

Tools for Developing and Writing CNMPs

Ted Hartsig
Sustainable Environmental Solutions, Inc.
Lenexa, Kansas

Comprehensive Nutrient Management Plans

- The objective for the CNMP program is “for animal feeding operation (AFO) owners/operators to take voluntary actions to minimize potential water pollutants from confinement facilities and land application of manure and organic by-products.”
- CNMPs are intended to identify management and conservation actions to meet soil and water conservation measures at agricultural operations utilizing animal manures beneficial resource.

CNMP Focus

The CNMP addresses six primary management areas:

- manure and wastewater handling and storage,
- land treatment practices,
- nutrient management,
- record keeping,
- feed management, and
- other manure or organic by-products utilization activities.

CNMP Focus

Of these six primary management areas, the essential elements of the CNMP are focused on:

- **manure and wastewater handling and storage,**
- **land treatment practices,**
- **nutrient management, and**
- **record keeping.**

Land Application Management

Management of manure storage and land application depends on the availability of land to apply the manure to, the nutrient status of the soils and crop need for the nutrients (particularly nitrogen and phosphorous).

The owner must also determine where and when manure can be effectively and safely applied to protect environmental resources.

CNMP Data

Initial data input included the following:

- Soil analytical data, including soil test nitrate, phosphorous, organic matter content, and cation exchange capacity.
- Waste lagoon analytical test result for ammoniacal nitrogen and phosphorous.
- Field data, including soil type, drainage classification, slope, and acreage.
- Crop type, including expected yield and crop nutrient needs.
- Calculations to determine how much nitrogen (N) and phosphorous (P) can be applied to meet crop need, and the volume of effluent this will require.

Additional Data Needs

Data to determination if effluent applications should be based on the crop need for N or P was necessary, including:

- Soil erodibility (based on the Revised Universal Soil Loss Equation).
- Distance of fields from surface water bodies.
- Depth to groundwater.
- Phosphorous index values.
- Method of effluent/manure application.

CNMP Data Table (picture)

SUMMARY

CNMP tools are useful and often necessary for aiding in the decisions necessary for the proper amount and timing of land application of manure and effluent, including:

- Determining field prioritization, i.e. what fields need manure application the most, or on what fields can the most effluent or manure be applied.
- Timing of application.
- Limits of manure application based on nutrient needs, runoff potential, groundwater contamination, or other environmental impacts.
- Identifying or plotting required buffer zones, public and private land use areas, and sensitive environmental receptors, such as surface waters.