Comprehensive Nutrient Management Plan Criteria

Practice Activity Code (102) (No.)

1. **Definitions**

A. A Comprehensive Nutrient Management Plan (CNMP) is a conservation plan that includes a combination of structural practices, management activities, and/or land management practices for an Animal Feeding Operation (AFO) associated with crop or livestock production that collectively ensures that the purposes of crop or livestock production and preservation of natural resources (especially the conservation of air quality, soil erosion, and water quality as related to nutrient related impacts) are compatible. A CNMP consists of the following components:

(1) Signature page with signatures by the Certified CNMP Planner and the client. The signature page must also include farm contact information and the dates of the plan period. See Exhibit A of this Conservation Activity Plan (CAP) 102.

(2) Record of Decisions (planned and applied conservation practices) for the farmstead(s)/AFO (production/manure handling areas). Details will be provided in the CNMP Criteria Section of this CAP 102 and Exhibit A.

(3) Record of Decisions (planned and applied conservation practices) for the crop, pasture, range, and other lands where the nutrients will be applied.

(4) The Conservation Practice Standard (590) Nutrient Management Plan following the established criteria, plans and specifications, operation and maintenance, and recordkeeping.

2. CNMP Criteria

This section establishes the minimum criteria the planner must address in the development and implementation of CNMPs.

A. General Criteria

(1) The CNMP shall meet the Natural Resources Conservation Service (NRCS) planning criteria for water quality (nutrients, organics, and sediments in surface and groundwater), soil erosion (sheet and rill, wind, ephemeral gully, classic gully, and irrigation induced natural resource concerns on the production area and the land treatment area), and air quality (Emissions of Particulate Matter - PM - and PM Precursors and Objectionable Odors)**.**

(2) A CNMP must **c**omply with Federal, Tribal, State, and local laws, regulations, and permit requirements and meet the producer's objectives.

(3) A CNMP must be designed to assist owners/operators in taking voluntary actions to minimize potential pollutants from animal confinement facilities and land application of manure and organic by-products.

(4) Information in the CNMP must document the landowner(s) decisions.

(5) The CNMP must require evaluation and documentation of compliance with the National Environmental Policy Act, the Endangered Species Act, the National Historic Preservation Act, and other effects on the environment. This evaluation and documentation process WILL BE COMPLETED BY NRCS.

(6) A CNMP must be developed by persons who meet NRCS certification requirements. The specific criteria for certification of NRCS employees and conservation partners can be found in NRCS General Manual 180 Part 409. The specific criteria for certification for Technical Service Providers (TSP) is available via the TSP website http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/technical/tsp

(7) All CNMPs must be developed and documented per the general CNMP format shown in Exhibit A of the CAP 102. (**Part 1** – Signature Page; **Part 2** – Record of Decisions for the Farmstead/Production Area(s); **Part 3** – Record of Decision for the Land Treatment Area (cropland, pasture, range land); **Part 4** – Nutrient Management Plan

(8) The nutrient management portion of the CNMP must be developed in accordance with the State nutrient management conservation practice standard (code 590).

(9) In most situations, addressing the CNMP Criteria will require a combination of conservation practices and management activities to meet the production needs of the AFO owner/operator, and resource concerns associated with the farmstead and land treatment areas. The Field Office Technical Guide (FOTG) Section III and National Planning Procedures Handbook contain additional information and guidance.

B. Content and format for the CNMP – See Exhibit A of this CAP 102 for the general format and content.

(1) Signature page with signatures by the Certified CNMP Planner and the client. The signature page must also include farm contact information and the dates of the plan period.

(2) Record of Decisions (planned and applied conservation practices) for the farmstead(s)/AFO (production/manure handling areas). This includes the documentation for all currently applied practices that will be maintained as well as all the planned practices with schedule of implementation to include: month/year of planned application and amount. For practices previously planned and applied with NRCS technical assistance those plans will be in the client case folder in the local NRCS field office (engineering plans, job sheets, or implementation requirements). The engineering plans, job sheets, or implementation requirements for future planned practices are not requirements during this CNMP planning phase, but will be developed by the appropriate entity per the planned schedule of implementation. However, below is an example of how the record of decisions can be documented:

Composting Facility (Code 317) - A composting facility is a structure or device that uses controlled aerobic decomposition to transform waste organic material into a biologically stable product that can be used as a soil amendment.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
(None)	Farmstead			1	2009

Waste Storage Facility (Code 313) - A waste storage facility is an agricultural waste storage impoundment/containment made by constructing an embankment and/or excavating a pit or dugout, or fabricating a structure.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
(None)	Farmstead	1	4/2017		

a. Plan map(s) showing existing and planned structures (See NPPH Title 180, part 600.31 subpart A for map requirements);

b. Soils Map(s) for the headquarters with the appropriate soil interpretations (as needed);

c. A brief description of the AFO (both existing and proposed), including the type of animal, number of animals, average weight, number of days confined, type of manure storage, existing storage volumes/sizes (when applicable) and maximum length of storage available (These are generally tables printed from animal waste planning software.) If applicable, planned imports, exports, and on-farm transfers of manure;

d. Reference the Implementation Requirements or Engineering plans for practices already implemented. (Plans and specifications for practices are to be maintained in the case file.) For structures installed prior to this plan that were installed without NRCS assistance, the structures should be shown on the appropriate plan map and a note in the Record of Decisions that the structures were installed without NRCS technical or financial assistance. Document whether existing structures are satisfactory (visually appear to be structurally sound and are adequately maintained).

(3) Record of Decisions (planned and applied conservation practices) for the crop, pasture, range, and other lands where the nutrients will be applied. This includes the documentation for all currently applied practices that will be maintained as well as all the planned practices with schedule of implementation to include: month/year of planned application and amount. For practices previously planned and applied with NRCS technical assistance those plans will be in the client case folder in the local NRCS field office (engineering plans, job sheets, or implementation requirements). The engineering plans, job sheets, or implementation requirements for future planned practices are not requirements during this CNMP planning phase, but will be developed by the appropriate entity per the planned schedule of implementation. **However, the Implementation Requirements for practices that were necessary for completing the risk assessments shall be included with the CNMP when developed.** These practices generally include: (328) Conservation Crop Rotation, Tillage Residue Management practices (329 and/or 345), (330) Contour Farming, (585) Strip Cropping, (393) Filter Strip, and (386) Field Border. The Nutrient Management Plan, due to its size and complexity, will be placed in a separate section. Since this is a new format for fiscal year 2016, not all of the CNMP planning software used by the states may look the same. However, below is an example of how the record of decisions can be documented:

Conservation Crop Rotation (Code 328) - Conservation crop rotation is growing a planned sequence of various crops on the same piece of land for a variety of conservation purposes. Implementation Requirements Attached.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
4356T	Fields 1,2,3,4,5,6	200 AC		200	2013
4895T	Fields 8,9,10,11,12,13	250 AC	4/2017		

Residue and Tillage Management, No Till (Code 329) - The residue and tillage management no-till/strip till/direct seed practice addresses the amount, orientation, and distribution of crop and other plant residue on the soil surface year-round. Crops are planted and grown in narrow slots or tilled strips established in the untilled seedbed of the previous crop. Implementation Requirements Attached.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
4356T	Fields 1,2,3,4,5,6	200 AC		200	2013
4895T	Fields 8,9,10,11,12,13	250 AC	4/2017		

Nutrient Management (590) - Nutrient management involves managing the amount, placement, and timing of plant nutrients to obtain optimum yields and minimize the risk of surface and groundwater pollution.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
4356T	Fields 1,2,3,4,5,6	200 AC		200	2013
4895T	Fields 8,9,10,11,12,13	250 AC	4/2017		

a. Plan map(s) showing existing and planned practices and land application setbacks (See NPPH Title 180, Part 600.31 subpart A for map requirements);
b. Soils Map(s) for the crop, pasture, and range with the appropriate soils interpretations (as needed);
c. Reference the Implementation Requirements or Engineering plans for practices already implemented. (Plans and specifications for practices are to be maintained in the case file.) For practices installed prior to this plan that were installed without NRCS assistance, the structures should be shown on the appropriate plan map and a note in the Record of Decisions that the structure was installed without NRCS technical or financial assistance.
d. Completed Implementation Requirements (as needed).

(4) Nutrient Management

Nutrient Management plans must comply with technical criteria contained in the state approved Nutrient Management Conservation Practice Standard (CPS 590), and address the use and management of all nutrient sources applied on agricultural lands (animal manure, wastewater, commercial fertilizers, crop residues, legume credits, irrigation water, organic by-products, etc.). All nutrient rates (except for precision rate applications), sources, placement, and timing are to be specific for the crop, field, and year. The narrative method may be used for the precision rate calculations as it is impractical to describe actual rates for every unique grid cell/management units and display it in a table.

3. TSP Deliverables:

a. Signature page with signatures by the Certified CNMP Planner and the client. The signature page must also include farm contact information and the dates of the plan period. See Exhibit A.

b. Record of Decisions for the **farmstead(s)**/AFO (production/manure handling areas): Record of decisions and schedule of implementation with a description of the planned and existing practices;
   - Plan map(s) showing existing and planned structures (See NPPH Title 180, part 600.31 subpart A for map requirements);
   - Soils Map(s) for the headquarters with the appropriate soil interpretations (as needed);
   - A brief description of the AFO (both existing and proposed), including the type of animal, number of animals, average weight, number of days confined, type of manure storage, existing storage volumes/sizes (when applicable) and maximum length of storage available (These are generally tables printed from animal waste planning software.) If applicable, planned imports, exports, and on-farm transfers of manure;
   - Reference the Implementation Requirements or Engineering plans for practices already implemented. (Plans and specifications for practices are to be maintained in the case file.) For structures installed prior to this plan that were installed without NRCS assistance, the structures should be shown on the appropriate plan map and a note in the Record of Decisions that the structures were installed without NRCS technical or financial assistance. Document whether existing structures are satisfactory (visually appear to be structurally sound and are adequately maintained).

c. Record of Decisions (planned and applied conservation practices) for the **crop, pasture, range, and other lands where the nutrients will be applied**. Record of decisions and schedule of implementation with a description of the planned and existing practices;
   - Plan map(s) showing existing and planned practices and land application setbacks (See NPPH Title 180, Part 600.31 subpart A for map requirements);
   - Soils Map(s) for the crop, pasture, and range with the appropriate soils interpretations (as needed);
   - Include the Implementation Requirements for practices that are necessary for completing the risk assessments. These practices generally include: (328) Conservation Crop Rotation, Tillage Residue Management practices (329 and/or 345), (330) Contour Farming, (585) Strip Cropping, (393) Filter Strip, and (386) Field Border. The Nutrient Management Plan, due to its size and complexity, will be placed in a separate section.
   - Reference the Implementation Requirements or Engineering plans for practices already implemented. (Plans and specifications for practices are to be maintained in the NRCS office case file.) For practices installed prior to this plan that were installed without NRCS assistance, the structures should be shown on the appropriate plan map and a note in the Record of Decisions that the structure was installed without NRCS technical or financial assistance. This includes the documentation for all currently applied practices that will be maintained as well as all the planned practices with schedule of implementation to include: month/year of planned application and amount. For practices previously planned and applied with NRCS technical assistance those plans will be in the client case folder in the local NRCS field office (engineering plans, job sheets, or implementation requirements). The engineering plans, job sheets, or implementation requirements for future planned practices are not requirements during this CNMP planning phase, but will be developed by the appropriate entity per the planned schedule of implementation.

d. The Nutrient Management Plan - The following components must be included in the nutrient management plan:

   - Aerial site photograph(s)/imagery or site map(s), and a soil survey map of the site, (The plan map may be used for this purpose).

- Soil information including: soil type surface texture, pH, drainage class, permeability, available water capacity, depth to water table, restrictive features, and flooding and/or ponding frequency,
- Location of designated sensitive areas and the associated nutrient application restrictions and setbacks,
- For manure applications, location of nearby residences, or other locations where humans may be present on a regular basis, and any identified meteorological (e.g., prevailing winds at different times of the year), or topographical influences that may affect the transport of odors to those locations,
- Results of approved risk assessment tools for nitrogen, phosphorus, and erosion losses,
- Documentation establishing that the application site presents low risk for phosphorus transport to local water when phosphorus is applied in excess of crop requirement.
- Current and/or planned plant production sequence or crop rotation,
- Soil, water, compost, manure, organic by-product, and plant tissue sample analyses applicable to the plan,
- When soil phosphorus levels are increasing, include a discussion of the risk associated with phosphorus accumulation and a proposed phosphorus draw-down strategy,
- Realistic yield goals for the crops,
- Complete nutrient budget for nitrogen, phosphorus, and potassium for the plant production sequence or crop rotation,
- Listing and quantification of all nutrient sources and form,
- All enhanced efficiency fertilizer products that are planned for use,
- In accordance with the nitrogen and phosphorus risk assessment tool(s), specify the recommended nutrient application source, timing, amount (except for precision/variable rate applications specify method used to determine rate), and placement of plant nutrients for each field or management unit, and
- Guidance for implementation, operation and maintenance, and recordkeeping.

In addition, the following components must be included in a precision/variable rate nutrient management plan:

- Document the geo-referenced field boundary and data collected that was processed and analyzed as a GIS layer or layers to generate nutrient or soil amendment recommendations.
- Document the nutrient recommendation guidance and recommendation equations (compatible with land grant university recommendations) used to convert the GIS base data layer or layers to a nutrient source material recommendation GIS layer or layers.
- Document if a variable rate nutrient or soil amendment application was made.
- Provide application records per management zone or “as-applied” map(s) within individual field boundaries (or electronic records) documenting source, timing, method, and rate of all applications that resulted from use of the precision agriculture process for nutrient or soil amendment applications.
- Maintain the electronic records of the GIS data layers and nutrient applications for at least 5 years.

If increases in soil phosphorus levels are expected (i.e., when N-based rates are used), the nutrient management plan must document:

- The soil phosphorus levels at which it is desirable to convert to phosphorus based planning,
- The potential plan for soil test phosphorus drawdown from the production and harvesting of crops, and
- Management activities or techniques used to reduce the potential for phosphorus transport and loss,
- For AFOs, a quantification of manure produced in excess of crop nutrient requirements, and
- A long-term strategy and proposed implementation timeline for reducing soil P to levels that protect water quality,

OPERATION AND MAINTENANCE for 590 Nutrient Management

- Conduct periodic plan reviews to determine if adjustments or modifications to the plan are needed. At a minimum, plans must be reviewed and revised, as needed with each soil test cycle, changes in manure volume or analysis, crops, or crop management.
- Fields receiving animal manures and/or biosolids must be monitored for the accumulation of heavy metals and phosphorus in accordance with land- grant university guidance and State law.
- Significant changes in animal numbers, management, and feed management will necessitate additional manure analyses to establish a revised average nutrient content.
- Calibrate application equipment to ensure accurate distribution of material at planned rates.
- Document the nutrient application rate. When the applied rate differs from the planned rate, provide appropriate documentation for the change.
- Records must be maintained for at least 5 years to document plan implementation and maintenance. As applicable, records include:
    - Soil, plant tissue, water, manure, and organic by-product analyses resulting in recommendations for nutrient application,
    - Quantities, analyses and sources of nutrients applied,
    - Dates, and method(s) of nutrient applications, source of nutrients, and rates of application,
    - Weather conditions and soil moisture at the time of application; lapsed time to manure incorporation; rainfall or irrigation event,
    - Crops planted, planting and harvest dates, yields, nutrient analyses of harvested biomass, and crop residues removed,
    - Dates of plan review, name of reviewer, and recommended changes resulting from the review, and
    - All enhanced efficiency fertilizer products used.
    - Additional records for precision/variable rate sites must include:
    - Maps identifying the variable application source, timing, amount, and placement of all plant nutrients applied, and
    - GPS-based yield maps for crops where yields can be digitally collected.

e. The TSP shall provide the following records to the NRCS office to be retained in the Client case file:

a. Printed and electronic copy of the CNMP document;

b. CNMP electronic document file (If using MMP, include the ".nat-cnmp.doc" file);
c. Nutrient Management planning tool plan electronic file (If using MMP, include the ".mmp" file);
d. Revised Universal Soil Loss Equation (RUSLE2) database electronic file (.gdb extension) and, when wind erosion is a concern, the Wind Erosion Prediction System (WEPS) files.
e. Conservation plan electronic xml file from Customer Service Toolkit (.consplan.xml extension); or your own template for displaying the record of decision for conservation practices already applied or planned.
f. If requested, the Geographic Information Systems (GIS) electronic shapefiles created for the operation.
g. Client information (name, address, email, phone, and any information that would be helpful for future reference by NRCS).
h. Client's objectives for the AFO and farm operation.
i. Geospatial layers (if available) for Planning Land Unit (PLU), practices, resource inventory, and other map features
j. Maps used in CNMP development process – conservation plan, soils, CNMP Map of Farmstead with livestock support facilities and features, land treatment maps, and any other maps needed to communicate the existing and planned practices
k. Forms and worksheets used in developing and evaluating alternatives
l. Inventory and analysis information, (this would include all resource concern assessments e.g., erosion, N leaching index, P Index, water quality assessments, air quality site assessment, livestock inventory, manure/waste estimated production, manure imports/exports, manure storage, irrigation assessments, evaluation of existing waste handling/storage structures for integrity and capacity, site feasibility data if needed (such as topographic survey, soil boring or flood zone information.) **Where the assistance of a licensed engineer was required for inventory, assessments, plans, etc. shall be signed by the respective licensed engineer.**
m. If, applicable, photographs, audio and video files or digital files of these type of documents
n. Other appropriate supporting documents and local or state required documentation
o. Engineering Notes if applicable
p. Operation and maintenance agreements and plans for practices that are already existing or for practices where the implementation requirements/job sheets/engineering plans have been developed (unless already in the NRCS case file).
q. Record Keeping as appropriate
r. Notes and computations to support all practice design documentation – for computations requiring an engineer's license, the computations are to be signed by the respective engineer.
s. All completed Implementation Requirements/ Engineering plans
t. If applicable, documentation to support the certification of applied practices.
u. All electronic files or PDF files (if electronic files are not available) used for design and nutrient management planning

Exhibit A – Example CNMP Signature Page, CNMP Format and Content

Part 1. CNMP Format

United States Department of Agriculture

Natural Resources Conservation Service

Comprehensive Nutrient Management Plan (CNMP)

The Comprehensive Nutrient Management Plan (CNMP) is an important part of the conservation management system for your Animal Feeding Operation (AFO). This CNMP documents the planning decisions and operation, maintenance, and record keeping for the animal feeding operation.

Farm/Facility: Sample Dairy Farm
c/o
123 Cow Drive
Holstein, TN 30000
555-555-5555

Client Name(s): John Doe

Plan Period: Sep 2015 - Aug 2018

Comprehensive Nutrient Management Planner

As a Certified CNMP Planner, I certify that I have reviewed both the *Comprehensive Nutrient Management Plan* and supporting documentation for technical adequacy and that the elements of the documents are technically compatible, reasonable and can be implemented.

Signature: _____ Date: _____

Name:

Title: Certification Credentials:

Client

As the decision maker for the animal feeding operation covered by this CNMP, I, have been involved in the planning process and agree that the items/practices listed in each element of the CNMP are needed and will accomplish my management and conservation objectives. I understand that I am responsible for keeping all the necessary records associated with the implementation of this CNMP. It is my intention to implement/accomplish this CNMP in a timely manner as described in the plan.

Signature: _____ Date: _____

Name:

Part 2. CNMP Format – Record of Decisions for the Farmstead/Production Area

Plan map(s) showing existing and planned structures (See NPPH Title 180, part 600.31 subpart A for map requirements);

Soils Map(s) for the headquarters with the appropriate soil interpretations (as needed);

A brief description of the AFO (both existing and proposed), including the type of animal, number of animals, average weight, number of days confined, type of manure storage, existing storage volumes/sizes (when applicable) and maximum length of storage available (These are generally tables printed from animal waste planning software);If applicable, planned imports, exports, and on-farm transfers of manure;

Reference the Implementation Requirements or Engineering plans for practices already implemented. (Plans and specifications for practices are to be maintained in the case file.) For structures installed prior to this plan that were installed without NRCS assistance, the structures should be shown on the appropriate plan map and a note in the Record of Decisions that the structures were installed without NRCS technical or financial assistance.

Example Conservation Practices that constitute the Record of Decisions for the Farmstead Area:

Composting Facility (Code 317) - A composting facility is a structure or device that uses controlled aerobic decomposition to transform waste organic material into a biologically stable product that can be used as a soil amendment.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
(None)	Farmstead			1	2009

Waste Storage Facility (Code 313) - A waste storage facility is an agricultural waste storage impoundment/containment made by constructing an embankment and/or excavating a pit or dugout, or fabricating a structure.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
(None)	Farmstead	1	4/2017		

Attach any completed Implementation Requirement, Jobsheets, or Engineering Plans

Part 3. CNMP Format – Record of Decisions for the Crop, Pasture, or Range Land (Land Treatment Areas Receiving Manure Applications)

Example Conservation Practices that constitute the Record of Decisions for the crop, pasture, or range land:

Conservation Crop Rotation (Code 328) - Conservation crop rotation is growing a planned sequence of various crops on the same piece of land for a variety of conservation purposes. Implementation Requirements Attached.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
4356T	Fields 1,2,3,4,5,6	200 AC		200	2013
4895T	Fields 8,9,10,11,12,13	250 AC	4/2017		

Residue and Tillage Management, No Till (Code 329) - The residue and tillage management no-till/strip till/direct seed practice addresses the amount, orientation, and distribution of crop and other plant residue on the soil surface year-round. Crops are planted and grown in narrow slots or tilled strips established in the untilled seedbed of the previous crop. Implementation Requirements Attached.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
4356T	Fields 1,2,3,4,5,6	200 AC		200	2013
4895T	Fields 8,9,10,11,12,13	250 AC	4/2017		

Nutrient Management (590) - Nutrient management involves managing the amount, placement, and timing of plant nutrients to obtain optimum yields and minimize the risk of surface and groundwater pollution.

Tract	Land Unit	Planned Amount	Planned Date	Applied Amount	Applied Date
4356T	Fields 1,2,3,4,5,6	200 AC		200	2013
4895T	Fields 8,9,10,11,12,13	250 AC	4/2017		

Plan map(s) showing existing and planned practices and land application setbacks (See NPPH Title 180, Part 600.31 subpart A for map requirements);

Soils Map(s) for the crop, pasture, and range with the appropriate soils interpretations (as needed);

Reference the Implementation Requirements or Engineering plans for practices already implemented. (Plans and specifications for practices are to be maintained in the case file.) For practices installed prior to this plan that were installed without NRCS assistance, the structures should be shown on the appropriate plan map and a note in the Record of Decisions that the structure was installed without NRCS technical or financial assistance.

Implementation Requirements for the Planned Practices that were involved in the nitrogen, phosphorus, and erosion assessments. These practices generally include: (328) Conservation Crop Rotation, Tillage Residue Management practices (329 and/or 345), (330) Contour Farming, (585) Strip Cropping, (393) Filter Strip, and (386) Field Border.

Part 4. CNMP Format – Nutrient Management Plan

PLANS AND SPECIFICATIONS for 590 Nutrient Management

Use the respective state Conservation Practice Standard (590) Nutrient Management to provide the needed documentation and planning criteria.