Appendix H

NPDES CAFO Nutrient Management Plan Review Checklist

Introduction

This checklist is a tool to guide the review of a nutrient management plan (NMP) submitted with a National Pollutant Discharge Elimination System (NPDES) permit application or notice of intent (NOI). The checklist supports the permit writer's determination of whether the NMP adequately addresses each of the nine minimum practices required in the regulations. That determination should be based on an assessment of the following for each minimum practice:

1. Are the practices and procedures identified in the NMP sufficient to prevent discharges to surface water?
2. Are the practices and procedures adequate to support identification of NMP terms for the permit?

The checklist is focused on the fundamental concepts necessary to evaluate whether an NMP addresses the regulatory requirements (e.g., NPDES minimum standards and effluent limitations guideline (ELG) requirements). The checklist is organized into three parts: (1) Part A – Basic Facility Information, (2) Part B – Nine Minimum Practices and Associated Information, and (3) Part C – Plan Adequacy. Associated information in Part B includes information associated with each minimum practice and is used to help to determine if the plan meets the requirements of the minimum practices. For example, crop information is necessary to review the protocols for land application of manure and wastewater minimum practice.

Using the Checklist

The checklist has been designed to serve as a tool for use in determining whether an NMP addresses the ELG requirements (where applicable) and NPDES NMP minimum practices. It also addresses the information needed to identify the terms of an NMP as defined by EPA. The checklist was designed to cover a variety of NMPs and operations; as such, it should cover most common situations a permit writer will encounter. However, specific operational characteristics can vary widely depending on animal sector, climate, state requirements, and other factors. Permit writers should be aware of the characteristics of a typical CAFO in their area and, if needed, revise the checklist to improve its utility in evaluating NMPs for a specific state or region.

Although the checklist is intended for use by permit writers in evaluating NMPs, the completed checklist for a facility should be saved in the permit file and be made available as a reference for the CAFO inspector to review before conducting a compliance inspection. The checklist information would enable the inspector to document changes that have occurred at the operation since the permit was issued and verify that they are reflected in the current NMP.

The determination of whether an NMP addresses the nine minimum practices often will be based on best professional judgment. Even where a plan appears to address each of the nine minimum practices, a poorly developed plan could be an indicator of a potential future permit violation. Further, as described in Chapter 4 of this Manual, broadly applicable permit could be captured as terms and conditions of the permit and therefore might not necessarily be addressed in the operation's NMP.

NPDES CAFO NMP Nine Minimum Practices Review Checklist

Part A **Basic Facility Information**
Documents location information and basic information about the type and size of the operation.

Part B **Nine Minimum Practices**
Documents critical information and terms specific to each of the NMP nine minimum practices, including information associated with or necessary to review how the plan addresses each practice.

Part C **Plan Adequacy**
For use by the plan reviewer to document an overall determination of plan adequacy.

Note: Some of the information in the checklist might apply to Large CAFOs only. For additional details, consult the regulations.

Part A – Basic Facility Information

1. Facility Identification

- Operation Name:_____
- NPDES permit number:_____

2. Plan Preparer Certification

- Did the plan preparation involve certified technical specialists? ..... ☐ Yes ☐ No
- Are the name and certification credentials of the plan preparer identified in the plan? ..... ☐ Yes ☐ No

3. Type of Operation

- Is the operation ☐ Large CAFO ☐ Medium or Small CAFO ☐ Other (non-CAFO)
- Is the operation ☐ Open lot ☐ Partially enclosed ☐ Fully enclosed

  Notes: _____
  _____
  _____

- Does the description of the facility in the plan reflect the description of the facility in the application/NOI/fact sheet/permit? ..... ☐ Yes ☐ No

4. Facility Location

- Street Address (mailing):_____
- City, State, ZIP:_____
- Does the plan include maps that identify
  - (1) The location of the production area, including confinement areas, manure and wastewater handling and storage areas, and raw material handling and storage areas)? ..... ☐ Yes ☐ No
  - (2) All land application areas owned or under the ownership, rental, lease, other legal arrangement of the CAFO operator, including topography and soil types? ..... ☐ Yes ☐ No
  - (3) Environmentally sensitive areas (sinkholes, wells, drinking water sources, tile drain outlets, etc.) for the production and land application areas? ..... ☐ Yes ☐ No
- Does the plan identify the latitude and longitude to the entrance of the production area? ..... ☐ Yes ☐ No
- Does the plan identify the watershed(s) in which the operation is located? ..... ☐ Yes ☐ No

- Is the watershed listed on the state's list of impaired watersheds? ..... ☐ Yes ☐ No

  *If yes, what impairments are identified?*_____

  _____

  _____

- Is this facility within a state-designated source water protection area? ..... ☐ Yes ☐ No
  Are there any other water quality concerns in this watershed? ..... ☐ Yes ☐ No

  Explain: _____

  _____

  _____

5. Animals

- What type(s) of animals are confined at the facility?

  ☐ Beef (slaughter/feeder) ☐ Chicken – Layer
  ☐ Dairy ☐ Chicken – Broiler
  ☐ Swine ☐ Sheep/Lambs
  ☐ Turkey ☐ Horse
  ☐ Duck ☐ Other _____

- What is the maximum number of animals confined, by animal type?

  ☐ Beef (slaughter/feeder) _____ ☐ Chicken – Layer _____
  ☐ Dairy _____ ☐ Chicken – Broiler _____
  ☐ Swine _____ ☐ Sheep/Lambs _____
  ☐ Turkey _____ ☐ Horse _____
  ☐ Duck _____ ☐ Other _____

- Is the plan based on the animal numbers listed above? ..... ☐ Yes ☐ No

  *If no, on what capacity is the plan based?*_____

  _____

  _____

Part B – Nine Minimum Practices

Minimum Practice: Ensure Adequate Storage Capacity

Manure/Litter/Process Wastewater Generation

- What are the manure generation rates identified in the plan?
  Animal Type 1:_____ _____ lbs/year
  Animal Type 2:_____ _____ lbs/year
  Animal Type 3:_____ _____ lbs/year
- Are the manure generation rates generally consistent with the USDA's *Agricultural Waste Management Field Handbook*? ..... ☐ Yes ☐ No
  If no, are other practices in place that account for the rates included in the plan? ..... ☐ Yes ☐ No
  If yes, what are the practices identified in the plan? ..... ☐ Feed Management ☐ Other
  Explain: _____
  _____
- Does the plan identify all sources of process wastewater and appropriate generation rates? .. ☐ Yes ☐ No

Storage Capacity

- Does the plan identify the volume and number of days of storage required for the facility? ..... ☐ Yes ☐ No
- Does the plan identify the size (in acres) of the production area? ..... ☐ Yes _____acres ☐ No
- Does the plan identify the number and type of storage structures? ..... ☐ Yes ☐ No
- Does the plan document the source of the information to calculate available storage volume? ☐ Yes ☐ No
- Does the storage volume in the plan account for manure and process wastewater generation (including silage leachate and other wastes) during the storage period in addition to the collection of runoff and direct precipitation on the surface of the storage structure from normal precipitation and the design storm event (25-year, 24-hour storm or other as required/appropriate for new source swine, poultry, and veal calf operations) for the CAFO location, a minimum treatment volume for anaerobic lagoons, and volume for solids accumulation? ..... ☐ Yes ☐ No
- Does the plan use the correct 25-year, 24-hour rainfall amount for the location of this operation to determine storage requirements (or other storm event as required/appropriate for new source swine, poultry, and veal calf operations)? ..... ☐ Yes ☐ No
  *Note source of information:*_____
- Are the evaporation rates used in the plan consistent with local data/guidance and appropriately applied? ..... ☐ Yes ☐ No
- Does the plan include a schedule for cleaning out the storage structures or solids removal for liquid storage structures? ..... ☐ Yes ☐ No
- Does the plan document that available storage volume is consistent with the plan's specified land application schedule? ..... ☐ Yes ☐ No
- Does the plan require maintenance for all storage structures? ..... ☐ Yes ☐ No
- Does the plan identify the specific maintenance actions and a frequency/schedule for those actions? ..... ☐ Yes ☐ No

Terms for Minimum Practice: Ensure Adequate Storage Capacity (identify below or reference NMP section(s)):

_____

_____

_____

_____

Minimum Practice: Ensure Proper Management of Mortalities

- Is the animal mortality addressed in the plan? ..... ☐ Yes ☐ No
  If yes, what methods are identified in the plan to address animal mortality?
  ☐ Rendering ☐ Incineration ☐ Composting ☐ Disposal pits
  ☐ Landfill ☐ Other_____
- Does the plan include a schedule for collecting, storing, and disposing of animal carcasses? . ☐ Yes ☐ No
- Does the plan address mortality storage before final disposition?..... ☐ Yes ☐ No
- Is the mortality rate used in the plan consistent with USDA expected values for the animals confined at the operation?..... ☐ Yes ☐ No
- Does the plan include contingency plans for unexpected but possible occurrences such as mass mortality or the loss of a rendering contractor?..... ☐ Yes ☐ No
- Does the animal mortality plan meet state and local requirements? ..... ☐ N/A ☐ Yes ☐ No

Terms for Minimum Practice: Ensure Proper Management of Mortalities (identify below or reference NMP section(s)):

_____

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Minimum Practice: Divert Clean Water from Production Area

- Does the plan address the diversion of clean water from the production areas?..... ☐ Yes ☐ No
  If no, why?_____
  _____
  If no, is the runoff being collected and is storage of runoff adequate?
  (See the Minimum Practice: Ensure Adequate Storage Capacity section)..... ☐ Yes ☐ No
- Does the plan require periodic visual inspection to verify proper and functional diversion?..... ☐ Yes ☐ No
- Does the plan address the maintenance of diversion structures? ..... ☐ Yes ☐ No

Terms for Minimum Practice: Divert Clean Water from Production Area (identify below or reference NMP section(s)):

_____

_____

_____

Minimum Practice: Prevent Direct Contact

- Does the facility or topographic map identify any surface water in the production area? ..... ☐ Yes ☐ No
- If yes, are measures in the plan to prevent direct contact? ..... ☐ Yes ☐ No
- What are the measures identified in the plan?..... ☐ Fences ☐ Other
- Does the plan address maintenance of the identified practices?..... ☐ Yes ☐ No

Terms for Minimum Practice: Prevent Direct Contact (identify below or reference NMP section(s)):

_____

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Minimum Practice: Chemical Disposal

- Does the plan include practices that ensure chemicals (including pesticides, hazardous and toxic chemicals, and petroleum products/by-products) are not disposed of in any storage or treatment system that is not specifically designed to treat those chemicals? ☐ Yes ☐ No
- Has the facility incorporated measures (in accordance with applicable laws and regulations) to prevent mishandling of pesticides, hazardous and toxic chemicals, and petroleum products/by-products? ☐ Yes ☐ No

  *If no, explain:*_____

Terms for Minimum Practice: Chemical Disposal (identify below or reference NMP section(s)):

_____

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Minimum Practice: Conservation Practices to Reduce Nutrient Loss

- Does the plan specify a 100-foot setback or a 35-foot vegetated buffer or alternative setback for land application from downgradient surface waters and conduits in accordance with the Effluent Limitations Guideline? ☐ N/A ☐ Yes ☐ No

  If an alternative setback has been specified, what is the basis for the use of an alternative setback? _____

- Does the plan include the use of best management practices (BMPs) to control nutrient loss from the:
  Production area ☐ N/A ☐ Yes ☐ No
  Land application area(s) ☐ N/A ☐ Yes ☐ No

  If yes, identify:

  Land Application Areas
  ☐ Vegetated Buffers (Type of vegetation_____)
  ☐ Diversion
  ☐ Grassed Waterway (Type of vegetation_____)
  ☐ Strip Cropping
  ☐ Residue Management
  ☐ Terracing
  ☐ Conservation Tillage

  Production Area
  ☐ Vegetated Buffers (Type of vegetation_____)
  ☐ Other _____

- If BMPs are being used to control nutrient loss, does the plan specify how they are to be implemented? ☐ Yes ☐ No

  If yes, what does the plan require? _____

- What references are cited for the practices? ☐ USDA Practice Standards ☐ State Standards ☐ Other _____ (*Note: To be used to verify proper implementation*)
- Does the plan include Operation & Maintenance requirements for practices used to reduce nutrient loss? ☐ Yes ☐ No
- Do the plan and facility maps identify the specific locations where the BMPs and setbacks are to be used? ☐ N/A ☐ Yes ☐ No

Terms for Minimum Practice: Conservation Practices to Reduce Nutrient Loss (identify below or reference NMP section(s)):

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Minimum Practice: Protocols for Manure and Soil Testing

- Does the plan include specific protocols for the representative *sampling* of manure, wastewater, and soil for determining nutrient content? ☐ Yes ☐ No
- Does the plan include appropriate frequencies for the *sampling* of manure, wastewater, and soil for determining nutrient content? ☐ Yes ☐ No
- Does the plan include specific protocols for the *analysis* of manure, wastewater, and soil for determining nutrient content? ☐ Yes ☐ No
- Are the soil test results used to develop the plan less than 5 years old? ☐ Yes ☐ No
- Are the manure nutrient analysis results used to develop the plan less than 12 months old? ☐ Yes ☐ No
  [Note: book values may be used for the first year of operation.]

Terms for Minimum Practice: Protocols for Manure and Soil Testing (identify below or reference NMP section(s)):

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Minimum Practice: Protocols for Land Application of Manure and Wastewater

Manure, Litter, and Process Wastewater Use and Disposal

- What manure utilization options are identified in the plan? (If more than one option is identified in the plan, indicate the relative amount of the manure used or disposed of under this option.)

  ☐ Land Application _____%

  ☐ Composting _____%

  ☐ Incineration _____%

  Does the plan address what is done with the remaining ash? _____

  _____

  ☐ Other _____%

  Describe: _____

  _____

- Is manure, litter, or wastewater to be transferred off-site? ☐ Yes ☐ No

  If yes:

  How much will be transferred annually? _____ tons _____ gallons

  Does the plan include the necessary arrangements for that transfer? ☐ Yes ☐ No

  Does the plan identify the recipients? ☐ Yes ☐ No

- If the plan includes land application of manure, litter, or process wastewater:

  Do the facility maps identify the fields or conservation management units (CMU) used to develop the plan? (Field boundaries, field number, acreage)..... ☐ Yes ☐ No

  Does the plan address rates of application using the ☐ linear approach or the ☐ narrative rate approach?

  [Note: The linear and narrative rate approaches primarily influence identification of terms based on the NMP and generally do not dictate the content of the NMP, with a few specific exceptions. The questions in the sections below identify specific information that is required to support development of terms under a particular approach.]

- How many acres under control of the CAFO (e.g., owned, leased, subject to an access agreement) are identified in the plan for land application use?

  _____ acres owned _____acres leased _____ total acres applied

- Does the CAFO own or control sufficient land to properly use all manure and wastewater generated by the operation?..... ☐ Yes ☐ No

  If no:

  Does the plan identify the quantity of excess manure being generated? _____tons/year or gallons/year
  Does the plan identify how the excess manure is to be used? ..... ☐ Yes ☐ No
  If yes, how?_____

Terms for Minimum Practice: Protocols for Land Application of Manure and Wastewater, Manure, Litter, and Process Wastewater Use and Disposal (identify below or reference NMP section(s)):

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_____

_____

_____

_____

Crop Production Information

For use where the NMP includes land application of manure, litter, or process wastewater

- Does the plan identify what crops are produced for each field? ..... ☐ Yes ☐ No

  *What are they?*_____

  _____

- Does the plan identify the crop rotations? ..... ☐ Yes ☐ No

  *What is the crop rotation?*_____

  _____

  Does the plan identify cropping practices? ..... ☐ Yes ☐ No

  If yes, what are they? ☐ Ridge Till ☐ Conservation Tillage ☐ Contour Farming
  ☐ Other _____

- Does the cropping system use irrigation?..... ☐ Yes ☐ No

  If yes, what type: ☐ Traveling Gun ☐ Center Pivot
  ☐ Flood ☐ Other Sprinkler
  ☐ Ridge and furrow ☐ Other_____

- For plans using the narrative rate approach, does the plan identify alternative crops for specific fields? ..... ☐ Yes ☐ No
  [Note: Inclusion of alternative crops is optional.]

- Are realistic crop yield goals identified in the plan (including for alternative crops, if included in plans using the narrative rate approach)? ..... ☐ Yes ☐ No
- What source of information was used to determine the realistic yield goals for this operation?
  ☐ Farm records (*Circle one:* last year's crop production, 3-year average, 5- year average, Other: _____)
  ☐ USDA ☐ State databases (VALUES, MASCAP)
  ☐ County averages ☐ Previous crop insurance records
- Is adequate justification provided to support the yield goal? ..... ☐ Yes ☐ No

Terms for Minimum Practice: Protocols for Land Application of Manure and Wastewater, Crop Production Information (identify below or reference NMP section(s)):

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_____

_____

_____

Rate Determination/Nutrient Application Information

For use where the NMP includes land application of manure, litter, or process wastewater

- Does the plan clearly identify field-specific maximum application rates, as follows:

  For plans using the linear approach, the maximum pounds of N and P from manure, litter, and process wastewater per crop, per year? ..... ☐ Yes ☐ No

  For plans using the narrative rate approach, the maximum pounds of N and P from all nutrient sources per crop, per year? ..... ☐ Yes ☐ No
- Does the plan include the outcome of a field-specific N and P transport risk assessment? ..... ☐ Yes ☐ No
- Does the plan identify the basis/rationale for determining an N-based or P-based application rate for each field? ..... ☐ Yes ☐ No

  What is the basis?

  ☐ Soil test method ☐ Soil phosphorus threshold

  ☐ Phosphorus Index ☐ Other_____
- Does the plan identify fields where land application is N-based and where it is P-based? ..... ☐ Yes ☐ No
- For P-based fields, does the plan include the use of multi-year P application? ..... ☐ Yes ☐ No

  If yes,

  Is multi-year P application limited to fields that do not have a high potential for P runoff to surface water? ..... ☐ Yes ☐ No

  Is the application rate limited to the annual crop N requirement? ..... ☐ Yes ☐ No

  Is additional P application planned only after the amount applied in the multi-year application has been removed through crop uptake and harvest? ..... ☐ Yes ☐ No
- Does the plan identify the appropriate crop N and P removal rates or nutrient recommendations (including for alternative crops, if included in plans using the narrative rate approach)? ..... ☐ Yes ☐ No
- Does the plan take into account other sources of nutrients used at the operation ..... ☐ Yes ☐ No

  If yes, what other sources of nutrients have been accounted for?

  ☐ Commercial fertilizer ☐ Biosolids
  ☐ Bedding ☐ Legume credits
  ☐ Wastewater ☐ Previous manure application
  ☐ Compost ☐ Irrigation water
  ☐ Other _____

- For plans using the linear approach, does the plan clearly articulate the methodology used to account for the amount of N and P in the manure to be applied? ☐ Yes ☐ No
- For plans using the narrative rate approach, does the plan clearly articulate the methodology used to account for the following? ☐ Yes ☐ No
  (check each that is addressed in the NMP methodology)

  ☐ Soil test results
  ☐ Credits for all plant available N in the field
  ☐ The amount of N and P in the manure to be applied
  ☐ Consideration of multi-year P application
  ☐ Accounting for all other additions of plant available N and P to the field
  ☐ The form and source of manure
  ☐ The timing and method of land application
  ☐ Volatilization of N
  ☐ Mineralization of organic N
- Does the plan identify the application method? ☐ Yes ☐ No
  If yes, what method is used: ☐ Surface applied ☐ Injected ☐ Incorporated
- Does the plan identify appropriate volatilization rates based on the method of application? ☐ Yes ☐ No
- Does the plan include the application of wastewater to fields via an irrigation system? ☐ Yes ☐ No

  If yes:

  Does the plan identify the type of irrigation system? ☐ Yes ☐ No
  Does the plan include provisions to minimize ponding or puddling of wastewater on land application fields? ☐ Yes ☐ No
  Does the plan address the management of drainage water to prevent surface or groundwater contamination? ☐ Yes ☐ No
- Does the plan include specific restrictions or adequate management practices to prevent water pollution from the application of manure/wastewater to flooded, saturated, frozen, or snow-covered ground? ☐ Yes ☐ No
- Does the plan address inspection and maintenance of land application equipment? ☐Yes ☐ No
- Does the plan require periodic calibration of manure application equipment? ☐Yes ☐ No
- Are the application rates identified in the plan appropriate? ☐Yes ☐ No

Notes: _____

_____

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Terms for Minimum Practice: Protocols for Land Application of Manure and Wastewater, Rate Determination/Nutrient Application Information (identify below or reference NMP section(s)):

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Minimum Practice: Record Keeping

- Identify the records that the plan indicates will be maintained at the facility.

☐ Production Area Records

- ✓ Weekly inspections of stormwater and runoff diversion devices and devices for channeling contaminated stormwater to wastewater containment structures ☐ Yes ☐ No
- ✓ Weekly inspections of manure, litter, and process wastewater impoundments ☐ Yes ☐ No
- ✓ Weekly storage facility wastewater level, as indicated on a depth marker ☐ Yes ☐ No
- ✓ Daily water line inspections ☐ Yes ☐ No
- ✓ Actions taken to correct deficiencies identified as a result of daily and weekly inspections ☐ Yes ☐ No
- ✓ Manure/wastewater storage—date of emptying, level before emptying, and level after emptying, or quantity removed (dry manure) ☐ Yes ☐ No
- ✓ The date, time, and volume of any overflow ☐ Yes ☐ No
- ✓ Records documenting that mortalities were not disposed of in any liquid manure or process wastewater system and that mortalities were handled to prevent the discharge of pollutants to surface water ☐ Yes ☐ No
- ✓ On-site precipitation ☐ Yes ☐ No
- ✓ Animal Inventory ☐ Yes ☐ No

☐ Land Application Records

- ✓ Manure and wastewater sample nutrient analysis test methods and results that will be used to calculate land application rates ☐ Yes ☐ No
- ✓ Soil sample analysis test methods and results that will be used to calculate land application rates ☐ Yes ☐ No
- ✓ Manure and wastewater application equipment inspection log ☐ Yes ☐ No
- ✓ Maintenance log of all equipment necessary to control discharge and meet permit requirements (e.g., maintenance of land application equipment) ☐ Yes ☐ No
- ✓ Annual calculation of the maximum amount of manure or wastewater to be land applied, before application ☐ Yes ☐ No
- ✓ Crop planting/harvest dates by field or CMU ☐ Yes ☐ No
- ✓ Crop type and yield by field or CMU – bushels/acre (seasonally) ☐ Yes ☐ No
- ✓ For each land application event, the date, rate (tons of manure or gallons of wastewater/acre or pounds of N and P per acre), weather conditions during and for 24 hours before and after application, application method, and equipment used by field or CMU (daily during application) ☐ Yes ☐ No
- ✓ The total amount of N and P applied to each field, including calculations ☐ Yes ☐ No
- ✓ Lease/Rental/Access Agreements for all land not owned by the operator ☐ Yes ☐ No

☐ Off-site Transfer of Manure and Wastewater Records

- ✓ Date of each transfer ☐ Yes ☐ No
- ✓ The name and address of the recipient (for each transfer) ☐ Yes ☐ No
- ✓ Quantity transferred (for each transfer) ☐ Yes ☐ No
- ✓ Documentation that the most current nutrient analysis was provided to the recipient ☐ Yes ☐ No

- Does the plan require that any additional records be maintained at the facility? ☐ Yes ☐ No

  If yes, what are those records? _____

  _____

- Does the plan include an emergency action plan to address spills and catastrophic events? ☐ Yes ☐ No

Terms for Minimum Practice: Record Keeping (identify below or reference NMP section(s)):

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Part C – Determination of Plan Adequacy

[Note: This section is to be used by the NMP reviewer to evaluate the overall adequacy of the plan based on the information in Parts A and B and does not necessarily reflect information expected to be contained in the NMP.]

- Does the plan adequately address the storage, handling, and application of manure and wastewater to prevent the discharge of pollutants to waters of the United States? ..... ☐ Yes ☐ No
- Is the plan consistent with the technical standards for nutrient management established by the Director with regard to protocols for manure and soil testing and land application protocols including nutrient transport risk assessment methods and methods and data used to determine application rates? ..... ☐ Yes ☐ No
- Have there been past discharges to waters of the United States from the facility? ..... ☐ Yes ☐ No

  If yes, does the plan include sufficient measures to address the cause of the past discharge and prevent future discharges? ..... ☐ Yes ☐ No
- Does the plan require revision? ..... ☐ Yes ☐ No

  If yes, what specific components of the plan require revision?

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Additional Review Comments:

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