

**STATEMENT OF WORK**  
Comprehensive Nutrient Management Plan  
And CNMP Conservation Activity Plan (CAP-102)  
-Total Plan Ohio-

**This SOW is intended for:**

**A complete CNMP that may include recommendations for needed improvements to Manure & Wastewater Storage & Handling facilities.**

**These deliverables apply to this individual plan. For other planned practice deliverables refer to those specific Statements of Work.**

## **PLANNING**

***NOTE: A comprehensive nutrient management plan (CNMP) is to address all land units that the animal feeding operation (AFO) owner and/or operator owns or has decision-making authority over and on which manure and organic by-products will be generated, handled, stored, or applied. When nutrients in excess of crop removal are generated, the plan must address Ohio NRCS criteria found in Ohio Conservation Planning section OH409.1(a), see conservation planning policy, amendment no. OH-6:***

[http://www.oh.nrcs.usda.gov/intranet/GenManual/180\\_gm\\_cons\\_plan\\_applic.html](http://www.oh.nrcs.usda.gov/intranet/GenManual/180_gm_cons_plan_applic.html)

### **Deliverables:**

Provide documentation that addresses the following items (Ohio CNMP format generated from the Purdue Manure Management Planner (MMP) Program, an Ohio CNMP Producer Activity Plan generated from MMP using NRCS Animal Waste Management (AWM) program output). Items to be delivered to the NRCS District Conservationist include:

- 1) The Ohio CNMP document individualized for the operation with signatures.
- 2) An electronic copy of the Ohio CNMP Document (with maps)
- 3) An electronic copy of the Ohio CNMP Producer Activity Plan
- 4) An electronic copy of the MMP data file
- 5) A hard copy or electronic "pdf" scan of the AWM program output for the operation.

The CNMP must include the following:

### **Section 1. Background and Site Information**

#### **1.1 General Description of Operation**

- List the name, address, phone number of the owner or operator.
- In a concise narrative, describe the type and number of livestock, the type of existing manure storage, the need for additional storage, type of manure application equipment available, the resource concerns at the headquarters, the resource concerns in any field to which manure will be applied.

#### **1.2 Sampling, Calibration and Other Statements**

- Develop a brief narrative describing manure sampling procedure and frequency.
- Develop a brief narrative describing soil test sampling procedure and frequency.
- Develop a brief narrative describing equipment calibration methods.
- Measures to divert clean water
- Measures to prevent direct contact of animals with water

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**1.3 Resource related concerns – List and briefly describe:**

- Soil erosion, nutrient, quality, compaction concerns
- Water quantity and quality concerns
- Air, odor, drift concerns
- Plants nutrient, health concerns
- Animals health concerns

**Section 2: Manure Storage and Wastewater Handling and Storage**

**2.1 Map(s) of Production Area**

- Maps and or aerial photos of the production facilities showing location of existing and planned storage areas and wastewater handling practice.

**2.2 Facility or Production Area Conservation Practices**

- List all existing and/or required practices for the production facility including a brief narrative and/or implementation details as well as operation and maintenance measures for these practices.
- Provide a preliminary site map showing the size of the planned facility and other associated improvements necessary for the manure management system to function.

**2.3 Manure Storage Inventory**

- State the type (or types) of existing manure storage facilities, calculate their storage capacity using the most current version of AWM with the NRCS-2008 data source, and visually assess the integrity of these structures to continue to function as designed. Use the “AWM MMP input” report generated from the AWM to determine manure volumes for use in the MMP program. State when existing manure storage facilities were constructed, and whether or not the facilities were professionally designed (reference as-built drawings when applicable).
- Additional waste production from farmstead facilities information (as applicable)
  - Bedding as appropriate for existing (or planned) livestock housing and manure storage
  - Uncovered outdoor lots accessible to livestock; state the surface area and % of time livestock have access to the lot
  - Feed storage and other areas not accessible to livestock but are potential contaminate sources from runoff or leachate production (e.g., silage storage)
  - Daily wastewater volume (e.g., dairy milkhouse washwater or swine wastewater/washing)
  - Necessary diversion of clean water from manure contact (eg., roof runoff management, up slope runoff diversion)
- Determine if the existing manure storage interval is compatible with the field availability for nutrient utilization.

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- State the type (or types) and sizes of additional manure storage and handling facilities recommended using the AWM program. When improvements require permitting from the Ohio Department of Agriculture (ODA); consultation with ODA is required, and facilitates are to be planned to obtain a Permit to Install (PTI) and Permit to Operate (PTO).
- All recommended practices must be planned for conformance with the applicable Ohio NRCS Conservation Practice Standard
- Provide a preliminary site map showing existing facilities, the size of the planned facility, and other associated improvements necessary for the manure management system to function

**2.4 Animal Inventory**

- List animal types, phases of production, and length of confinement for each
- List animal numbers and average weight for each phase of production.
- Determine the percent of manure collected and in which waste structure the manure is stored.

**2.5 Normal Mortality Management**

- Describe how normal livestock mortality is routinely handled.
- Management options should be consistent with NRCS Standard 316 and ODA rules and regulations. Include existing and planned methods.

**2.6 Planned Manure Exports off the Farm**

- Define the amount of manure that is being planned for export. This section should contain signed Manure Cooperative Agreements if manure is exported.

**2.7 Planned Manure Imports onto the Farm**

- Detail the manure type, amount and nutrient content of manure imported.
- List the contact information of the originating operation.

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**2.8 Planned Internal Transfer of Manure**

- List the manure source, amount and destination of internal manure transfers.

**Section 3: Farmstead Safety and Security****3.1 Emergency Response Plan**

- Listing appropriate local contacts with phone numbers in case of a spill or accident.

**3.2 Bio-security Measures**

- Detail the biosecurity measures desired by the producer. Be sure the procedures are adequate to reduce the risk of disease for the species of livestock on the operation.

**3.3 Catastrophic Mortality Management**

- Develop a concise narrative that describes the measures that will be taken in the case of a catastrophic mortality. Be sure these measures comply with national, state, and local laws. List the ODA State Veterinarian and other appropriate contact information.

**3.4 Chemical Handling**

- Develop a brief narrative that describes any chemical storage and handling  
**NOTE:** This section is required for regulatory permitted facilities. It is optional for non-permitted facilities. State whether or not the current facility is out of compliance with ODA secondary containment rules (storing in excess of 5000 gallons for more than 30 days)

**Section 4: Land Treatment****4.1 Map(s) of Fields and Conservation Practices**

- Conservation Plan (field) maps or aerial photos of all the fields that will receive manure. Maps should indicate roads, streams, marked setbacks, buffers, waterways, and environmentally sensitive areas, such as sinkholes, wells, gullies, tile inlets, etc. Each field should be identified using field number, land use designation, acres in size and spreadable acres in the field. Each map should include a legend, map scale, and tract numbers.

**4.2 Land Treatment Conservation Practices**

- Identify and list any existing and/or planned land treatment practices for all land receiving manure. Practices should address the resource concerns identified in Section 1.3 and be labeled using NRCS Conservation Practice names and numbers along with brief narratives. List the quantities of each practice and develop a schedule for practice installation.
- At a minimum, this section will contain (328) Conservation Crop Rotation, (329/345/346) Residue and Tillage Management, (590) Nutrient Management and (633) Waste Utilization

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**NOTE:** If the CNMP developer is not a certified planner, a conservation plan developed by a certified planner in Customer Service Toolkit must be inserted here.

## **Section 5: Soil and Risk Assessment Analysis**

### **5.1 Soil Information**

- Include soils maps with legends, map unit descriptions, and a soils Inventory.

### **5.2 Predicted Soil Erosion**

- Develop soil loss calculations using RUSLE2 for each field receiving manure. List predominate soil types and average slopes. The RUSLE2 tool contained in the Purdue Manure Management Planner (MMP) is suitable.

### **5.3 Nitrogen and Phosphorus Risk Assessment Procedure**

- Document potential transport risk of nitrogen or phosphorus from fields on a field-by-field basis.

### **5.4 Additional Field Data Required by Assessment Procedure**

- Identify distances to water by field, listing the type of water (pond, creek) and identify fields containing tile drainage.

### **5.5 Available Water Holding Capacity**

- Include a table showing water holding capacity by soil texture.

### **5.6 Special Manure Application Criteria**

- List criteria for winter manure application, manure application on steep fields, manure application of fields subject to flooding, liquid manure application on tile drained fields, and minimum ground cover for manure applications as applicable.

## **Section 6: Nutrient Management**

### **6.1 Field Information**

- List field acres, spreadable acres, FSA tract number, predominate soil type and percent slope for each field receiving manure.

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- Include a table of Ohio NRCS and/or ODA setback distances for manure application from waters of the state, residences, water supplies and environmentally sensitive areas. Include maps or aerial photos clearly indicating the setback areas under Section 4 with the field numbers, acres, and spreadable acres for each field receiving manure.

**6.3 Soil Test Data**

- List soil test values for all fields receiving manure. Data should contain at a minimum, percent organic matter, soil test phosphorus, potassium, magnesium, and calcium as well as pH, and CEC. The values should clearly state whether they are in parts per million or pounds per acre. It should also be clearly stated what test was used to develop the values (such as Bray-Kurts P1, or Mehlich 3 ICP) and what testing lab was used

**6.4 Manure Nutrient Analysis**

- List manure test values for each manure storage facility. Test should include Estimated Total N; NH<sub>4</sub>-N; Estimated Total P<sub>2</sub>O<sub>5</sub>; Estimated Total K<sub>2</sub>O; Estimated Maximum available N; Estimated Available P<sub>2</sub>O<sub>5</sub>; Estimated Available K<sub>2</sub>O. Units should be clearly identified and total volume of manure calculated and what testing lab was used. As an alternative, book values for the species and type of livestock can be used.

**6.5 Planned Crops and Fertilizer Recommendations**

- Each crop in the rotation should be identified by field by year listing the nutrients to be supplied by manure and nutrient to be supplied by commercial fertilizer.

**6.6 Manure Application Planning Calendar**

- A manure application calendar will be provided listing the amount and type of manure to be applied and the storage area that manure will be taken from. It should also indicate the time periods when the field is not available for manure application such as when a crop is growing in the field or periods of flooding or frozen or snow covered ground. It should clearly highlight fields that are not available for manure application such as fields that have soil test values above acceptable levels or when the Phosphorus Risk Index is above 45.

**6.7 Planned Nutrient Applications (Manure-Spreadable Area)**

- Develop a table listing the field number, the month of application, the target crop, the manure or fertilizer source, the manure application equipment to be used, the application rate, the spreadable acres to be covered, the number of loads of manure to be taken to each field, the estimated nitrogen, phosphorus, and potassium delivered to each field.

**6.8 Field Nutrient Balance (Manure-Spreadable Area)**

- Develop a table listing by field, the nutrients applied as manure and fertilizer, the nutrients removed by the crop, and the net balance of nutrients.

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**6.9 Manure Inventory Annual Summary**

- Develop a table listing all the facilities or structures where manure is stored for the operation. It should provide a summary of the volume of manure in each storage facility at the time the CNMP is developed as well the projected volume in each facility at the ending period.

**6.10 Fertilizer Material Annual Summary**

- List the amount and type of fertilizer used to balance nutrients during the CNMP implementation period.

**6.11 Whole Farm Nutrient Balance (Manure-Spreadable Area)**

- Summarize all the manure nutrients (N-P-K) on hand, collected, imported and/or exported as well as all nutrients applied as fertilizer throughout the life of the CNMP.

**Section 7: Feed Management**

- Identify any existing or planned changes to the feeding program designed to reduce phosphorus, such as Phytase added to the feed.

**Section 8: Other Utilization Options**

- Identify any other methods or processes not already listed or discussed that affect the nutrient production or utilization.

**Section 9: Record Keeping**

- Provide the producer forms generated from the MMP generated under the Ohio CNMP Producer Activity Plan.
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**REFERENCES**

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- NRCS National Planning Procedures Handbook (CNMP Technical Guidance)  
[http://policy.nrcs.usda.gov/scripts/lpsiis.dll/H/lpType,toc;H\\_180\\_600\\_E\\_5.htm#CURR](http://policy.nrcs.usda.gov/scripts/lpsiis.dll/H/lpType,toc;H_180_600_E_5.htm#CURR)
- NRCS Field Office Technical Guide (see section IV for practice standards)  
[http://www.oh.nrcs.usda.gov/technical/ohio\\_eFOTG.html](http://www.oh.nrcs.usda.gov/technical/ohio_eFOTG.html)
- NRCS National Engineering Manual  
<http://www.oh.nrcs.usda.gov/intranet/directives.html#NEM>
- NRCS National Agronomy Manual [http://policy.nrcs.usda.gov/scripts/lpsiis.dll/M/M\\_190\\_NAM.htm](http://policy.nrcs.usda.gov/scripts/lpsiis.dll/M/M_190_NAM.htm)
- NRCS Environmental Compliance Handbook  
[http://policy.nrcs.usda.gov/scripts/lpsiis.dll/H/lpType,toc;H\\_190\\_610\\_Content.htm#CURR](http://policy.nrcs.usda.gov/scripts/lpsiis.dll/H/lpType,toc;H_190_610_Content.htm#CURR)
- NRCS Cultural Resources Handbook  
[http://policy.nrcs.usda.gov/scripts/lpsiis.dll/H/lpType,toc;H\\_190.htm#CURR](http://policy.nrcs.usda.gov/scripts/lpsiis.dll/H/lpType,toc;H_190.htm#CURR)
- Ohio NRCS Conservation Planning Policy 180- [Conservation Planning and Application](http://www.oh.nrcs.usda.gov/intranet/GenManual/180_gm_cons_plan_applic.html)  
[http://www.oh.nrcs.usda.gov/intranet/GenManual/180\\_gm\\_cons\\_plan\\_applic.html](http://www.oh.nrcs.usda.gov/intranet/GenManual/180_gm_cons_plan_applic.html)
- Purdue Manure Management Planner (current version) <http://www.agry.purdue.edu/mmp/>
- Spatial Nutrient Management Planner: <http://www.cares.missouri.edu/snmp/>
- Agricultural Waste Management Field Handbook (AWMFH) and Animal Waste Management (AWM) design program : [http://www.wsi.nrcs.usda.gov/products/W2Q/AWM/AWM\\_home.html](http://www.wsi.nrcs.usda.gov/products/W2Q/AWM/AWM_home.html)
- National Engineering Handbook, Part 651, Agricultural Waste Management Field Handbook, Ohio Issue 1, Chapter 7, Geology and Groundwater Considerations, May, 1999  
[http://www.oh.nrcs.usda.gov/technical/engineering/references/awmfh\\_suppl.html](http://www.oh.nrcs.usda.gov/technical/engineering/references/awmfh_suppl.html)
- Ohio Department of Agriculture - Livestock Environmental Permitting Program  
<http://www.ohioagriculture.gov/lepp/>
- Ohio Livestock and Manure Management Guide. <http://ohioline.osu.edu/b604/index.html>