

# TECHNICAL NOTE

SOIL TECHNICAL NOTE NO. 1

April 7, 2014

## Procedure for Problematic Hydric Soils Determination Seasonally Ponded Soils

(Steve Sieler, State Soil Liaison)

### Background:

In glacial landscapes characterized as depressional, especially the prairie pothole region of North Dakota, hydric soils are ponded seasonally for long (7 to 30 days) to very long (more than 30 days) time periods. Soils that pond for less than 7 days are not sufficiently wet under normal conditions to develop a depleted or reduced matrix and do not meet the definition for hydric soils. In contrast, soils that pond seasonally for long or very long time periods are sufficiently wet under normal conditions to develop a depleted or reduced matrix in the E horizon and do meet the definition for hydric soils. Because these depressional landscapes may pond water for extended (i.e., pluvial affect) periods of time, distinct or prominent redox features may not be present in the E horizon at the time of observation, therefore not meeting the criteria for a depleted matrix. The following procedure is designed to consistently determine and document the presence or absence of a hydric soil in such cases.

### Criteria:

Use this procedure where **ALL** of the following conditions apply:

1. An onsite determination of the hydric soil factor is necessary due to lack of sufficient offsite data; **OR** the USDA program participant requested reconsideration; **OR** the initial determination is being appealed; **AND**
2. The soils are in depressions that pond water seasonally; **AND**
3. The soils have E horizons that do not have distinct or prominent redoximorphic features but otherwise meet the color criteria for a depleted matrix as defined in “Field Indicators of Hydric Soils in the United States.”

### Procedure:

Examine the soil to a depth of 20 inches (50 cm) and determine if an E horizon is present. If the E horizon meets the color criteria for a depleted matrix but does not have distinct or prominent redox features, place either of the following statements in the Soils Remarks section of the Wetland Determination Data Form – Great Plains Regional Version 2.

***“ND FOTG Technical Note No. 1” (located in Section I - Technical Notes – Wetland subfolder).***

Or

***“Soils in depressions that seasonally pond water and have an E horizon that meets the matrix color criteria of a depleted matrix without distinct or prominent redox features, meet the definition of a hydric soil.”***

Typical soils series – Tonka, Enloe

Examine the soil to a depth of 20 inches (50 cm) and determine if an E horizon is present. If the E horizon does not meet the color criteria for a depleted matrix, place either of the following statements in the Soils Remarks section of the Wetland Determination Data Form – Great Plains Regional Version 2.

***“ND FOTG Technical Note No. 1” (located in Section I - Technical Notes – Wetland subfolder).***

Or

***“Soils in depressions that seasonally pond water and have an E horizon that does not meet the matrix color criteria of a depleted matrix, does not meet the definition of a hydric soil.”***

Typical soil series – Wyard,

**Justification:**

The situation addressed by this procedure is discussed in the Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Great Plains Region (Version 2.0), Chapter 5 under Problematic Hydric Soils, item 5 – Seasonally Ponded Soils.

“Seasonally ponded, depressional wetlands occur in basins throughout the Great Plains. Most are perched systems, with water ponding above a restrictive soil layer, such as a hardpan or clay layer that is at or near the surface (e.g., in Vertisols). Ponded depressions also occur in floodplains where receding floodwaters, precipitation, and local runoff are held above a slowly permeable soil layer. Some of these wetlands lack hydric soil indicators due to limited saturation depth, saline conditions, or other factors.”

In North Dakota, soils that pond water seasonally for long or very long time periods are sufficiently wet under normal conditions to develop a depleted or reduced matrix in the E horizon and do meet the definition for hydric soils. Because these depressional landscapes may pond water for extended (i.e., pluvial affect) periods of time, distinct or prominent redox features may not be present in the depleted matrix (E horizon) at the time of observation.

This procedure applies the “Flexibility” provision (paragraph 23) in the Corps of Engineers Wetlands Delineation Manual. The justification for the use of the “Flexibility” provision is as follows:

1. Soils that are in depressions that seasonally pond water and have an E horizon that meets the color criteria for a depleted matrix but do not have distinct or prominent redoximorphic features, may be mistaken for non-hydric soils.

2. Features that confirm the presence or absence of hydric soils can be identified and documented in soils that seasonally pond water.
3. NRCS' Ecological Site Description (ESD) High Condition Plant Communities applicable to poorly drained soils in North Dakota meet the definition of hydric soils and Prevalence Index Test for hydrophytic vegetation. Therefore, one can conclude that under normal circumstances, poorly drained ecological sites in North Dakota do support a prevalence of hydrophytic vegetation.
4. NRCS' Ecological Site Description (ESD) High Condition Plant Communities applicable to somewhat poorly drained soils in North Dakota do not meet an indicator test for hydrophytic vegetation. Therefore, one can conclude that under normal circumstances, somewhat poorly drained ecological sites in North Dakota do not support a prevalence of hydrophytic vegetation.

**References:**

Corps of Engineers Wetlands Delineation Manual, January 1987

Field Indicators of Hydric Soils of the United States, Version 7.0, pages 13-14

Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)

NRCS Field Office Technical Guide - Section II – Ecological Site Descriptions