



## BUREAU OF WATERSHED MANAGEMENT

### INTERIM GUIDANCE

## NUTRIENT MANAGEMENT - CAFO APPLICATIONS ON SHALLOW GROUNDWATER SOILS

**March 2009**

**Description:** Ch. NR 243, Wis. Adm. Code, restrictions CAFO manure and process wastewater applications to fields that have less than 24 inches of soil over groundwater or bedrock.

This guidance describes how permittees and their consultants can identify and determine whether to use these fields as well as how Department staff can review fields for compliance with this requirement.

*This document is intended solely as guidance, and does not contain any mandatory requirements except where requirements found in statute or administrative rule are referenced. This guidance does not establish or affect legal rights or obligations, and is not finally determinative of any of the issues addressed. This guidance does not create any rights enforceable by any party in litigation with the State of Wisconsin or the Department of Natural Resources. Any regulatory decisions made by the Department of Natural Resources in any matter addressed by this guidance will be made by applying the governing statutes and administrative rules to the relevant facts.*

## **Background**

NR 243.14(2)(b)(7) requires CAFO manure or process wastewater applications may not be applied on areas of a field with a depth to groundwater or bedrock of less than 24 inches.

This restriction applies only to those portions of field that have less than 24 inches of separation to groundwater. If portions of a field have at least 24” of soil, these portions of the field are not subject to the prohibition (i.e., there is no de minimus amount of field that falls into/out of a prohibition area that would allow the entire field to be determined to not meet/meet the restriction).

## **NRCS Conservation Planning Technical Note WI-1**

This document (Appendix 1) identifies soils with high potential for groundwater contamination. It places restrictions on ‘w’ type soils. The ‘w’ symbol indicates the soil is very poorly and poorly drained has an apparent water table that is less than 12 inches from the surface for any duration at any time of the year. Accordingly, ‘w’ soils indicate, by definition, where the depth to groundwater may also be within 24 inches of the field surface for any duration at any time of the year.

**Tech Note WI-1 link (Sept 2007):**<http://www.wi.nrcs.usda.gov/technical/technotes.html>

## **NRCS Soil Description for ‘w’ soils**

NRCS soil descriptions provide more detailed information for individual soils, including ‘w’ soils. Each description contains a category entitled DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY. This category describes the depth to water table (groundwater) for specific time periods. Here are two examples:

Example 1 - Poorly drained. An apparent seasonal high water table is at 15 cm (0.5 foot) above the surface to 31 cm (1.0 foot) below the surface at some time during spring in most years.

Example 2 - Very poorly drained. Depth to the seasonal high water table ranges from 2 foot above the surface in ponded phases to 1 foot below the surface from September to June.

**For specific NRCS soil descriptions, use NRCS Soil Description Search link (click on soil series name search):** <http://soils.usda.gov/technical/classification/osd/index.html>

## **NRCS soil description, groundwater depth factors and NR 243 compliance**

The NRCS soil descriptions, however, are not regulatory. They are general guidance provided by NRCS for general nutrient management purposes. *The actual depth to groundwater on a specific day or under specific conditions may vary from the NRCS narrative soil descriptions.*

The following factors influence groundwater depth:

- Soil type(s) and moisture content.
- Field topography.
- Weather patterns (wet or dry seasons).
- Drainage systems (ditches and drain tiles).
- Crop and Tillage types.

NR 243.14 requires manure applications to fields meet the depth to groundwater requirement **on a field by field basis at the time of application**. The steps described below provide permitted CAFO farms some methods to demonstrate compliance with the NR243 depth to groundwater requirement. **Please note, this guidance does not preclude a CAFO farm from submitting or implementing alternative methods to this guidance\***.

\* = Alternative methods do not become effective until the department has reviewed and approved the method.

### Interim guidance for shallow groundwater soils

- (1) For each field listed in farm's Nutrient Management Plan (NMP), identify and map all 'w' soil units using tools below. Keep with NMP.**
  - Web Soil Survey - <http://websoilsurvey.nrcs.usda.gov/app/>
  - Tech Note WI-1 (Appx 1)- <http://www.wi.nrcs.usda.gov/technical/technotes.html>
- (2) For each field, document the NRCS Soil Series description for all 'w' soil units using link below. Keep with NMP.** Use DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY description to determine depth to water table time period(s).
  - NRCS Soil Description - <http://ortho.ftw.nrcs.usda.gov/cgi-bin/osd/osdname.cgi>
- (3) If possible, avoid applying manure or process wastewater to areas of fields with 'w' soils during shallow groundwater time periods listed in NRCS soil description(s). If avoidance is not possible, follow steps 4-6 below.**
- (4) Before any application, inspect the 'w' soil section(s) of the field and answer the following question: Are 'w' soil sections of field 'idle' - Y or N?**

For purposes of this guidance, "idle" means: the 'w' soil section(s) of field show evidence of hydric soils and exhibit: (1) Wetland vegetation (woody vegetation, shrubs, grasses) or (2) Abandoned condition (e.g., no crops or evidence of recent crops for at least two years).

  - i. If Y – no application; locate alternative acreage.**
  - ii. If N – go to Step 5.**
- (5) Before any application, demonstrate 'w' soil sections of field do not have a groundwater depth of less than 24 inches.**
  - i. If Y– apply manure and follow all other NR243.14 manure spreading requirements.**
  - ii. If N– no application; locate alternative acreage; or apply at time when groundwater depth is greater than 24 inches.**

For purposes of this guidance, 'demonstrate' means one of the following options:

- (1) Locate drain tile(s) on the field with 'w' soils units. Determine drain tile(s) are functioning and tile depth is 24 inches or greater from the surface of the field. If drain tile(s) meet criteria

above, complete application and follow all other NR243 spreading requirements (e.g., preventing drain tile discharges to surface waters).

- (2) Excavate at least two “representative” soil pits within at least one ‘w’ soil area on the field that is five acres or less in size\* (using mechanical soil auger or manual hand tools) to a depth of at least 30 inches. After at least one hour, observe if the water table is below 24 inches of surface. If both pits (for each five acre area) meet the criteria above, refill each pit, complete application and follow all other NR243 spreading requirements.

\*= When ‘w’ soil area on field is greater than five acres in size, excavate additional soil pits so a ratio of two pits for each 5 acre sized ‘w’ soil unit is met.

For purposes of this guidance, “representative” means choosing locations within a ‘w’ soil area of field that reflects the overall structure and characteristics of the ‘w’ soil unit.

**(6) Document steps taken at each field with ‘w’ soil units in WPDES permit daily and annual spreading reports.**