop(s);
- Beginning and ending dates when temporary amendment is applicable not to exceed 12 months.

Note: DWR retains the right to address any plan violations that initially led to the cropping change and temporary one-year amendment.

For example, a producer needs to make a temporary change in cropping pattern from that specified in the WUP. Acceptable reasons may include making improvements to the spray fields (land leveling, upgrading drainage, etc.), unexpected crop failure and inability to replant within specified planting window due to extreme weather events and/or soil conditions, or establishing a crop like Hybrid Bermuda without small grain overseeding during the first year as specified in the plan. Since all receiving crops must be specified in the plan, the plan must be amended for this temporary situation.

Farms covered by an NPDES must submit any Modifications, including temporary waste plan amendments, to DWR for review and receive approval prior to implementation. modifications may require public notice and issuance of a new COC or Individual Permit prior to implementation.

1.7 WUP Changes Required by DWR

DWR will not routinely require changes to a WUP after it is approved by a technical specialist. Plans should be sent to the local SWCD. If there is a discharge from structures or land application sites, standards and specifications are not being followed, or a plan is found to be deficient, DWR may require a change to prevent the problem from reoccurring. Current applicable NC NRCS standards and specifications must be met when the plans are changed as part of an enforcement action.

1.8 Addition of Fields to WUP

When a field is added to the WUP resulting in a land application system change or addition, the field must meet current applicable State and NC NRCS standards, setbacks, and buffers. All new irrigation systems or additions to existing systems installed on fields not previously included in the WUP must be certified and must meet current State and NC NRCS standards, buffers, and setbacks. NPDES facilities must also certify compliance with EPA standards, buffers, and setbacks.

1.9 Multiple WUPs

Even if several dated and signed WUP exist for a facility, the producer shall implement the newest revised WUP signed by a technical specialist and the owner, and on file with DWR, the local SWCD office and at the farm.

1.10 Land Approved for the Application of Manure

A facility shall not apply animal waste on land not approved as part of their WUP. Although a facility may wish to use additional land, manure shall not be applied on owned or leased land unless that land has been evaluated and approved as part of the WUP.

If a facility has more land than is needed for manure application, the owner is strongly encouraged to have all land evaluated and approved as part of the WUP. The additional land may be needed due to system failure or extremely wet weather.

1.11 Wetland Waste Application

Wetlands are considered as waters of the State, therefore, waste application in wetlands is not permitted. If a land application site may have wetlands present, farm owners and technical specialists should seek the assistance of the US Army Corps of Engineers or DWR for an official wetland determination.

1.12 Grassed Waterway Waste Application

Current NC NRCS standards allow application of animal waste on grassed waterways at agronomic rates and at application rates that do not cause runoff or drift from the site.

1.13 Verification of Erosion Rates

When nutrients are applied to fields where erosion exceeds soil loss tolerance levels ("T"), a site evaluation should be conducted, preferably by or under the guidance of a technical specialist with WUP designation, to determine the need for conservation practices to mitigate sediment delivery and surface runoff.

1.14 Subsurface Drainage

Animal waste may be applied to fields with subsurface drainage, provided the quantity of wastewater applied at a given time does not exceed soil water holding capacity in the effective root zone. Owners should be informed of their liability for water quality violations that result from discharge from subsurface drains.

1.15 Crops Grown Other Than Those Specified in the Plan

A permit and/or plan violation occurs if a producer does not have correct crops established (e.g., Hybrid Bermuda) as stipulated in the WUP. The producer must either establish the designated crops or revise the WUP. In the case of Hybrid Bermuda, if the planting date has passed, the producer may plant other crops until next year's planting date. The temporary amendment must be included in the CAWMP on file with DWR, the local SWCD office, and at the farm. In any case, the producer must follow a plan that provides for an N balance between waste application and crop utilization. For NPDES permits, public notice would be required prior to implementation of an alternative crop and P considerations must be included. It is highly

recommended that WUPs for NPDES permitted facilities include alternative options for crop rotations to avoid further delays in planting due to the public comment period.

1.16 Nitrogen loading rates that exceed published RYEs

A certified WUP may contain loading rates higher than RYE; however, the producer and technical specialist must justify higher N application rates through yield records.

DOCUMENTING ACTUAL YIELDS FOR FORAGE CROPS:
Accurate yields for use in a WUP need to be based on data from the wetted acres of an application site. Data must be collected for each harvest and combined to determine an annual total. Count the number of bales harvested from the wetted area of each field, and obtain weights on 10% of all bales, with a minimum of 5 bale weights for each harvest date. These weighed bales must be sampled individually by drilling a 30-inch hay probe in three locations on the side (not end) of each bale. Each composite forage sample per bale will be dried and used to calculate dry matter production. Dry matter of forages can be determined using a household microwave (North Carolina Agricultural Research Service (NCARS) Bulletin 305, Appendix C, pp.142-143) or by submitting the samples to the NCDA&CS Feed and Forage Laboratory for testing. Once percent dry matter is obtained for each bale, average them and multiply the total wet weight from the field by the percent dry matter. This is the dry matter yield for the single harvest. These values will be added to calculate the annual dry matter production, which can be compared to the realistic yield expectation database value.

FORAGE MOISTURE TESTING USING A MICROWAVE:
Procedure:

1) Place 100 grams of forage on a plate.
2) Put a paper towel between the forage sample and a plate to minimize “sweat” from forming on the plate.
3) Put a 10-16 ounce covered glass of water in the corner of the microwave to capture unabsorbed microwaves as the plant tissue dries.
4) Set microwave to HIGH for 5 minutes.
5) After 5 minutes weigh sample & plate and record weight of sample.
6) Change the water and insert sample into microwave for 2 more minutes.
7) Weigh and record sample weight. Repeat steps 6 & 7 until sample weight doesn’t change more than one gram (this means sample is dry).

% Moisture = 100 gram – dry weight gram.
% Dry matter = the last dry weight of sample (assuming 100 grams starting wet).

With experience, you can adjust the time periods and decide whether or not it is necessary to use the glass of water. Usually, the above method will give moisture content that is about 2% more than true sample moisture content. For hay, this procedure takes 10-20 minutes depending upon initial moisture content of sample. Silage samples take 15-25 minutes because

of coarser particle sizes and grain content, which dry slower. Practice this procedure several times before the day you really need it because it takes some practice to get the procedure "fine tuned".

1.17 Use of Soil Sample Report's N Recommendations

For operations with populations that meet the animal type and operation size threshold requirements of G.S. 143-215.10B, it is not permissible to develop a WUP based on the N recommendation for the receiving crop found on a soil analysis report. The WUP must be developed based on the Realistic Yield Expectation (RYE) for the receiving crop and soil type for each land application field.

For deemed permitted facilities, it is strongly recommended to develop a WUP based on the RYE for the receiving crop and soil type for each land application field. (Appendix 5.3).

1.18 Soil Testing for Copper and Zinc

Regulations require soil analysis once every three years for copper (Cu) and zinc (Zn) on fields that receive manure, and require that alternative crop sites be used when these metal levels approach excess levels. When soil Cu or Zn levels reach values in the following table the producer must contact a qualified specialist to discuss options for future manure applications. The levels in the table below were developed by NCDA and can be found in NCDA&CS Agronomic Services Division Circular No. 1 "Crop Fertilization Based on NC Soil Tests".

Zinc and Copper Toxicity Levels in Soils

Metal	Soil Test Index	Recommended Action
Zn	300	Limit application on peanuts. Maintain soil pH ≥ 6.0.
	500	Cease application on peanut land. Maintain soil pH ≥ 6.0.
	2000	Caution: seek alternative site (all crops). Maintain soil pH ≥ 6.0.
	3000	Cease application (all crops). Maintain soil pH ≥ 6.0.
Cu	2000	Caution: seek alternative site (all crops). Maintain soil pH ≥ 6.0.
	3000	Cease application (all crops). Maintain soil pH ≥ 6.0.

1.19 Role of Plant Tissue Analysis in Justifying Additional Waste Applications and/or Extending Application Windows

Plant tissue analysis can be used to justify additional waste applications, when crop nutrient deficiencies are suspected. When utilized correctly, tissue testing provides useful information about crop nutrient status and is an accepted tool for proper waste management. To justify additional N and/or extend the application period, the producer must work with a NCDA&CS Regional Agronomist, an agronomist certified by the N.C. Agricultural Consultants Association (NCACA), or Certified Crop Advisor Program (CCA). The agronomist will collect a plant tissue sample for nutrient analysis in accordance with NCDA&CS guidelines (Appendix 1.19), evaluate the crop maturity, and determine the N requirement relative to growth stage. Following interpretation of the plant tissue analysis, the agronomist can make recommendations, in accordance with NCDA&CS guidelines (Appendix 1.19), for further applications of N and/or to extend the application period. For the major annual receiving crops - corn, soybeans and small grains - suggested guidelines for determining supplemental (above-rate) PAN are given in Appendix 1.19. The suggested PAN supplementation percentages given in Appendix 1.19 may be used for perennial forage grasses and other crops.

The recommendation shall be documented as a temporary Amendment, signed by a designated technical specialist, and kept on file for five years at the farm, the local SWCD office, and the DWR regional office.

During the annual operation review or inspection, the evaluation will establish if the grower is improperly applying high N rates early in the season to establish additional need later. Improper waste management is a violation of the CAWMP and subject to an appropriate enforcement action.

1.20 Documentation of Commercial Fertilizer and Other Nutrient Sources on Land Application Sites

DWR requires that all N sources, including commercial fertilizers, sludges, dry litter, and soil amendments, must be documented in the records for all fields receiving animal waste. **The total N from all sources must not exceed the application rate specified in the WUP.** In addition, all NPDES facilities must document P applications.

1.21 Overseeding Hybrid Bermuda Harvested for Hay or Grazed

For plans written after July 13, 1998, the maximum allowable N rate for any small grain overseeded in Hybrid Bermuda is 100 lbs N/acre above the normal application rate for Hybrid Bermuda. For legacy small grain overseed plans using the maximum 50 lb/N/acre rate, no reduction is required if the small grain is grazed. NCSU and the Interagency Nutrient Management Committee developed criteria for overseeding bermudagrass hay, including waste

application windows and seeding and harvest dates. This criteria can be found in Appendix 1.21A, 1.21B, and 1.21C and must be strictly followed.

To prevent damage to the Hybrid Bermuda stand, the WUP shall specify that the small grain must be harvested before heading or by April 7th, whichever comes first.

1.22 Burning Baled Hay

15NCAC 2D.1903(b)(5) allows for "fires purposely set to agricultural land for disease and pest control and fires set for other agricultural or apicultural practices acceptable to the Department of Agriculture." The practice of burning baled hay does not meet the intent or definition of this exemption since it does not control disease or destroy pests, and therefore is not permissible as an acceptable disposal method.

1.23 Use of Farm Records to Determine PAN

Where adequate records exist, farm records may be used to determine the amount of PAN produced by the facility using the procedure provided in Appendix 1.23, and on-farm records can better represent actual waste generation. Modification of a waste management plan resulting in a PAN reduction would decrease required acreage for waste application. However, when updating the WUP, current RYE, N factors, and waste generation information must be utilized. In cases where liquid waste levels and/or over-application frequently occurs due to shortage of application acres (3 out of 5 years or 2 consecutive years), DWR may require returning to the standard WUP planning process and securing the needed additional acreage.

1.24 N Factors

A nitrogen factor for nitrogen uptake by crop has been selected for each soil type in North Carolina. This value must not be exceeded in situations where new fields are being added to existing WUPs or included in new plans unless justified by a NCDA&CS Regional Agronomist (other qualified professionals identified in item 1.19) based on plant tissue analysis. Where existing plans are being amended (i.e. no new fields being added), using the assigned N factor and RYE is encouraged, but not mandated. When a plan revision or major change occurs current N factors and RYEs must be utilized for all fields in the plan. For an existing WUP, a change in crops and/or cropping pattern that utilizes more than 25% of the N generated by the operation is considered a plan revision, and a major change is a change in the number of animals, type of operation, retrofit of a lagoon, installation of a new irrigation system, and similar type changes. – [15A NCAC 02T .0108(b) and .1304(b)]

1.25 RYE Source

The official source for RYE information is the Interagency Nutrient Management Committee-approved tables. In the absence of RYE info, N rates may be recommended by NCSU or NCDA&CS Regional Agronomists. If no recommendation exists, RYE and N rate data may be inferred from a similar crop on a similar soil until yield data can be collected.

1.26 N Management for Nonharvested Winter Annual Cover

The maximum amount of PAN which may be applied to small grain seeded as a cover crop, or other cover crop mixtures not for harvest is 30 lbs per acre. N application to the next crop must be reduced by the amount applied to the small grain. This reduction must be stated in the waste utilization plan. More details can be found in Applying Animal Waste to Cover Crops (AG-869).

1.27 Sludge Removal Planning

An annual sludge evaluation is required of all lagoons that have been in operation for more than five years on all permitted operations in accordance with DWR's General Permit conditions. Periodic removal of accumulated sludge to preserve the treatment capacity of the lagoon. If sludge accumulation in the lagoon treatment volume exceeds 50% of the planned treatment volume, the sludge should either be removed or the lagoon managed in accordance with an approved sludge management/operation plan as approved by DWR. The sludge accumulation must be documented using methods described in Sludge Survey Methods for Anaerobic Lagoons AG-639 or other worksheets as approved by DWR.

Considerable planning is needed for sludge removal. Periodic sludge removal does not warrant a full revision to the operation's waste utilization plan. For facilities covered under NPDES Permits, a sludge management plan constitutes a major modification, requiring a permit modification prior to sludge removal and application. The 30-day public notice requirement for NPDES Permit applications applies to sludge management plans, so producers should keep this in mind when scheduling sludge removal.

For facilities covered under State Permits, a WUP temporary amendment, approved by a technical specialist, must be developed that outlines the sludge removal and land application procedures to be used based on waste concentrations and volumes. The amendment including calculations, waste application rates, sludge survey measurements, map and other related documents are considered part of the CAWMP; must contain the items noted in section 1.6; and must be based on the following items and/or considerations:

- A representative sludge analysis and liquid analysis taken prior to sludge removal are required to accurately determine the amount of plant available nitrogen (PAN), phosphorus, copper and zinc contained in the waste. Proper sludge sampling techniques

are found in Sludge Management and Closure Procedures for Anaerobic Lagoons AG-604 (Appendix 1.27A).

- A soil sample report for fields proposed to receive the sludge must be obtained (1) within the twenty-four months prior to sludge application and (2) following the last application of waste prior to the proposed sludge application. This report will serve as the basis for estimating persistent metal (copper and zinc) effects on soil indices.
- An evaluation of the lagoon is needed to determine the volume of sludge to be removed. Approved lagoon evaluation and sludge measuring techniques are those described in AG-604 or any other method approved by the DWR. The method of removal will have a significant impact on the volume of liquid to be removed. For example, agitation and pumping will result in waste slurry meaning removal of sludge and liquid, versus dredging which results in sludge and partial liquid removal. The estimation of volume and methodology of sampling should appropriately reflect the physical nature (solid:liquid constitution) of material that will be applied, which may vary greatly depending on the method of removal.
- It is highly recommended that sludge be applied only to fields that are not used for continual animal waste application to prevent phosphorus and persistent metal build-up that may render sites unsuitable for long-term waste application. If the sludge is to be applied on sprayfields already listed in the WUP, the operation's overall PAN balance must include the additional PAN from the sludge and still remain in a PAN deficit for the animal operation.
- It is highly recommended that potential increases in copper and zinc soil levels be estimated during plan development. The DSWC Copper and Zinc Projection Worksheet (Appendix 1.27B) may be used to provide a conservative (maximum potential) estimate for increase in soil index values. [Note: The equilibrated post-application soil index may be less than the projected maximum value. Practical methodology for more precise estimation is not available.] Due to the inherent variability of waste and soil sampling, it is recommended that conservative soil target levels be set for copper (e.g. Cu-I < 700-1000) and zinc (e.g. Zn-I < 300 for land where peanuts may be grown; Zn-I < 700-1000 for other cropland). See section 1.18 for maximum copper and zinc soil index limits.
- New fields receiving animal waste or sludge for the first time must meet current setbacks, buffers and other requirements as described in Sections 1.8 and 8.1.
- Sludge management plans that include drying, further processing, or storage should include details regarding the handling and subsequent disposal/utilization prior to implementation
- For NPDES, and other subject facilities as identified by DWR, a Phosphorus Loss Assessment must be completed and all applicable standards must be met.
- If sludge is applied on conventionally tilled bare soil, the waste must be incorporated into the soil within two days after application on the land. Waste incorporation must also occur before the next rainfall event. This requirement does not apply to no-till fields, pastures or fields where crops are actively growing.

- Sludge application must be balanced with a current waste analysis (waste sample taken and analyzed within 60 days of application) on the SLUR-1 and SLUR-2 forms, or on other forms approved by DWR.
- The permittee is responsible for documenting all sludge applications made to both the owned and leased fields listed in the WUP sludge amendment.
- For sludge transfers, the permittee must document the name and address of the recipient, and volume of sludge removed from the farm. The permittee must provide the third party receiver with a current sludge and liquid analyses and information for proper land application management as required by the farm's permit.
- The third party receiver is responsible for obtaining coverage under the appropriate DWQ permit, and for the documentation and proper land application of the sludge on the approved site(s).
- The sludge plan must be submitted to DWR **prior to** sludge removal activities.

1.28 Combination Haying and Grazing

For fields included in Waste Utilization Plans the rate of N removal for grazing is 25% less than haying, which in general means the N application rate for 'pasture' fields should be 25% less than 'hayed' fields with the same soil and grass type. In situations where the forage is removed through both haying and grazing, technical specialists should apply the appropriate RYE application rate for each harvest method.

For example: The RYE is 6 tons and one hay cutting would harvest 1.5 tons leaving 4.5 tons for grazing.

The calculation would be: 1.5 tons X 50 lbs N/ton + 4.5 X 50 (.75) N/ton = 244 lbs N per acre.

1.29 Recommended WUP Amendment and Recordkeeping Adjustments for Combination Application Systems (e.g. Hose Drag & Traveler)

When combining an irrigation system (e.g. traveler, solid set, linear or pivot system) with a broadcast system (e.g. hose drag or honey wagon) on the same sprayfield, recordkeeping adjustments must be made to properly document and balance the applied nutrients. Generally, broadcast systems are more efficient in coverage and are capable of applying waste to areas not accessible by irrigation systems.

The preferred method of documentation is:

- To have the WUP amended so that a field is divided into subsets (effectively irrigated/wettable acres for irrigation and broadcast acres).
- To set up the application records (IRR2, SLUR-2, etc.) by subset to accommodate the application method and related acreage.

By dividing a field into subsets, the applicator has the flexibility to apply by either method to part of or the entire field, and still balance the applied nutrients on a pounds per acre basis for each subset. When using a hose drag on an entire field, the volume of waste applied (documented through flow meter) must be pro-rated per subset to adequately balance the nutrients. At no point can waste be applied in required buffers and setbacks (see Sections 8 and 9).

1.30 Determining Appropriate Waste Analysis for Waste Transfers

Examples of different scenarios for waste transfer and analysis are listed below. The bottom line is that the waste sample should come from the structure where waste is removed and being land applied.

- Structures operating in series - waste transferred from primary lagoon to secondary lagoon with application from secondary: use waste analysis from secondary for land application records.
- Structures operating in series - waste transferred from several structures to one final structure that serves as source for application: use waste analysis from final structure for land application records.
- Structures operating in series - waste transferred from primary lagoon 1 to primary lagoon 2 (both structures receive solids) with application from lagoon 2: use waste analysis from lagoon 2 for land application records.
- Structures operating in series - waste not transferred from lagoon 1 to secondary pond (or final stage) due to shortage of water: use waste analysis from structure that serves as source for application events.
- Structures not operating in series - waste transferred from structure 1 to structure 2 with application from structure 2: after waste transfer, take waste sample from structure 2 prior to land application and use new waste analysis for land application records. If sample is not taken prior to land application, must use the waste analysis with the highest PAN content of either structure 1 or 2.
- Manure sample should represent the effluent, solids, or sludge transported. For example, if during sludge removal the entire lagoon will be agitation prior to transfer, a sample of the entire core of the sludge and effluent should be sent to lab for analysis. If the lagoon will be dewatered and only sludge transferred, only a core sample of sludge should go to the lab.

1.31 RYE Values for Superior Lines of Seeded Bermudagrass

See Appendix 1.31.

1.32 Animal Waste Application on Turf Sods

See Appendix 1.32.

1.33 N Application to Nonharvested Wildlife Plantings

The maximum amount of P.A.N., which may be applied to wildlife plantings that are not harvested using traditional methods, is 60 lbs per acre per year.

1.34 Digesters and Waste Utilization Planning

Installing a digester on the farm will impact waste utilization planning in the following ways:

- **Case 1: If the primary lagoon or waste storage pond is converted to a digester by installing a cover and no secondary lagoon or waste storage pond is present,**
  - The nitrogen content in the waste will increase over time. This is because the nitrogen loss from the surface of the open lagoon will be eliminated. This increase in ammonia capture will result in greater PAN generated on the farm, which will require more acres to utilize the waste. Based on the available data, the WUP needs to account for twice the amount of PAN compared to the amount before the digester cover installation.
  - Accommodations need to be made to allow for sampling from the digester. Sampling digester influent and effluent is currently a regulatory requirement for the first two years of operation.
  - Sludge survey method will also change because the liquid surface in the digester can only be accessed through the cover ports. The sludge level is typically measured in this case using a sonar. In some cases, the sludge level can be surveyed from other points on the cover if no gas is accumulated under the cover. In this case, the sonar can be placed directly on the cover, especially in areas of pooled rainwater.
  - Because traditional methods of sludge agitation and removal might not be feasible, alternative sludge removal methods will be required. During installation, some digester contractors install sludge removal lines (6” to 8” diameter) at the bottom of the digester. These lines could be connected to pumps to agitate and remove sludge when sludge removal is due.
- **Case 2: If the primary lagoon or waste storage pond is converted to a digester by installing a cover and a secondary lagoon or waste storage pond is present,**
  - The nitrogen content in the secondary lagoon may decrease slightly over time. This is because of the change in waste pH and nitrogen type lead to increased ammonia loss from the secondary lagoon. It is unclear if this change is meaningful enough to impact the amount of PAN on the farm.

        - Most of the waste solids will accumulate in the digester and the secondary lagoon will see a minimal change in its sludge.
        - For influent and effluent sampling and sludge survey and removal, see Case 1
    - **Case 3: If a new structure is added as a digester and the primary lagoon or waste storage pond is still functional to store digester output,**
        - Depending on the digester design, accommodations need to be made to allow for sampling from the digester. Sampling digester influent and effluent is currently a regulatory requirement for the first two years of operation.
        - Sludge monitoring and removal will be dependent on the design of the new digester installed. During the digester permitting and approval process, a Professional Engineer (PE) needs to clearly state how sludge will be monitored and removed. These methods will be included in the operation and maintenance (O&M) plan.
        - Changes to nitrogen content in the waste is identical to Case 2.

2 REGISTRATION AND PLAN CERTIFICATION

2.1 Future Changes to NC NRCS Conservation Practice Standards

It is encouraged but not required to update a CAWMP to reflect technical and management changes within NC NRCS Standards. If a discharge occurs, or there is documentation that surface waters or groundwaters have been impacted, then the facility may be required to update the plan according to the most current technical specifications.

2.2 Farm Status Changes – Change of Ownership, Abandonment, and Reactivation Processes

Change of Ownership
For each change in farm ownership, the new owner must submit a completed Change of Ownership form (Appendix 2.2) to DWR within 60 days of ownership transfer. The Change of Ownership form must be understood, implemented, and a copy placed within the farm records. If the CAWMP is changed, a technical specialist must certify the new plan to meet current standards and specifications for operation and maintenance, and a new certification must be submitted to DWR. Making no changes or only plan amendments (minor modifications) to the WUP does not require a new certification, but it is highly recommended that the new owner signs the cover page of the existing WUP and understands implementation of the CAWMP. The Change of Ownership form must be signed by the previous owner as well as the new owner. If the previous owner is deceased, the executor of the estate or the person with

signatory authority for the estate is to sign on behalf of the previous owner. When a change of ownership is submitted, the new owner must designate an Operator in Charge (OIC).

Change of Operation Type
Prior to making a change in operation type, the following items must be submitted to DWR for approval:

- Permit modification request
- Amended or revised WUP reflecting change in operation type
- Updated Animal Waste Management Plan Certification form (Appendix 2.5A)

Note: Additional components of the CAWMP may be requested by DWR. SSLW conversions should be made based on the table in NC NRCS CPS 359 – Waste Treatment Lagoon.

The facility may change its type of operation once it receives its new permit.

Reactivation Process for Permitted Facilities
Per 02T Rule .1302 and NC Session Law 2015-263 Section 16, permitted facilities that have been out of operation for less than five years, whether below the threshold or no animals on site, may repopulate without going through the permitting process so long as the facility has a valid permit. If there is a change in animal numbers or operation type from the previous permit or COC, the operation must apply for and receive coverage under a new general or individual permit before those changes may be implemented.
Permitted facilities that have been out of operation for more than five years but less than ten years may repopulate only if the facility:

- notifies DWR in writing at least 60 days prior to restocking animals;
- was in compliance with an Individual or General Permit at the time the system ceased operations;
- is issued an Individual or General Permit before animals are brought back onsite;
- has no component of the animal waste management system in the 100-year floodplain (except existing barns or land application sites); and
- does not have an inactive animal waste treatment system that was closed using expenditure of public funds or was not closed pursuant to a settlement agreement, court order, cost share agreement, or grant condition.

The facility must have a valid CAWMP and Operator in Charge (OIC) at the time animals are restocked.

DWR will generally use inspection reports from past years to determine how long a facility has been out of operation. If there is a question about the exact length of time a facility has been out of operation, producers can submit information to provide proof of animal numbers, including, but not limited to:

- Vet Records
- Kill Dates

- Market Sales
- Integrator records

Questions regarding active status by producers who depopulated usually involve distinction between “existing” and “new” systems. 15A NCAC 2T .1302(5) defines a “new” animal waste management system as follows:

> “…animal waste management systems which are constructed and operated at a site where no feedlot existed previously or where a permit for a system has been rescinded and then reissued when the permittee confines animals in excess of the thresholds established in G.S. 143-215.10B. Not withstanding Rule .1307(a) of this Section, a new animal waste management system shall not include a facility where a system serving a feedlot that has been abandoned or unused for a period of less than five years and then put back into service…”

Therefore, an operation will lose its “existing” status and be considered a “new” operation if unused for five or more years. A facility that has been unused for more than five years but less than ten years *may* be considered “existing” if it meets all the criteria described above.

In order to determine the proper categorization as an “existing” or “new” farm, DWR uses the following operating guideline of 10% of the permitted number (capacity), or the permitting thresholds in G.S. 143-215.10B, whichever is less, in making this determination, and the rule is being applied as follows:

> ‘Unused’ means less than 10% of the permitted number of animals, or less than the permitting thresholds in G.S. 143-215.10B on site. Furthermore, consistent with the EPA definition of an “animal feeding operation”, the requisite number of animals must be shown by the operator to have been on site for a total 45 days or more within any 12-month period, or the feedlot will be considered unused for that year.

Any number less than 10% of the permitting threshold is a de minimis attempted use which would not be generally covered by the spirit or intent of the rule; however, a producer is allowed to verify to DWR that his system had been used in order to retain the operation’s “existing” status.

Questions should be directed to the DWR Animal Feeding Operations at (919) 707-9129, with correction requests submitted to the Division of Water Resources – Animal Feeding Operations, 1636 Mail Service Center, Raleigh, NC 27699-1636.

Reactivation of Unpermitted Facilities

Abandoned or below threshold facilities that are unpermitted and wish to stock animal above the thresholds of G.S. 143-215.10B are treated as new operations. For cattle or poultry facilities, a completed application form for the *State General Permit Certificate of Coverage for New/Expanding Operations* must be submitted to DWR, and a permit must be received prior to

construction of any new waste storage structures, or stocking of animals above the threshold numbers. All current applicable NC NRCS Standards will have to be met in order for DWR to issue a permit.

For swine facilities, in addition to NC NRCS Standards, the Performance Standard Rules in 15A NCAC 02T .1307 and .1308 will have to be met. These facilities must submit the application form for the *State Individual Permit for New/Expanding Swine Operations*. A permit must be received from DWR prior to construction or stocking of more than 249 animals. Any new waste storage structures or swine houses will also be subject to the setback requirements of the Swine Farm Siting Act (G.S.106-800 – G.S. 106-806).

If the owner exceeds threshold numbers without notifying and receiving all required approvals from DWR, the owner is subject to enforcement action.

2.3 Conditional Approvals for Certification of New or Expanding Facilities

Conditional approvals will not be accepted as part of an operation's certification for a general or individual permit application. For extenuating circumstances, contact DWR for further guidance.

2.4 Required Documentation for Certifications and Plans

The owner is responsible for obtaining a CAWMP that has been approved and certified by a technical specialist. The owner must send the original signed certification form to DWR. The owner must retain a copy. The approved plan must remain at the farm site and on file with DWR, and on file at the local SWC office.

The components for the CAWMP are listed in Appendix 2.4. Also, see section 1.1.

2.5 Certification Form Requirements

All certifications must be on the DWR Animal Waste Management Plan Certification form (Appendix 2.5A).

Only a technical specialist who has been designated by the SWCC can certify items on the form. In order to sign for an item, the technical specialist must have the corresponding category of designation and should only certify parts for which they are technically competent (Appendix 2.5B).

With the requirements of regulations, it is very important to track the dates each part of the certification process was completed. The certification form was modified to document the date the activity was completed. The current date should continue to be the date the form is signed.

2.6 Separate Ownership with Common Waste Facilities

Operations shall not share common spray fields and/or waste management systems (other than land application equipment) unless they are certified and permitted as one operation under the same ownership.

2.7 Irrigation Systems for New or Expanding Operations

Detailed irrigation plans such as size of nozzles, operating pressures, etc., must be part of the certification process. While this same level of design is not required for existing systems, the waste utilization standard does require the waste to be applied uniformly at approved rates and volumes to prevent runoff. It is the responsibility of the owner to provide a system to meet these conditions and to verify the availability of the equipment, land and vegetation.

2.8 Irrigation Certification of Existing Systems

A technical specialist with the appropriate designation must certify that the existing equipment is capable of applying waste to meet requirements of the CAWMP certification form (Appendix 2.5A - Section II D.), and the equipment is available to use on site (Appendix 2.5A - Section III D.).

Proper calibration of irrigation equipment must be documented every year for NPDES permits and every other year for state permits. The field calibration must show accurate rates of application. For calibration information see NC Extension Publication Field Calibration Procedures for Stationary and Traveling irrigation systems AG-553-6, and Center Pivots & Linear AG-553-3.

New "non-irrigation" waste application equipment does not require certification by an irrigation (I) technical specialist designation under II D, of the CAWMP Certification form. A technical specialist with the WUP/NM designation may certify manure spreader and honey wagon equipment.

2.9 Application and Handling Equipment Certification

A producer must own, have access to, lease or otherwise have a written agreement with a custom applicator for waste application equipment to obtain a CAWMP.

2.10 Modifications to Facilities to House the Certified Number of Swine

Modifications to swine houses can be done without the approval of DWR. However, owners should be aware of the requirements of the Swine Farm Siting Act (G.S. 106-800 – G.S. 106-806). If houses are modified or rebuilt on the same footprint, there are no Siting Act issues.

Regardless of the footprint of the existing swine house, renovation or construction of a swine house shall not be allowed in the 100-year floodplain. If an existing house is expanded or relocated, the Siting Act could come into play if the house is closer to an affected neighbor.

DWR or DSWC can provide guidance to owners that have questions regarding the Siting Act. Owners should be aware that DWR and DSWC are not the enforcement authorities for the Siting Act, and that guidance provided by DWR or DSWC is unofficial.

2.11 Retrofit to Meet Original Registration Number of Swine

As a result of SB 1465 in 2007, swine operations are no longer able to recertify to a higher number of animals. This applies even if the original registration or certification was for a larger number of animals. The legislation (now G.S.§ 143-215.10I) prohibits DWR from issuing a permit that authorizes the expansion of a swine farm, unless the Performance Standard Rules of 15A NCAC 02T .1307 and .1308 are met.

2.12 Digester Specific Considerations

It must be documented that digesters meet the current NC NRCS CPS 366 – Anaerobic Digester and 367 – Roofs and Covers at the time of design and permitting (15A NCAC 02T .1304 and .1305). The producer must obtain a new individual permit or certificate of coverage from DWR to cover the updated facility prior to construction of the digester. Digesters cannot be constructed in the 100-year floodplain. Swine digesters are subject to the Swine Farm Siting Act (G.S.§ 106-800 through 806), which requires the same setbacks for digesters as lagoons.

3 LAGOONS AND WASTE STORAGE STRUCTURES

3.1 Unused Lagoon/Waste Structure Management and Closure

Lagoons/waste structures that are no longer in use shall be either managed to prevent discharge to surface and groundwaters or decommissioned. Either a closure plan or the management of an unused lagoon or waste structure must be managed in accordance with 2T .1300. If a discharge does occur from an abandoned animal waste management structure, the farm owner is subject to enforcement action by DWR. In addition, if a water quality or groundwater problem is identified, DWR will require proper closure of the structure in addition to enforcement action and possible civil penalty.

For abandoned lagoons and waste structures, proper closure at the earliest possible date is strongly encouraged. An unclosed lagoon is a potential safety and environmental danger as well as a liability to the farmer. Official closure includes verification by a technical specialist with proper designation that the work was done according to all aspects of NC NRCS Standards and

specifications, and the completed Animal Waste Storage Pond and Lagoon Closure Report Form (Appendix 3.1) is submitted to DWR within 15 days following completion of the closure.

The regional DWR staff must be notified in writing at least 24 hours prior to the start of closure, which is when waste levels drop below designed stop pump or when sludge dredging begins. For other waste structures, the start of closure is the start of waste removal for the purpose of closure, not routine waste removal. While 24-hour notice is required, a 3–5-day notice, or as soon as reasonably possible, is preferred to facilitate coordination. Once the closure is completed and verified by DWR, the structure is no longer considered part of the waste management system, is deleted off of the state database.

3.2 Lagoon/Waste Storage Structure Closure Plans

Before starting a lagoon/waste storage structure closure, a closure plan outlining the closure process must be developed according to NC NRCS CPS 360 – Waste Facility Closure and submitted to DWR **prior to** start of closure activities. Lagoon/waste storage structure closure plans can take a significant amount of planning to properly handle and apply the waste. A list of steps for developing a closure plan is included in Appendix 3.2. The closure method will have a significant impact on volume and nutrient concentrations of the material removed. Common cleanout methodologies include:

- agitating and combining all liquid and sludge as a slurry
- irrigate the top water off then agitating the remaining liquid and sludge as a slurry, or
- irrigate all liquid off then dredge the sludge for land application.

Closure plans should be developed based on the agreed upon closure methodology. If the methodology changes, the closure plan must be updated to reflect the change prior to starting the closure. **It should always be assumed that a lagoon will be completely emptied and scraped for the purposes of closure planning, and the intent of the standard is to remove as much sludge as is practicable from the structure.** Per NC NRCS CPS 360, if soil stability or other site constraints that prohibit scraping are observed at the actual time of closure, a licensed professional (PE, LSS, PG) shall evaluate the conditions and provide adequate documentation and justification for not scraping. A qualified representative from DWR, DSWC, or NRCS must review the determination and certify it. Documentation should include at a minimum:

- Depth to the actual water table at the time of closure;
- Soil type and characterization;
- Inability to access the site without breaching the structure (for conversions to freshwater; or ponds); and
- Other factors affecting stability

If an issue arises during lagoon closure, the technical specialist should be contacted as soon as possible. Contact DWR if changes are made during the closure process.

Lagoon sludge often contains high concentrations of phosphorus and heavy metals. High levels of these nutrients in soils can adversely affect plant growth or limit future manure application. Extra precautions shall be taken to limit phosphorus and heavy metal application rates. For example, zinc and copper can become toxic to plants and application should prevent accumulation of these metals above the 3000 Zn-I or Cu-I soil thresholds (see section 1.18). Closure plans must address the method in which the impoundment will be decommissioned according to NC NRCS CPS 360 – Waste Facility Closure. For lagoons/waste storage structures closed through breach of the embankment or backfill, a minimum of the WUP/NM technical specialist designation is required. For lagoon/waste storage structures converted to a freshwater pond, a SD/SI technical specialist designation is required.
Inactive farms have had the option to apply for a zero animal permit. This permit has no annual fee, and allows for some reduced conditions, such as the requirement to keep a certified operator. Whether an inactive farm has the zero animal permit or maintains coverage under the General Permit, inactive lagoons or waste structures must be maintained to prevent discharge, and animal waste must be applied in accordance with a CAWMP.

A Swine operation with a zero animal permit can only go back to the original permitted numbers if it meets the following criteria as allowed by S.L. 2015-263, Section 21.(b).

- No part of the inactive animal waste management system was closed using public funds, closed due to a settlement agreement, court order, cost share agreement, or grant.
- For swine operations depopulated less than 5 years.
    - In compliance with current zero-animal permit
    - Applies for and receives new permit with the updated allowable operation type and head count
    - The permit does not allow production, measured by steady state live weight, to exceed the greatest steady state live weight previously permitted for the system.
- For swine operations depopulated more than 5 but less than 10 years that meet all the following:
    - No component of the animal waste management system, other than an existing swine house or land application site, is located in the 100-year floodplain
    - In compliance with current zero-animal permit
    - Applies for and receives new permit with the updated allowable operation type and head count
    - The permit does not allow production, measured by steady state live weight, to exceed the greatest steady state live weight previously permitted for the system.

Swine facilities meeting the above criteria would be required to apply for and receive a new permit prior to bringing animals on site.

Swine facilities that do not meet the above criteria that wish to repopulate with numbers above the permitting threshold would be subject to the Performance Standards for new and expanding swine operations (15A NCAC 02T .1307 and .1308). For swine facilities to repopulate with numbers below the permitting threshold (250), a complete closure would be required prior to repopulating.

As specified in S.L. 2013-413, permitted cattle operations that drop below an average herd size of 100 confined cattle for 3 years may request to have their permit rescinded prior to closure of the lagoon or waste storage structure. However, technical specialists and farm owners should be aware that once the permit is rescinded, the farm would be treated as a new operation if the herd size were to increase back over 100. This would mean that all appropriate NC NRCS Standards would have to be met prior to the expansion. Cattle operations that use this option are still required to prevent discharge and apply waste at agronomic rates until the waste storage structure is closed to NC NRCS Standards as specified above.

Inactive lagoons or waste structures for non-permitted facilities must be properly managed to prevent discharge to surface and groundwaters. The waste does not have to be land applied by an animal waste applicator with a valid OIC license, but it must be applied at no greater than agronomic rates.

3.3 Renovation of Existing Animal Waste Management Systems With No Expansion

If a facility is not being expanded but modifications to the existing waste system are needed to increase its storage or treatment volume, the modifications cannot be made without meeting current appropriate NC NRCS Standards and without updating the existing the Animal Waste Management Plan Certification Form.

Only minor repairs can be made to the structure without recertification. Examples would be work to repair minor erosion or the addition of more soil to the dike to provide greater stability, provided the top of the dike is not raised above the design elevation.

If a new lagoon or waste storage structure is added to an existing treatment system (no increase in SSLW since February 1, 1993) to provide additional treatment or storage and is tied into an existing structure (including connection by pipe or lift station), the existing structure does not need to meet current design standards. While it is encouraged that all-existing structures are upgraded to meet current standards any time there is construction on a site, it is not required. The technical specialist (SD/SI or PE) shall make a determination on the need for structural upgrades during the evaluation of the overall system. If a determination is made by the technical specialist that the existing structure is not endangered by the connection to the new structure(s) and that it is structurally sound, no upgrades to meet current standards are required. In assessing the stability of the structure, the technical specialist should evaluate and document signs of previous discharges, pumping frequency (infrequent pumping suggest leaking), slope stability, and seepage or wet areas along the backside of the dikes. Any upgrades to waste storage structures, other than minor repairs, must receive approval from DWR prior to the beginning of construction.

Any replacement of existing lagoons must meet the requirements of S.L. 2007-523.

3.4 Lagoons in Wetlands or Floodplains

Lagoons shall not be constructed in wetlands or a 100-year floodplain.

3.5 Design Standards

For a lagoon or waste storage structure constructed after February 1, 1993, the design requirements are contained in the NCAC 2T .1300 rules, state Statutes, and NC NRCS and SWCC technical standards in effect on the date of the design completion as documented through NC NRCS design approval, a professional engineer (PE) seal, or a CAWMP certification form (Appendix 2.5A). Only a PE or NC NRCS employee with job approval authority may certify waste structures constructed after February 1, 1993. New construction and/or modification require certification. Certified designs for lagoons and waste storage structures in which construction has not commenced within one year of a design standard change must be constructed according to the current design standards regardless of the original design date and require recertification.

3.6 NC NRCS Policy for Existing Waste Storage Facility Modification

If you request NRCS technical assistance for modification, be advised that there may be specific NC NRCS policy requirements for modifications.

According to NC NRCS policy in effect at the time of this publication, modification of an existing waste storage facility must result in the facility meeting current NC NRCS Standards. In addition, if a modification is made to one structure (as with one stage of a 'two-stage' lagoon system) of a multi-structure waste storage facility, all structures comprising the facility must meet current NC NRCS Standards. Facility operators should be aware that in some cases, it may not be possible to upgrade all structures in the waste storage facility to meet current NC NRCS Standards. If NRCS provided technical assistance for the original waste storage facility, NRCS technical assistance for the modification may be available as time and resources allow. If NRCS did not provide technical assistance for the original waste storage facility, NRCS technical assistance will not be available for the modification, due to the extensive time and resource investment required to evaluate whether the original facility's design and construction meets current NC NRCS Standards.

3.7 Overflow Pipes Used for Emergency Spillways

Overflow pipe(s) in lagoons are acceptable as a lagoon emergency spillway, provided they are properly designed for adequate capacity for the design storm and have a stable inlet and outlet.

3.8 Liquid Levels for Staged Waste Structures

In a staged system where the primary waste structure is gravity fed through a transfer pipe into a secondary structure, the top of the transfer pipe must be set just below the primary structure's structural freeboard elevation**.** The primary lagoon's 25-year, 24-hour storm requirement must be calculated into the second structure's temporary storage. Pipe size must be designed to carry the 25-year storm event without encroaching on the structural freeboard. **Any new lagoon systems using this design must also account for the heavy rainfall factor in both lagoons.**

3.9 Staff Gauges (Waste Level Markers) for Staged Waste Structures

Staff gauge are only required in those structures that do not gravity feed through a free flowing (no valve) transfer pipe into a subsequent structure, and in those structures which serve as the primary source for land application.

Example 1: if waste empties from the house into lagoon 1 that is then gravity fed to structure 2, which is pumped to a solid set system for land application. Structure 2 is required to have a staff gauge.

Example 2: if waste empties from the house into lagoon 1 that is then pumped to structure 2, which is pumped to a solid set system for land application. Both structures (1 and 2) are required to have staff gauges.

3.10 Requirements for Elevation Pumping Markers on Staff Gauges (Waste Level Markers)

NC NRCS CPS 359 – Waste Treatment Lagoon requires staff gauges clearly mark the maximum operating level (often called the "start pump" or "red line"), emergency level (top of operating plus emergency volume), and minimum operating level (often called the "stop pump") in lagoons. Since producers are required to record freeboard and available storage capacity under an animal waste General Permit, it is highly recommended that the gauge enables accurate determination of the distance between the top of dike elevation on the embankment (often the lowest point) and the liquid level.

Waste storage structures designed to be emptied completely would not require a minimum elevation marker. Anaerobic lagoons are designed with a permanent treatment volume, and would require a minimum elevation marker so the permanent treatment volume is maintained.

For digesters, see section 3.16.

3.11 Freeboard for Solids Traps

Some older swine operations had lagoons that were dug pits (no dike walls) and were later converted into solids traps with waste pumped to a newer structure(s) to satisfy retrofit requirements of the waste handling system. These structures are allowed to operate with less than the one foot structural freeboard and 25-year, 24-hour storm event storage requirement if (1) a back-up pump with power source is available in the event of equipment failure to lift waste to a secondary structure, (2) a honey wagon/tanker is available with the capacity to remove waste and lower the structure's waste level back to a compliant level or (3) a secondary containment structure is available to store the waste. For exemption from the one-foot structural freeboard requirement, consideration must be also given to the location of the seasonal high water table, proximity of the solids trap to drainage ways, flushing volumes and frequencies, and other case-by-case circumstances that may affect the system management. Under no circumstances will a solids trap be allowed to operate with a structural freeboard equal to or less than a 25-year, 24-hour storm event. Solids traps are also required to have a minimal dike wall or comparable best management practice (BMP) in place to prevent outside surface water from entering the structure.

3.12 Trees on Embankments

Trees, shrubs, and other woody vegetation must not be allowed to grow on the lagoon/waste storage pond embankments. All trees must be removed in accordance with good engineering practices. Lagoon/waste storage pond areas must be accessible, and vegetation must be kept mowed. Removal of trees does not automatically constitute a retrofit requiring a complete structural upgrade to current standards.

3.13 Proper Use of NC NRCS CPS 359 – Waste Treatment Lagoon

Current NC NRCS Standards allow for design treatment volumes (i.e. Table 6. Livestock Anaerobic Lagoon Criteria) that are lower than in previous standards for farrow/wean, farrow/feeder, and boar/stud operations. However, if current design volumes are used, the current standards for sludge storage, excess water, etc. must also be used to properly utilize the standard. Attempting to use these new volumes on existing operations that have been designed and approved under an earlier standard in order to increase the number of animals will be considered an expansion and all current criteria for expansion must be met.

3.14 Use of Heavy Rainfall Volume in Post ‘96 Designed Lagoons

Lagoons constructed to the NC NRCS CPS 359 – Waste Treatment Lagoon revised in 1996 included an additional storage for heavy rainfall (Appendix 3.14). This storage is located immediately above the temporary storage and is designed to store above average rainfall

events. Encroachment into this storage volume without above average rainfall would not be consistent with the operating procedures of the CAWMP, and would be a violation.

3.15 Lagoon Level Management Option

In preparation for above average rainfall during fall and winter, and to improve crop establishment during fall droughts, some flexibility is offered in managing lagoon levels. General Permits allow for the lagoon level to be lowered 8 inches into the treatment volume (below the stop pump level) during the period of June 15 – October 31. This option is limited to lagoons having a minimum of 4 feet of liquid from the stop pump level to the top of the sludge layer, and 2.5 feet from the pump intake to the top of the sludge layer. All relevant criteria within the operation's permit and CAWMP must be followed.

3.16 Considerations for Digesters

The ultimate responsibility of the operation or failure of a digester and associated waste management system is on the permit holder. It is critically important for the permit holder to understand the implications of installation of a digester on their waste management system, including operation and maintenance, waste utilization planning, and closure. All animal waste farm digester systems must be designed, operated, and maintained as non-discharge systems.

Digester designs vary based on structure design, content mixing, and temperature control. The most common manure digester types include:
[1] lagoon digester,
[2] plug-flow,
[3] mixed plug-flow, and
[4] mixed tank digester.
The first three digester types are in-ground systems while the fourth is an above-ground mixed tank. For information on construction and design requirements, consult NC NRCS CPS 366 – Anaerobic Digester.

The O&M Plan will need to take into account the individual considerations for design and maintenance of the digester. The technical specialist must understand these individual characteristics to operate the digester according to the engineered design. The design engineer must communicate the operation and maintenance requirements to the technical specialist and animal waste operator to ensure optimal performance.

Any structure that does not gravity flow to another waste structure must have a method for measuring waste levels. This method must be included as part of the digester design. Sludge accumulation will reduce the digester effective volume and reduce biogas productivity. Sludge management must be included within the O&M Plan and the WUP (See Section 1.31)

Installing a digester may affect the acreage associated with the facility's existing WUP. The technical specialist and the producer should ensure there is enough acreage to utilize the nutrients generated (See Section 1.31). The footprint and associated setbacks of the digester should be removed from the Waste Utilization Plan if installed on a current land application site.

A digester that serves multiple facilities of the same animal type must have one permit to cover all facilities being served by the digester. This permit requirement is limited to the animal waste treatment system (i.e. digester) and not the biogas management system.

Manure digesters with comingled feedstock sources (e.g. DAF and food waste) are not covered under the Digester State General Permits. This situation would require an Individual Permit.

After installation, DWR must be notified within ten days of biogas capture. A facility that installs a digester must start utilizing biogas within 6 months, and in the interim, biogas must be flared or stored until the biogas is utilized, not vented Session Law 2023-63.

Digester and biogas safety considerations should be included within the O&M Plan, and safety training should be provided to any on-farm personnel and visitors. Biogas is highly flammable, and extreme caution should be exercised when working with a farm that has a digester. "Warning Flammable Gas" and "No Smoking" signs and fencing around the digester perimeter and biogas treatment system is strongly recommended. Upgrades to electrical connections will be required for operating pumps associated with the installation of the digester, and clear signage and appropriate training are critical for farm employees unfamiliar with working around these hazards.

In event of a digester closure, follow the guidance provided in CPS 360 – Waste Facility Closure. Any liner material must be removed at the time of closure. This is important to consider when writing a closure plan, as this can add significant cost to close the digester.

4 NONDISCHARGE RULES AND GENERAL STATUTES

4.1 Zero Discharge During Design Storm

The animal waste collection, treatment storage, and application systems shall be designed, constructed, and operated as a non-discharge system to prevent the discharge of pollutants to streams and ditches in the event of a storm event less severe than a 25-year, 24-hour storm (G.S. 143-215.10C).

The intended flexibility in the Environmental Management Commission's (EMC) current rules is contained in the definition of "animal waste management system" in G.S. 143-215.10B (3). The

definition of animal waste management system is specific to achieving no discharge of pollutants for any storm event less severe than the 25-year, 24-hour storm. Therefore, DWR and the agricultural management agencies agree that, for animal operations existing on June 30, 1995, the rules allow the use of management practices that do not require the containment of the entire runoff volume from the 25- year, 24-hour storm event. All new structures, such as waste storage ponds and treatment lagoons, when used as a component of the primary waste management system, shall be designed for the 25-year, 24-hour storm and the chronic rainfall event according to standards and specifications of the NC NRCS when these new structures are chosen to be part of the waste system (G.S. 143-215.10C). The exemption of a 25-year, 24-hour storm event may not apply to facilities with an NPDES permit. Therefore, it is important to refer to the facility's existing permit.

All liquids from paved areas and milking areas must be collected in a waste storage facility or in some other way treated to ensure no discharge of pollutants in a storm event less severe than the 25-year, 24-hour storm event. For any facility wishing to install a system that does not include a waste storage structure, the alternative system must have equivalent protection and be approved by DWR prior to implementation. DWR may request that a committee made up of a representative from NCNRCS, DSWC, and NCCES assist in this determination.

4.2 Expansions Under 2T .1300

An expansion is an increase in the SSLW of animals on a farm after December 31, 1993 above the amount for which the animal waste management system was previously designed, constructed, or permitted.

An operation may be able to manage a greater waste load by reducing temporary storage period and modifying their WUP to apply waste more often. However, an analysis must show that sufficient temporary volume is available while meeting all remaining NC NRCS CPS 359 – Waste Treatment Lagoon volume and depth criteria. Also with an expansion, the heavy rainfall, excess water and sludge volumes must be included. Facilities are required to have a minimum of 60 days of storage onsite (NC NRCS CPS 313 – Waste Storage Structure). However, this practice is highly discouraged, farm specific, and requires close monitoring and management. It is recommended that all facilities have 180 days of temporary storage onsite.

Swine:
A swine operation may change the type of animals (wean to finish, farrow to wean, etc.) and not be an expansion under 2T .1300 provided the design capacity of the existing waste management system (lagoon, storage structure, etc.) is not increased and is adequate to handle the waste from the larger number of animals. An example would be a system designed for 500 sows, farrow to wean and the owner would like to convert the operation to a wean to finish operation. According to NC NRCS CPS 359 – Waste Treatment Lagoon criteria, the steady state live weight of the farrow to wean operation would be:

500 sows x 433 lbs/sow = 216,500 lbs SSLW

The steady state live weight for wean to finish hogs is 115 lbs/animal and therefore the operation could accommodate:

216,500 lbs SSLW / 115 lbs/finisher = 1882 wean to finish hogs

Any increase in the steady state live weight of this operation over 216,500 would be an expansion under 2T.1300.

As of January 1, 2009, expanding swine operations that raise 250 or more swine must meet the performance standards pursuant to 15A NCAC 02T .1307. The entire animal waste management system must meet these performance standards, not just the portion of the system serving the expanded capacity.

Cattle and wet poultry:
If a permitted **cattle or wet poultry** operation expands, only the new structures required for the expansion are required to meet current design and construction standards and specifications. However, land application of entire volume of waste generated by the operation must meet current applicable NC NRCS CPS 590 – Nutrient Management criteria, including use of the most current N loading rates based on RYE-based or approved actual crop yields for all waste generated. An expansion will also require an updated certification form for the CAWMP. If there are wastewater discharges from a facility or documented surface water or groundwater problems, the facility may be required to apply for an individual or NPDES permit and/or update the plan according to current technical specifications in addition to any other penalties that might be assessed in response to the discharge.

If an existing lagoon or storage structure does not meet current NC NRCS design and construction specifications (NC NRCS CPS 359 – Waste Treatment Lagoon and CPS 313 – Waste Storage Structure) and is connected in any way with a new lagoon or storage structure (including connecting by pipe or lift station), then the old structure must be retrofitted to meet the current standards because it is considered to be part of the new system. The existing waste system can be used as part of the waste handling system without being retrofitted as long as it is not used in series with the new structures required for expansion.

4.3 Innovative Systems

Innovative systems or systems not covered by standard agricultural specifications are not covered by the General Permit and must apply to DWR for an individual permit.
There is no Digester General Permit under the NPDES system. Facilities would need to submit an application for an individual NPDES permit if a digester will be installed.

4.4 Fencing of Animals Out of Creeks

There is no requirement that animals must be automatically fenced out of creeks. Specific guidance is however given in Appendix 5.1A, 5.1B and 5.2. While no regulation require fencing animals out of creeks, any exceedance of water quality standards due to this accessibility would be a violation. In cases not covered by these guidelines, fencing is not required unless the animals' accessibility to the stream results in a surface water quality standards violation. As technical specialists work with facilities, they should evaluate stream access sites and make appropriate recommendation to protect the facility from future enforcement for water quality violations. Additional technical guidance for planning and implementation of management practices that will exclude livestock from environmentally sensitive areas and protect water quality of streams and creeks is available in NC NRCS CPS 472 – Access Control, 382 – Fence , 578 – Stream Crossing, and 391 – Riparian Forest Buffer, available in NC NRCS Field Office Technical Guide Section 4.

5 GUIDANCE BY ANIMAL AND OPERATION TYPES

5.1 Dairies & Beef Feedlots

All operations with 100 or more cattle sharing a feedlot must have a CAWMP and must receive coverage under a permit from the DWR. The number of cattle on a dairy farm is the maximum number of animals that are milked at the site plus any other cattle that are fed and/or contribute waste in the immediate vicinity of the milked cows. An example of a dairy with 100 cattle or more would be designed to milk a maximum of 80 cows with 20 or more other cattle (calves, dry cows, replacement heifers, etc.) that are in the same concentrated area of the dairy as the cows to be milked. An example of a dairy with less than 100 cattle would be designed to milk a maximum of 80 cows but which keeps all other cattle on open pasture with established vegetation separated from the cows that are milked. These cows shall be either fenced on pasture on another part of the same farm on which the milking takes place or on another farm at a different location.

When developing a CAWMP for a dairy or beef feedlot operation, a technical specialist shall develop a complete plan that addresses all water quality issues on the farm, both the confined areas and pastures. The plan shall address the need for stream crossings, stock trails, fencing, rotation of the lounging and feeding areas, as well as any other problem area identified by the technical specialist (Appendix 5.1A).

Although state laws do not define silage runoff as animal waste, discharge of silage runoff to surface waters is prohibited by EPA regulations and can be a serious environmental problem (*40 C.F.R. § 122.23(b)7)* Therefore, as the technical specialist develops the CAWMP, they need to consider silage runoff. As with other sources of waste, every effort shall be made to minimize rainwater that comes into contact with the silage (by the use of gutters, roofs and diversion

ditches). Producers should collect silage leachate or in some other way treat it to ensure only a de minimis discharge of pollutants in a storm event more severe than the 25-year, 24-hour storm event. If filter strips are utilized to treat silage leachate, vegetation must be maintained to effectively treat leachate or collection of the leachate would be necessary.

A cattle operation that has an existing waste storage structure may be certified when the herd is expanded without increasing the size of the waste storage pond. However, the storage structure and WUP must meet current standards. In some cases, the farmer may reduce waste storage time instead of increasing waste storage volume (See section 4.2). This will depend on the type of soil, land availability, crop, flood plain, etc. If the manure can be applied more frequently, the plan could be certified with the existing storage structure.

Guidelines for developing CAWMP for unpaved beef feedlots are provided in Appendix 5.1B.

5.2 Swine Dry Lots

General guidelines for swine on dry lots have been developed (Appendix 5.2). NC NRCS adopted the following publication: Nutrient and Vegetation Management in Outdoor Hog Production Systems.

5.3 Animal Waste Management Plans (AWMP) for Dry Litter Systems

Dry litter poultry systems with 30,000 or more birds are required to develop an AWMP. These plans are required to comply with the testing and reporting requirements included in Appendix 5.3A. Since the statute did not specify that these plans had to be certified by a technical specialist, any qualified person, including but not limited to a technical specialist, can develop them. Included with the guidelines is a third-party applicator agreement that must be signed by each third-party applicator that receives litter from a facility.

Although poultry systems with less than 30,000 birds are not required to develop a AWMP they are required to prevent waste discharges to surface waters and groundwater. They are also encouraged to meet the same minimum standards and specifications as required for approval of the AWMP. DWR may on a case-by-case basis determine that a facility should not be deemed permitted and shall be required to apply for an individual permit.

A 25-foot vegetative buffer is required between the land application area and perennial streams or waterbodies.

In accordance with 15A NCAC 2T .1303(2), litter shall not be stockpiled closer than 100 feet from a perennial stream or perennial waterbody and shall not be stockpiled uncovered for greater than 15 days. If a manure hauler(s) is used, additional records must be maintained (see Section 7.5).

5.4 Producers Using Manure Haulers for Poultry Litter Management

Producers with over 30,000 birds must develop and implement an Poultry Dry Litter Management Plan even if a manure hauler is involved. The producer is still responsible for:

a) contracting with a manure hauler who can properly manage the manure; the producer must have a written agreement with the manure hauler that establishes the responsibilities for the proper management of the manure,

b) keeping a record of the name, address and phone number of the manure hauler,

c) keeping a record of the amount of litter removed by each manure hauler,

d) providing an appropriate waste analysis to the manure hauler,

e) providing a copy of Appendix 5.3B to the manure hauler.

Manure haulers must register with DWR in accordance with 15A NCAC 02T Section .1400 or have an individual manure hauler certificate from DWR to contract with poultry producers. **Information regarding manure hauler requirements and examples of manure haulers can be found in Section 7.4.**

6 WASTE APPLICATION, WETTABLE AND EFFECTIVE IRRIGATED ACRES

6.1 Wettable Acres in a CAWMP

Wettable acres requirements apply to all facilities with irrigation systems. Systems using honey wagons and solid spreaders exclusively will not be affected. Acres which are wetted by an irrigation system with a 50% to 70% of wetted diameter sprinkler spacing or 60% to 90% of wetted diameter traveler lane spacing are considered wettable acres and can be counted in the CAWMP.

Wettable acres for spray fields with irrigation systems having excessive spacing, single pulls or a single row of stationary sprinklers, are limited to that portion of the spray field receiving a more uniform coverage. Wettable acres calculations are based on a width of 90% of wetted diameter for travelers or a single row of stationary sprinklers and 78% of wetted diameter for excessively spaced stationary sprinklers. Any overlapped areas must only be counted once.

Wettable acres determination will be required on operations with

a) more than 75% of the farm's total acres (on a per field basis) credited in the CAWMP as acres receiving waste and

and

c) a farm has a history of over application due to lack of spray field acres and/or the fields have obvious limitations past the 75% rule (i.e. ditches and/or odd shaped areas not irrigable etc.) will be flagged for evaluation.

Any facility that may have difficulty meeting the wettable acres criteria should identify a solution as soon as possible. Upon request by the producer/owner, DWR will work closely with facilities with hardship cases in an attempt to reach an amicable solution for DWR and the producer/owner.

Wettable acres are to be documented on the Wettable Acre Determination Field Data & Computation Worksheets that apply to the irrigation system (see NCCES Publications Irrigated Acreage Determination Procedures for Wastewater Application Equipment, Stationary Sprinklers AG 553-6, Hard Hose Traveler AG 553-7), and signed by the producer and a technical specialist (WA, I, or PE designation). This form, including a wetted acres map becomes part of the waste management plan on file at the SWCD office and farm. Technical Specialists with I or WUP/NM designation attending a full training session on wettable acres may receive WA designation. The Wettable Acres Determination Certification Form is available in Appendix 6.1

6.2 Irrigation Record Keeping Methods

If a producer is keeping adequate records by field, he or she shall be allowed to continue using this record keeping system without penalty. Producers are encouraged to keep records by pull or zone using forms provided by DWR. During the annual inspection or operation review, the inspector or reviewer has the responsibility to determine if record keeping is adequate. If the inspector/reviewer determines that a producer is keeping records inadequately by field, they may require the producer to keep irrigation records either by pull/zone and/or to correct existing records. Acreage and irrigation records must match acreage and irrigation records of CAWMP.

6.3 Maximum Irrigation Amount

The maximum irrigation-loading rate per irrigation event shall be based on soil specific infiltration rates provided through the nutrient management software, web soil survey, or the North Carolina Irrigation Guide (Appendix 6.3). A maximum of no more than one inch per irrigation event per 24-hour period is allowed unless there is evidence, through soil moisture measurements, that the soil is capable of absorbing more effluent in the root zone, and provided no runoff occurs.

6.4 Irrigation Design Criteria

A design crediting effective irrigated acres must be used for installing irrigation equipment. The design must meet the recommendation of NCCES. NCCES recommends a range of 60 to 85% of wetted diameter for lane spacing for travelers and 50 to 70% of wetted diameter for Stationary Sprinkler Irrigation Systems AG 553-6, where columns D, E, and G in Table 1 through 4 provide acceptable sprinkler area allowances for effective wetted acres, and Hard Hose Traveler

Irrigation Systems AG 553-7, where tables NE60 through N75+ provides acceptable area allowances for the traveler end areas.

Effective irrigated acres design requirements must be met for:

1. Irrigation equipment installed on a new spray field after February 1, 1999,
2. New irrigation system on an existing spray field after February 1, 1999, and
3. Underground hydrant lines after February 1, 1999.

In an existing system, replacing equipment with similar items does not require meeting effective design requirements.

For existing spray fields, wettable acre criteria can be used to determine WUP acres even though effective design requirements must be met. When an existing irrigation system is replaced, the new system must be certified by technical specialist with I Designation. A new system on an existing field must meet buffer and setback requirements at the time the original system was installed.

Setback requirements are dependent upon the date the spray field was put into use. Therefore, plan revisions do not require setback changes unless a new spray field is added or expanded as described in Section 8.1.

6.5 Irrigation Design Checklist

A comprehensive checklist has been compiled to assist technical specialists with irrigation system design (Appendix 6.5).

6.6 Calibration Requirements

All waste application equipment, including irrigation systems, hose drag systems, honey wagons, and solid spreaders must be field tested and calibrated to verify operating performance and application amount. Field calibration to verify application amount is required once a year for NPDES permitted facilities and once every other year for state permitted operations.

Irrigation Systems - calibration involves field verification of 1) operating pressure, 2) wetted diameter, 3) flow rate, and 4) application uniformity.

The minimum calibration performance requirements for irrigation systems are:

1. Operating pressure at the sprinkler/gun must be verified using a properly functioning pressure gauge and observed to be operating within the range recommended by the manufacturer or specified in the irrigation design documentation for the equipment being calibrated.

2. Wetted diameter of the system being field calibrated must be measured as described in NCCES Irrigated Acreage Determination publications Stationary and Traveling Irrigation Systems AG 553-6 and Hard Hose Traveler Irrigation System 553-7 and observed to be within 15% of the wetted diameter reported in the manufacturer's chart for the operating pressure observed in (1), AND

3. Flow rate must be determined to be within 10% of the value specified in the irrigation design documentation or as was determined during the wettable/effective irrigated acre determination. Flow rate shall be determined using EITHER –
    a. Flow rate from manufacturer's chart for the measured pressure at the sprinkler/gun (item 1) and measured sprinkler/gun orifice diameter, OR
    b. Flow rate measured with a calibrated flow meter.

4. Application uniformity is deemed to be acceptable when items 1 – 3 above are within the ranges specified.

Note: Flow rate to be reported in column 6 of IRR-2 (item 3 above) should not be calculated from "catch can" measurements as described in NCCES field calibration publications Field Calibration Procedures for Animal Wastewater Application Equipment Stationary Sprinkler AG 553-1, Hard Hose and Cable Tow Traveler AG 553-2 or Center Pivot and Linear Move AG 553-3. The catch can method cannot be used to compute flow rate for IRR-2 because this results in a "double counting" of the evaporative PAN losses during the irrigation process.

Hose Drag Systems - should be field calibrated by measuring ground speed and effective applicator width as outlined in Hose Drag Systems for Land Application of Liquid Manure and Wastewater AG-634, and flow rate using a flow meter as described in 3b above. The application rate can be determined from tables presented in AG-634 and should be verified against application rates specified in the WUP.

Solid Spreaders – should be field calibrated using the Weight-Area Method as described in Weight-Area Method Spreader System AG 553-4.

Honey Wagons – Liquid and semi-solid application equipment should be field calibrated using the Load Area Method as described in Load-Area Method Spreader System AG 553-5

7 PERMITS AND CERTIFICATIONS

7.1 Issuance of Permits to Animal Waste Management Facilities

DWR issues COCs under General Permits and individual permits for facilities with 250 or more swine, 100 or more confined cattle, 75 or more horses, 1,000 or more sheep or 30,000 or more poultry with a liquid waste management system. DWR also issues COCs under NPDES General Permits in accordance with federal rules for some facilities. Facilities with fewer animal numbers may continue to be deemed permitted as long as they remain in compliance. DWR may however require any facility to apply for a permit based on existing or projected environmental impacts, regardless of animal type/numbers.

Regulations dictate no person shall construct a new or expand upon a facility without first receiving a permit from DWR. **New or expanding swine farms must demonstrate that they can meet the Performance Standard rule in 2T.1307-.1308 in order to obtain a permit. Facilities that come into operation above the thresholds, or expand beyond their permitted capacity without a permit are subject to appropriate enforcement actions.**

Owners must contact DWR prior to construction of an animal waste treatment or storage structure. For treatment or storage structure construction on an existing, expanding, or new operation, DWR requires approval of the design before construction begins.

Facilities installing a digester must apply for a State Digester General Permit, State Individual Permit, or an Individual NPDES Permit.

7.2 Truck Washes

Truck washes located on a facility may be deemed permitted or covered under the general permit process as a part of a facility if the truck transports animals from that facility and returns to that facility to be washed, or the truck brings animals to the facility and is washed at the facility.

The animal waste management system must be designed to adequately handle the volume of the waste from the truck wash and no chemical should be added to the truck wash water that would interfere with the treatment system.

Truck washes serving more than one facility are commercial operations and not animal raising operations. Therefore they must apply for and receive an individual permit before they can legally operate.

7.3 Public Livestock Markets

As per G.S. 143-215.10B, public livestock markets are considered animal operations and must be permitted. Therefore, any waste management system serving a public livestock market must be covered by a permit before it can legally operate.

7.4 Manure Hauler Certification

DWR Rules for manure haulers are contained in 15A NCAC 2T Section .1400. A manure hauler is defined as any person who accepts or purchases animal waste and land applies the animal waste on land not covered by the generator's WUP. **Note that the manure hauler rules apply to the party that actually performs the land application. This may or may not be the party that transports the manure from a poultry farm to a 3rd party.**

Manure haulers that land apply 100 tons or less of animal waste per calendar year are deemed permitted as long as they:

- do not have a discharge of waste to surface waters,
- land apply the waste at no greater than agronomic rates, and
- do not land apply the waste closer than 25 feet from perennial streams or perennial waterbodies**.**

Manure haulers that land apply more than 100 tons of animal waste per calendar year are deemed permitted as long as they:

- do not have a discharge of waste to the surface waters,
- land apply the waste at no greater than agronomic rates,
- do not land apply the waste closer than 25 feet from perennial streams or perennial waterbodies,
- do not stockpile animal waste uncovered for greater than 15 days,
- do not stockpile animal waste within 100 feet of a perennial stream or waterbody,
- apply animal waste on fields that have had a representative Standard Soil Fertility Analysis within the past 3 years,
- register with DWR prior to accepting manure, and
- submit an annual report to DWR by March 1 of each year (Appendix 7.4A).

Manure haulers that land apply more than 100 tons but less than 750 tons of animal waste per calendar year must submit an annual report (Appendix 7.4A) that includes their:

- name, mailing address and phone number,
- date, location and amount of animal waste received, and
- date, location, amount, and acreage of all animal waste land applied.

Manure haulers that land apply 750 tons or more of animal waste per calendar year must submit an annual report (Appendix 7.4A) that includes their:

- name, mailing address and phone number;
- date, location and amount of animal waste received; and
- date, location, **application rate**, acreage, **waste analysis, and receiving crop** of all animal waste land applied. Manure haulers that land apply 100 tons or more of animal waste per calendar year are required to submit an annual report (Appendix 7.4A) and a Registration Form for Manure Hauler Operations (Appendix 7.4B). Manure halers that land apply less than 100 tons do not have to register or submit an annual report.

If there are problems with the manure hauler's operation, DWR may initiate an appropriate enforcement action and/or the Director of DWR may determine that the manure hauler should no longer be deemed permitted and be required to apply for an individual manure hauler permit from DWR.

8 SWINE FACILITY SITING REQUIREMENTS

8.1 Setback Requirements

The 100-foot setback from lagoons or houses to property boundaries was required for operations sited between October 1, 1995 and October 1, 1996. This setback was increased to 500 feet for operations sited after October 1, 1996.

G.S. 106-803 requires the following setbacks for swine houses, lagoons, and digesters:

- At least 1,500 feet from any occupied residence
- At least 2,500 feet from any school, hospital, church, outdoor recreation facility, National Park, State Park, historic property, or child care center.
- At least 500 feet from any property boundary.
- At least 500 feet from any well supplying water to a public water system.
- At least 500 feet from any well supplying water for human consumption. This requirement does not apply to a well located on the same tract of land as the swine house or lagoon and that supplies water only for use on that tract of land or for the use on adjacent tracts of land all of which are under common ownership or control.

The setback requirements in G.S. 106-803 do not apply if the facility was permitted and construction began before August 27, 1997. All new or expanding facilities permitted after that date or which began construction after that date, regardless of the permitted date, shall meet the new requirements. G.S. 106-803(b) states that a swine house or lagoon may be located closer than the setbacks listed if written permission is given by the owner of the property and recorded with the Registrar of Deeds.

Land application setbacks are listed in Appendix 8.1.

15A NCAC 02C .0107(a)(2)(J) requires all animal barns and manure piles be at least 100 feet from any water supply well.

15A NCAC 02C .0107(a)(2)(L) requires all waste storage, treatment, or disposal lagoons be at least 100 feet from any water supply well.

New farm digesters are subject to the siting requirements for lagoons set by G.S. 106-803 and 15A NCAC 02C.

8.2 Public Notice for Swine Farms

Effective June 21, 1996, any person who intends to construct a new or expanding swine farm with 250 or more animals shall, after completing a site evaluation and before the farm site is modified, attempt to notify all adjoining property owners and all property owners who own property located across a public road, street, or highway from the swine farm of that person's intent to construct the swine farm. This notice shall be sent by certified mail to the address on record at the property tax office in the county in which the land is located. Written notice shall include:

- The name and address of the person intending to construct a swine farm.
- The type of swine farm and the design capacity of the animal waste management system.
- The name and address of the technical specialist preparing the waste management plan.
- The address of the local SWCD office.
- Written comments may be submitted to: DWR Animal Feeding Operations, 1636 Mail Service Center, Raleigh, NC 27699-1636.

Demonstration of compliance with the Swine Farm Siting Act is required for all new or expanding swine farms.

8.3 Site Evaluations

G.S. 106-802.(4) defines "site evaluation" as an investigation to determine if a site meets all federal and state standards as evidenced by the Waste Management Facility Site Evaluation

Report on file with the SWCD office or a comparable report certified by a PE or by a technical specialist (WUP/NM) approved by the SWCC. The Waste Management Facility Site Evaluation Report is NC NRCS form NC-CPA-17 (Appendix 8.3). A comparable report would be one that contains all of the information on NC-CPA-17.

NC NRCS form NC-CPA-17 contains a condition that the site evaluation is only valid for 12 months from the date the form was signed. SB 1217 (G.S. 106-802.(4)) does not specify a time at which a site evaluation will no longer be valid.

As established by SB 1217 (S.L. 1995-626), exemptions to 'Swine Farm Siting Act' include:

- When construction or enlargement increases the swine population to that predicted in the registration filed with DEQ prior to October 1, 1995.
- When construction or enlargement for the purpose of increasing the swine population to that which the animal waste management system is designed to accommodate as described in a registration of the swine operation filed with DEQ before October 1, 1995, or as described in a CAWMP approved before October 1, 1995.
- When construction or enlargement is for the purpose of complying with animal waste management rules and not for the purpose of increasing the swine population.

8.4 Conversion Factors for Determining Swine Farrowing Numbers

The population of swine on a farm is determined by the number of sows multiplied by 10 for a farrow to finish operation, the number of sows multiplied by 4 for a farrow to feeder operation, and the number of sows multiplied by 2.5 for a farrow to nursery operation. Where boars are unnecessary, they may be replaced by an equivalent number of sows. Any of the sows may be replaced by gilts at a rate of 4 gilts for every 3 sows.

NOTE: The SB 1217 Interagency Group and DEQ have not been given the authority to administer provisions of the Swine Farm Siting Act. Enforcement for the Swine Farm Siting Act is handled through the Civil Court system. The interpretations given above (sections 8.3 and 8.4) reflect internal policies for administering the animal waste system program. If there are questions regarding individual rights or responsibilities under the Act, consideration should be given to obtaining appropriate legal counsel.

8.5 Digester Siting Requirements

Swine digesters are subject to the same siting requirements as swine lagoons by the Swine Farm Siting Act (G.S. §106-803). For information regarding requirements for digester components, see Section 3.16 and consult NC NRCS CPS 366 – Anaerobic Digester.

9 BUFFERS AND PERENNIAL STREAMS

9.1 Defining Setbacks & Buffers

New and expanded animal waste storage and treatment facilities sited after February 1, 1993, such as but not limited to lagoons and waste storage ponds, must be located at least 100 feet from perennial waters unless it can be documented that no practicable alternative exists and that equivalent controls are used as approved by the SWCC (15A NCAC 02T .1304(b)(11)).

When wet waste is applied, an application setback to perennial waters is required as part of the waste application system and nutrient management plan. Perennial waters are indicated on the most recent published version of USGS 7.5 minute topographic maps available online. See Appendix 8.1 for specifics on application setback widths to perennial waters.

North Carolina regulations require that the first 25 feet of the land application setback area adjacent to perennial waters be established as a buffer. Note: there could be variation in setbacks depending on the date of implementation as a swine waste application site (see Appendix 8.1) 15A NCAC 02B .0202 (14) defines a "buffer" as:

> *"a natural or vegetated area through which stormwater runoff flows in a diffuse manner so that the runoff does not become channelized and which provides for infiltration of the runoff and filtering of pollutants."*

The 'buffer' definition provided above is consistent with the definition provided by the NC NRCS CPS 393 – Filter Strip. The Filter Strip standard requires establishing permanent herbaceous vegetation in the first 20 to 30 feet depending on contaminant type. The additional width of the setback, where required, does not have to be in permanent vegetation, and may be in crop production, although the specified waste application setback must be observed.

Filter strip requirements apply to animal waste applied *adjacent* to perennial waters. A setback of at least 100 feet from perennial waters can be considered as not adjacent. If the site has a considerable slope, the distance may need to be increased.

Facilities operating under NPDES permits must implement additional setbacks and/or approved setback/buffer combinations from surface waters and conduits to surface waters (perennial and non-perennial) for waste application activities. See Appendix 8.1 for setback and setback/vegetative buffer options and related width requirements.

Vegetative buffers adjacent to non-perennial waters are recommended but not required for facilities operating under State Non-Discharge Permits. The waste application system must be designed and implemented in a manner that will not allow waste to enter any intermittent stream, canal, or drainage ditch. A suitable distance must be maintained from these water features to prevent wind drift or runoff of waste materials from entering these waters. Other

federal, state or local regulatory authority may supersede the above conditions on non-perennial waters.

9.2 Buffer Design and Waste Structure Setbacks

Where required by NC rules and regulations, buffers must be established consistent with technical guidance provided by applicable NC NRCS CPS 391 – Riparian Forest Buffer or 393 – Filter Strip unless establishment guidance, i.e. width, is specifically established in state regulations. For example, when a filter strip-type herbaceous buffer practice is established to meet state requirements, the width must be a minimum of 25 feet. Also, though the NC NRCS CPS 391 – Riparian Forest Buffer criteria establishes a minimum width of 35 feet, a 'tree buffer' may be established with an effective 25-foot minimum width per state requirements, with tree species selection and establishment guidance provided by the NC NRCS Standard. Setbacks for structures must be measured from the toe of the impoundment to the edge of perennial waters. Setbacks from the land application site must be measured from the areas on the fields where waste is applied (wetted area).

The 2T .1300 buffer requirements only apply to perennial streams and perennial waterbodies as defined in 15A NCAC 2B .0233.

Use the following guidance to assist in making an "on site" determination of whether a field ditch or a canal should have a buffer for waste application.

- Typical field ditches that are above a junction with another ditch (first order) would almost always not require a buffer under 2T .1300. (A hoe drain is not considered a ditch.). Once the site inspection by the technical specialist verifies that the blue line is a first order field ditch, no other evaluation is necessary. Documentation of the field visit must be included in the CAWMP.
- In cases where a ditch is below a junction with another ditch (2nd order or greater) then the technical specialist is responsible for a more extensive evaluation. Factors related to perennial stream flow are 1) occurrence of flow during extreme drought (not dry on an annual basis), 2) drainage area greater than 2 square miles in the coastal plain (excluding the Sandhills), and 3) evidence or knowledge of the previous existence of a natural channel.
- A technical specialist must visit a site and actually evaluate a field ditch or a canal before making the buffer determination. The technical specialist must use the most recent edition of the USGS map(s) to make the required determination. The edition of the map(s) used must be documented.

Note that for NPDES permitted facilities, the above guidance does not apply. EPA rules require that all NPDES permitted facilities maintain setbacks for any surface waters or conduits to surface waters (including ditches).

9.3 How are Distances Measured from Perennial Streams?

Distances from perennial streams should be measured from the top of the stream bank in a horizontal line.

10 TECHNICAL SPECIALISTS

10.1 Liability

Technical specialists can only certify systems and plans that meet the appropriate minimum criteria. If for some reason a producer cannot obtain a certification from a technical specialist, then the producer must modify the system so that it can be certified.

Technical specialists are subject to lawsuits. The State Attorney General's office can only defend state employees.

Technical specialist designation categories are shown in Appendix 2.5B.

10.2 Professional Engineer Seals

In accordance with guidance received for the North Carolina State Board of Examiners for Engineers and Surveyors, a valid NC PE license is required to seal any part of the certification which they sign and any part of the plan that they design.

10.3 Decertification of Technical Specialist

The responsibility for technical specialist designation lies with the SWCC. Written complaints shall be directed to the Director of the DSWC and will be handled through a process established by the SWCC.

02 NCAC 59G .0104(j) - "Upon a finding by the Commission that the work of a technical specialist designated pursuant to this Rule fails to comply with the requirements of 15A NCAC 02T .1300, this Subchapter, or the NRCS [Field Office] Technical Guide, or that a technical specialist has submitted false data in the course of his or her work, the Commission may withdraw its designation of the technical specialist in any or all categories, taking into consideration the severity of non-compliance, the extent and significance of any false data submitted, and the specialist's history of non-compliance. In addition, technical specialist designation shall be rescinded by the Commission for failure to complete the approved additional training by the end of each three-year period."

11 OPERATOR CERTIFICATION REQUIREMENTS

11.1 What Facilities are Required to Have a Certified Operator?

All facilities with 250 or more swine, 100 or more confined cattle, 75 or more horses, 1,000 or more sheep or 30,000 or more poultry with a liquid waste management system must have a certified OIC. The OIC must be a certified animal waste operator for the entire system so an OIC is required at permit issuance even if land application will not occur until some later date. A facility shall notify DWR within 30 days after a new OIC is designated using the OIC designation form (see Appendix 11.1A). It is strongly encouraged that facilities designate a backup OIC.

The Attorney General's Office advises that "animal operations not producing liquid residuals … are not required to designate a certified operator…" and "…systems utilizing only nonstructural practices (for the management of animal waste) are exempt from the requirement to have a certified operator" (Appendix 11.1B).

More information can be found at DWR's website for the Certified Animal Waste Operator program.

11.2 What Certified Operator Designation is Needed?

The type of certified animal waste operator required for a facility is determined by the classification of the facility. This is either Type A for monogastric animals producing low fiber waste, or Type B for ruminants and other animals that produce high fiber waste. (15A NCAC 08F .0301)

Animal Waste operators are subject to the Water Pollution Control System Operator Certification Commission (WPCSOCC).

To become a certified animal waste operator, individuals must complete the approved training program for Type A or Type B, provided by NCCES, and pass an examination by the NC Animal Waste Operator Certification Program. (15A NCAC 08F .0401)

Digesters as part of the animal waste management system, require a trained operator, and therefore it is highly recommended that the designated Operator in Charge (OIC) complete the digester training titled: "Anaerobic Digester (Initial Course NCSU)". This course provides the operator with 2 hours of continuing education. If a different operator is hired to manage the digester, the OIC is still responsible for proper operation and compliance of the animal waste management system, including the digester. Contact local NCCES for the digester training.

Certified OICs must renew each year and complete 6 hours of continuing education every 3 years. (15A NCAC 08F .0405)

11.3 Disciplinary Actions for Certified Operators

The WPCSOCC may suspend or revoke a certificate or may issue a written reprimand to an operator if it finds that the operator has practiced fraud or deception; that reasonable care, judgment, or the application of his knowledge or ability was not used in the performance of his duties; or that the operator is incompetent or unable to properly perform his duties. (§ 90A-47.5)