

## 527.4 Wetland Criteria/Indicators/Procedures

### I. INTRODUCTION

Wetland is defined as land that;

1. has a predominance of hydric soils and
2. is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances does support, a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions.

Wetlands are identified through the confirmation of wetland criteria. All three wetland criteria, hydric soils, hydrophytic vegetation, and wetland hydrology, must be met for an area to be identified as wetland. Each criterion must be independently assessed by collecting, analyzing, and documenting data to support the determination. NRCS must demonstrate that an area is wetland, and each determination or delineation must be supported by sufficient evidence. Evidence is gained by collecting data through mandatory technical procedures that indicate if wetland criteria are met. The criteria, indicators, and procedures for making wetland determinations and delineations are contained in this Section.

Refer to the "Wetland Criteria/Indicators/Procedures table" for the correct manual to utilize for making wetland determinations on agricultural lands, nonagricultural lands, and narrow bands and small pockets in agricultural lands.

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**WETLAND CRITERIA/INDICATORS/PROCEDURES FOR  
AGRICULTURAL & NON AGRICULTURAL LAND  
FOR DECISIONS REGARDING FOOD SECURITY ACT**

<b>ON-SITE VERIFICATION/ DETERMINATION /DELINEATION</b>	<b>Agricultural Land (native vegetation is disturbed/removed)</b>	<b>Narrow Band &amp; Small Pockets Ag Lands</b>	<b>Agricultural and Non-Agricultural Land(native vegetation is undisturbed)</b>
<b>MANUAL (Procedures)</b>	NFSAM	COE 87M*	COE 87M*
<b>CRITERIA</b>	NFSAM	COE 87M	COE 87M
<b>Soils</b>	NTCHS***		
<b>Vegetation</b>	NFSAM		
<b>Hydrology</b>			
<b>INDICATORS</b>		COE 87M	COE 87M***
<b>Soils</b>	Field Indicator of Hydric Soils		
<b>Vegetation</b>	COE 87M		
<b>Hydrology</b>	COE 87M & Hydrology Tools		
<b>TRAINING REQUIRED:</b>	NFSAM**	COE Reg. IV	COE Reg. IV

\*Supplemented with guidance documents

\*\*COE Reg. IV training – highly recommended

\*\*\*Use Indicator of Hydric Soils for Agricultural Land (National Technical Committee for Hydric Soils)

\*\*\* NRCS when the request is from a USDA program participant

\*\*\*\* NTCHS - National Technical Committee for Hydric Soils - Current guidance

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### II. CRITERIA

#### Hydric Soil Criteria for All Land Uses

The list of hydric soils is created by computer using the criteria developed by the National Technical Committee for Hydric Soils. The criteria are selected soil properties that are documented in Soil Taxonomy and were designed primarily to generate a list of hydric soils from the database of Soil Interpretations Records. Criteria 1, 3, and 4 serve as both database criteria and as indicators for identification of hydric soils. Criterion 2 serves only to retrieve soils from the database.

The hydric soil criteria is as follows:

1. All Histosols except Folists, or
2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Aquisalids, Pachic subgroups, or Cumulic subgroups that are:
  - a. Somewhat poorly drained with a water table equal to 0.0 foot (ft) from the surface during the growing season, or
  - b. poorly drained or very poorly drained and have either:
    - 1) water table equal to 0.0 ft during the growing season if textures are coarse sand, sand, or fine sand in all layers within 20 inches (in), or for other soils
    - 2) water table at less than or equal to 0.5 ft from the surface during the growing season if permeability is equal to or greater than 6.0 in/hour (h) in all layers within 20 in, or
    - 3) water table at less than or equal to 1.0 ft from the surface during the growing season if permeability is less than 6.0 in/h in any layer within 20 inches, or
3. Soils that are frequently ponded for long duration or very long duration during the growing season, or
4. Soils that are frequently flooded for long duration or very long duration during the growing season.

#### Hydrophytic Vegetation Criteria

(b) *Hydrophytic vegetation.* Hydrophytic vegetation consists of plants growing in water or in a substrate that is at least periodically deficient in oxygen during a growing season as a result of excessive water content.

(1) A plant shall be considered to be a plant species that occurs in wetland if such plant is listed in the *National List of Plant Species that Occur In Wetlands*. The publication may be obtained upon request from the U.S. Fish and Wildlife Service at National Wetland Inventory, Monroe Bldg. Suite 101, 9720 Executive Center Drive, St. Petersburg, Florida 33702.

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(2) For the purposes of the definition of "wetland" in Sec. 12.2 of this part, land shall be determined to have a prevalence of hydrophytic vegetation if:

(i) NRCS determines through the criteria specified in paragraph (b)(3) of this section that under normal circumstances such land supports a prevalence of hydrophytic vegetation. The term "normal circumstances" refers to the soil and hydrologic conditions that are normally present, without regard to whether the vegetation has been removed; or

(ii) In the event the vegetation on such land has been altered or removed, NRCS will determine if a prevalence of hydrophytic vegetation typically exists in the local area on the same hydric soil map unit under non-altered hydrologic conditions.

(3) The determination of prevalence of hydrophytic vegetation will be made in accordance with the current Federal wetland delineation methodology in use by NRCS at the time of the determination. (Currently, the COE REG IV criteria and indicators for on-site methodology.)

### Wetland Hydrology Criteria

The hydrology criteria for wetlands is as follows:

1. Inundation (flooding or ponding) occurs for 7 consecutive days or longer during the growing season in most years (50% chance or more); or
2. Saturation at or near the surface occurs for 14 consecutive days or longer during the growing season in most years (50% chance or more). Soils may be considered to be saturated to the surface when the water table is within:
  - a. 0.5 ft of the surface for coarse sand, sand or fine sandy soils; or
  - b. 1.0 ft of the surface for all other soils.

Further refinement of hydrology criteria for determining farmed wetlands (FW) and farmed wetland pasture (FWP) is as follows:

3. For an area to be designated to be FW the area must meet the definition in 514.22a and the following hydrology criteria:
  - \* If the area is a pothole, playa, or pocosin is inundated for at least 7 consecutive days or saturated for at least 14 consecutive days during the growing season; or
  - \* If the area is not a pothole, playa, or pocosin it has a 50 percent chance of being seasonally ponded or flooded for at least 15 consecutive days during the growing season under normal conditions.
4. For an area to be designated a FWP the area must meet the definition in 514.23a and the following hydrology criteria:

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\* The area is inundated for at least 7 consecutive days during the growing season or saturated for at least 14 consecutive days during the growing season.

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### Growing Season

The growing season is defined as that part of the year when soil temperatures at 19.7 inches below the soil surface are higher than biologic zero (5 degrees C). As this quantitative determination requires in-ground instrumentation, growing season may be estimated by approximating the number of frost free days. The growing season can be approximated as the period of time between the average date of the last killing frost to the average date of the first killing frost. This represents a temperature threshold of 28 degrees F or lower at a frequency of 5 years in 10. Growing season data can be obtained from the Climate Data Access Network (CDAF), at Portland, Oregon. The State Climate Data Liaison (CDL) in the state office has the procedure for obtaining the data.

In certain parts of the country where the plant communities have adapted to regional conditions, local methods of determining growing season may be more accurate than that described above. Such methods may be used when accompanied by the technical rationale.

III. INDICATORS FOR WETLANDS ON AGRICULTURAL LANDS

The interaction of soils, vegetation and hydrology results in the development of characteristics unique to wetlands. These characteristics are represented by specific indicators which can be used to assist in verification of the presence of hydric soils, hydrophytic vegetation, and wetland hydrology. The following Sections describe the various indicators for soils, vegetation, and hydrology that should be used in determining wetland boundaries. While the indicators are initially considered as independent variables in the determination process, it is the preponderance of the evidence—that is, the weight of all the indicators together—that leads to the final determination of the wetland conditions. These indicators are gathered during on-site reviews.

Soils Indicators

The Field Indicators of Hydric Soils of the United States (Reference Section II of FOTG) shall be used to indicate if the soils criterion is met. The Field Indicators do NOT, however, identify every hydric soil and the lack of observation of one of the Field Indicators does not necessarily mean the soil is NOT hydric.

When soil conditions are difficult to interpret or seem inconsistent with the landscape, vegetation, or hydrology, it may be necessary to obtain the assistance of an experienced wetland delineator or soil scientist. It is expected that occasions will arise where confirmation of saturation and reduction, as required by the hydric soil definition, will depend on intensive data collected by direct measurement or by other means.

To fully document a hydric soil, the soil should be examined and described to whatever depths are necessary to test for the presence of applicable hydric soil indicators. In most soils, the depth of excavation should be at least 50 cm or 20 inches. Document features observed. Compare the soil features observed to that required by each Field Indicator. Specify which indicators have been met.

Vegetation Indicators

NFSAM criteria may be documented by use of the appropriate vegetation Sections of the "COE of Engineers Wetlands Delineation Manual" (Waterways Experiment Station Technical Engineers Report Y-87-1, January 1987) and current National guidance, i.e., October 7, 1991, Questions and Answers on the 1987 Manual and the COE of Engineers, March 6, 1992, guidance to the field "Clarification and Interpretation of the 1987 Manual."

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### Hydrology Indicators

NFSAM criteria may be documented through use of indicators from the appropriate hydrology Sections of the "COE of Engineers Wetlands Delineation Manual" (Waterways Experiment Station Technical Engineers Report Y-87-1, January 1987) and the COE of Engineers March 1992 guidance to the field "Clarification and Interpretation of the 1987 Manual".

In addition, the following analytical techniques may be used to supplement indicators and procedures found in the COE 1987 Manual. These techniques are outlined in the Hydrology Tools for Wetland Delineation Manual:

- (a) Use of Stream and Lake Gages
- (b) Runoff Volumes
- (c) Remote Sensing
- (d) DRAINMOD
- (e) Scope and Effect Equations
- (f) NRCS Drainage Guides
- (g) Observation Wells

### IV. PROCEDURES

Certified wetlands determinations are conducted through either on-site verification of off-site procedures, or on-site procedures. Off-site procedures should only be utilized where the application of remote sensing technology can effectively identify wetlands, such as on open agricultural lands. Off-site procedures must be made according to wetland mapping conventions that have been agreed to by NRCS, EPA, COE, and FWS as per the MOA (Appendix 527.12) and verified on-site.

Mapping conventions must be based on field-tested correlation between off-site information and on-site wetland determinations. Mapping conventions must reflect regional differences in interpretation of wetland signatures (See 513, Subpart C).

On-site procedures are required according to Section 514.12b. On-site procedures require examination of the site for the presence of wetland criteria described in Section II (of this part) and use of the procedures prescribed in Section III (of this part) to document Indicators.

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### Off-site Procedures

Off-site procedures are dependent on the availability of information for making a wetland determination, the quality of this information, and the ability to interpret these data. Off-site procedures must be based on wetland mapping conventions that have interagency concurrence and that have been field tested to ensure adequate correlation between office information and actual wetland conditions. All certified wetland determinations must be verified on-site even when using off-site procedures.

The following information should be utilized when using off-site procedures: (See Chapter 513, Subpart C for procedures for developing off-site wetland mapping conventions)

1. U.S.G.S. topographic maps depicting the site and the watershed.
2. National Wetland Inventory (NWI) maps, state wetland maps or local wetland maps.
3. NRCS soil survey maps where hydric soils or soils with hydric inclusions on the site have been previously identified.
4. Aerial photos or FSA slides of the site. Mapping conventions must be followed when interpreting aerial photography. Depending upon the location, wetland signatures may include:
  - a. hydrophytic vegetation
  - b. surface water
  - c. saturated soils
  - d. flooded or drowned-out crops
  - e. stressed crops due to wetness
  - f. differences in vegetation patterns due to different planting dates
  - g. inclusion of wet area into set-aside programs
  - h. other.
5. Climatological data to ensure that the wetland signatures are reflective of long term hydrological conditions. The Hydrology Tools for Wetland Delineation Manual provides a procedure for the use of the climatological data to ensure the signatures are representative.

### On-site Determinations

Although wetlands may be identified off-site by an approved mapping convention process, all certified wetland determinations must be verified or conducted on-site.

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### Disturbed Areas

Disturbed areas include sites where significant alteration of the soils, vegetation or hydrology has occurred to the extent that indicators cannot be relied upon to identify wetland conditions. Disturbance may include human activities (e.g., intensive farming, filling, excavation, clearing, damming, cultivation, or land management activities) or natural events (e.g., avalanches, mudslides, head-cutting, aggradation, degradation). Disturbances may be on-site (e.g., draining, dredging, filling) or off-site (e.g., terraces, diversions, dams, head-cuts).

In general, disturbance includes any activity that affects the flow of water into or out of a wetland; any change in the natural condition of the soil; and any alteration or elimination of the natural hydrophytic plant community.

Significant vegetative disturbance includes farming or ranching practices that alter the species composition of the plant community so that it is no longer in a natural condition. For example, wetlands that are cropped or established to tame grasses should be considered vegetatively disturbed. Also, remnants of natural vegetation in wetlands that are otherwise vegetatively altered should not be solely relied upon to determine a prevalence of hydrophytic vegetation.

Utilize the following procedures for evaluating the soils, vegetation and hydrology on disturbed sites. Utilize the data sheets attached hereto for recording the data.

#### 1. Soils

For areas where the soils have been significantly altered, additional analyses must be performed to determine the soils that would occur under normal circumstances. **The procedures in NFSAM are to be used but may be supplemented by the procedures found in the COE 87 Manual for Atypical Situations (Section F).** Apply the indicators of hydric soils as found in above in Section III of this part **and document on the data sheets in NFSAM Section 526.41 through 526.48, or similiar COE data sheets.**

#### 2. Vegetation

For areas where vegetation has been significantly disturbed, additional analyses must be performed to determine the vegetation that would occur under normal circumstances. **The procedures found in NFSAM are to be utilized and may be supplemented by the procedures found in the COE 87 Manual for Atypical Situations (Section F).** Apply the indicators as found above in Section III of this part **and document on data sheets in NFSAM 526.41 through 526.48, or similiar COE data sheets.**

#### 3. Hydrology

For areas where the hydrology has been significantly altered, additional analyses must be performed to determine the hydrology that would occur under normal circumstances. **The procedures found in NFSAM are to be utilized and may be supplemented by the procedures found in the COE 87 Manual**

for Atypical Situations (Section F). Apply the indicators as found above in Section III of this part. Data sheets of NFSAM 526.41 through 526.48, or similiar COE data sheets are used to record the data.

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Additional procedures in the Hydrology Tools for Wetland Delineation Manual may be used to supplement NFSAM and the COE 87 Manual. The effects of drainage may be evaluated using scope and effect equations found in the Hydrology Tools manual. Also, DRAINMOD model version 4.0 can also be use to evaluate the long range impact of the drainage features on the water table.

### Undisturbed Areas

The "Corps of Engineers Wetlands Delineation Manual" (Waterways Experiment Station Technical Engineers Report Y-87-1, January 1987) and current national guidance, i.e., the Corps of Engineers, March 1992 guidance to the field "Clarification and Interpretation of the 1987 Manual" must be used to conduct delineations on all lands not considered agricultural land per the MOA and may be used where land is not in annually tilled crops. (Appendix 527.12). These lands are areas where the existing vegetation can be used to determine whether the area meets applicable hydrophytic vegetation criteria in making a wetland delineation. The data sheets provided in the COE 87 manual and supplemental guidance must be used to record data.