Nutrient Management: Issues Observed

Joe Baeten
WDNR Nutrient Management Program Coordinator

Green Bay & New London: January 31, 2017
Manitowoc & Fond du Lac: February 1, 2017
  Jefferson: February 6, 2017
Dodgeville: February 7, 2017
Marshfield: February 8, 2017
Rice Lake: February 9, 2017
Outline

• 5-Year Nutrient Management Plan
• Annual NMP Update
• Potential Future NMP Changes
• Hauling Audits

Photo by Baeten, WDNR
5-Year NMP

• NMP required at WPDES permit issuance/reissuance.
• DNR reviews plans for compliance with NR 243.
• The approved NMP should be a tool that CAFOs can use to maintain compliance with their WPDES permit.
• Here are some issues we are seeing with our reviews...
5-Year NMP

- Checklists (3400-025B & 590)
  - Make sure the most current version is being used.
    - Most current forms, checklists, and templates are on the NM Planning webpage http://dnr.wi.gov/topic/AgBusiness/CAFO/NutrientManagementPlan.html
  - Are spreadable acres being calculated?
    - SnapPlus now does this.
  - Is the form signed?
5-Year NMP

• Narrative
  – Should address the requirements in Form 3400-025B
    • Template available
  – Do animal units and manure generation volumes match preliminary application, engineering documents, etc.?
  – When using phosphorus management strategies Soil Test P & PI clarify which fields will follow which strategy.
5-Year NMP

• Narrative
  - Are 180 day storage calculations included in the plan?
5-Year NMP

• Maps
  1. Non Winter Spreading Maps
     • All fields
  2. Winter Spreading Maps
     • Only selected fields
  3. Headland Stacking Maps
  4. Manure Irrigation Maps

Non Winter Spreading Map Example
5-Year NMP

• Spreading Maps (non-winter & winter)
  • If tile is identified in SnapPlus the outlets and inlets should also be identified on the restriction maps.
  • Areas of concentrated flow should be identified on the maps.
    – If directly connected to a navigable water they would be subject to a SWQMA.
    – Road ditches are considered areas of concentrated flow and may be conduits to navigable water.
5-Year NMP

- Spreading Maps (non-winter & winter)
  - Make sure all fields in the NMP have a non-winter spreading map.
    - Don’t print PDF maps until after department review; send database and we can review online.
  - There should be a separate map for non-winter and winter spreading.
    - Only need a winter spreading map for those fields selected for winter spreading.
  - Must select at least 2 fields for emergency applications of liquid manure.
    - DNR recommends selecting more than 2 fields.
5-Year NMP

• Headland Stacking Maps
  • Only required if the farm intends to headland stack map.
  • Must clearly identify where the headland stack will be placed on the field(s).

Photo by Baeten, WDNR
5-Year NMP

• SnapPlus & Reports
  – Prefer the SnapPlus database & shapefile
  – At a minimum the following reports:
    • Compliance Check Report
    • Field Data & 590 Assessment Report
    • DNR CAFO Mass Balance Report (length of plan)
    • DNR CAFO Annual Spreading Report (length of plan)
    • Annual Manure Production Report (each year of expansion)
    • Annual PI Report (length of plan)
    • Crops Trends Production Report (length of plan)
    • Soil Test Summary Report (short version with past samples)
Annual NMP Updates

- Annual NMP Update typically due at the end of March.
- Should include updates to prior year as well as any necessary to the upcoming year.
- Department review of annual NMP updates is anticipated to be more frequent.
Annual NMP Updates

- Annual NMP Update is an updated version of the approved 5-year NMP.
  - 3 checklists
    - 3400-025B, 3400-025D, & 590 checklists

- SnapPlus & Reports
  - Planning values should be replaced with actual values.
    - Ex. 15,000 vs 14,689 gallons/acre
    - Are calibrations being done?
  - No flags in the Compliance Check Report may be concerning.
Annual NMP Updates

• SnapPlus & Reports
  – A CAFO is responsible for obtaining land application records for all fields in their NMP.
    • Owned land, rented land, land under manure agreements, etc.
  – Soil tests must be kept up to date for all fields.
  – These are common issues with land under manure agreements.
    • I.e. the CAFO doesn’t have control over the land.
    • If records can’t be obtained or soil tests aren’t kept up to date the field would be non-compliant.

Note: update gvsp files to SnapMaps or equivalent.
Annual NMP Updates

- Field monitoring requirements:
  - Drain tile monitoring
    - Before, during and after application
  - Field verification monitoring
    - Before application; are there any new features? Soil conditions?
  - ‘W’ & ‘R’ soil verification
    - Before application
  - Drift monitoring (irrigation)
    - During application

Photo by Baeten, WDNR
Potential Future NMP Changes

• Mortality Management.
• Documentation of weather conditions 24 hours prior and after application.
• Maps showing the locations of each soil sample.
• Total and spreadable field acres must be used.
• Actual crop yields.
Hauling Audits

Why the audits?

• Many areas of the state have groundwater and surface water quality issues.

• Helps reinforce the WPDES permit.

• Demonstrate compliance or non compliance and improves implementation of the NMP.

http://www.uwsp.edu/cnr-ap/watershed/Pages/WellWaterViewer.aspx
Hauling Audits

• Types of hauling audits include:
  – Complaint/Spill Response
  – Announced
  – Unannounced

• Hauling audits can be done during any season.

• Hauling audit methodology:
  – Manure hauling inspection form.
  – Use available tools to do infield measurements: GPS, measuring wheel, clinometer, soil probe, camera/tablet, soil & manure sampling, etc.
  – Compare field audit to most current version of NMP on file.
Hauling Audits

• Issues Observed
  – Tile inlets/outlets not on maps.
    • 67%
    • NMP Sub. Revision

Photos by Baeten, WDNR
Hauling Audits

• **Issues Observed**
  
  – Manure applied within 25 ft of wetland.
  
  – Manure surface applied within 100 ft of navigable water.
  
  – Manure applied within 100 ft of private well.

Photos by Baeten, WDNR
Hauling Audits

• Issues Observed
  – Manure applied within 25 ft of wetland.
  – Manure surface applied within 100 ft of navigable water.
  – Manure applied within 100 ft of private well.
Hauling Audits

• Issues Observed
  – NMP does not match what’s observed in the field (cropping, restrictions).
  – Field(s) found in multiple CAFO NMPs.
    • Not allowed
    • Can go through manure distribution process
      – Need department approval if farm’s transfer liability
  – Restriction maps not on site during inspection.
  – Field verification requirements are not being performed prior to, during, or after spreading.
Hauling Audits

• **Issues Observed**
  – Areas of concentrated flow not established in perennial vegetation.

Photos by Baeten, WDNR
Hauling Audits

• Be Alert & Proactive
  Hose Leak
  – What’s your procedure?
  – How do you monitor?

Photos by Baeten, WDNR
Hauling Audits

- Be Alert & Proactive
  Mud on the Road
  - What’s your policy?

Photo by Baeten, WDNR
Hauling Audits

• Be Alert & Proactive
  Perimeter tillage pass
  – Provides a barrier.
  – Helps meet setbacks.
Hauling Audits

• Be Alert & Proactive

Perimeter tillage pass
  – Provides a barrier.
  – Helps meet setbacks.

Photos by Baeten, WDNR
Hauling Audits

• Audits can be simple.
  – Farm is prepared and adequately implements NMP.

• Pre-tillage
• Immediate Incorporation
• Manure mixed well with soil
• Met setbacks to wetlands & wells

Maintained inspection log

Clear water in restricted area

Photos by Baeten, WDNR
Hauling Audits

• Audits can be complicated.
  – Farm is not prepared and distracted by other work.

• Manure applied to saturated soils
• High application rate
• No monitoring of field was done
• Manure ran off field in multiple areas
Hauling Audits

- Audits can be complicated.
  - Farm is not prepared and distracted by other work.

Photos by Baeten, WDNR
Hauling Audits

• 2017 and beyond...
  – Increased presence in the field by DNR staff conducting hauling audits.
  – EPA also interested in conducting manure hauling audits.
CAFO SnapPlus Updates

• Updates to SnapMaps
  - Winter Spreading maps:
    - Checkbox that will add restrictions to CAFO for winter spreading
    - 300ft buffer on wells and other direct conduits to GW
    - 200ft buffer on concentrated flow channels
    - 200ft buffer on wetlands
    - Bedrock <5ft
    - Slope >%6
CAFO

Farm Name: Aarons_Farm
Is this a CAFO: True

Map generated on: 1/23/2017 SnapMap Version: 16.0, Crop year: 2017
CAFO SnapPlus Updates

• Updates to SnapMaps:
  – Headland Stacking
    - New Polygon tool to draw headland stacking sites
    - No stack restrictions available on maps
CAFO SnapPlus Updates

- Updates to SnapMaps:
  - SWQMA Dismissal tool
  - Only on 1000ft SWQMA
  - Can delete/restore 1000ft SWQMA
QUESTIONS

Joe Baeten
WDNR Nutrient Management Program Coordinator
(920) 662-5191
Joseph.Baeten@Wisconsin.gov
Green Bay Service Center

Aaron O’Rourke
WDNR Nutrient Management Plan Reviewer
(608) 261-6419
Aaron.Orourke@Wisconsin.gov
Central Office