



DEPARTMENT OF THE ARMY

U.S. Army Corps of Engineers
WASHINGTON, D.C. 20314-1000

REPLY TO
ATTENTION OF:

6 MAR 1992

CECW-OR

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Clarification and Interpretation of the 1987 Manual

1. The purpose of this memorandum is to provide additional clarification and guidance concerning the application of the Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, January 1987, Final Report (1987 Manual). As discussed in my 20 February 1992 memorandum, procedures for the identification and delineation of wetlands must be fully consistent with both the 1987 Manual and the Questions and Answers issued 7 October 1991. The technical and procedural guidance contained in paragraphs 2 thru 6 below has been prepared by the Waterways Experiment Station (WES) and is provided as further guidance. The following guidance is considered to be consistent with the 1987 Manual and the 7 October Questions and Answers. Further, this guidance will be presented in the upcoming Regulatory IV wetlands delineation training sessions in FY 92. The alternative technical methods of data gathering discussed below are acceptable as long as the basic decision rules (i.e., criteria and indicators) established in the 1987 Manual are applied. Also enclosed is a revised data form which may be used in lieu of the routine data sheet provided with the 1987 Manual, if desired. As discussed in my 20 February 1992 memorandum to the field, regional approaches and/or alternative data sheets must be reviewed and approved by HQUSACE (CECW-OR) prior to regional implementation. Notwithstanding this requirement, we encourage interagency coordination and cooperation on implementation of the 1987 Manual. Such cooperation can facilitate the continued success of our use of the 1987 Manual.

2. Vegetation:

a. Basic rule: More than 50 percent of dominant species from all strata are OBL, FACW, or FAC (excluding FAC-) on the appropriate Fish and Wildlife Service regional list of plant species that occur in wetlands.

b. The 1987 Manual provides that the 3 most dominant species be selected from each stratum (select 5 from each stratum if only 1-2 strata are present). However, alternative ecologically based methods for selecting dominant species from each stratum are also acceptable. The dominance method described in the 1989 interagency manual is an appropriate alternative

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method. (1989 Manual, p. 9, para. 3.3)

c. The 4 vegetation strata (tree, sapling/shrub, herb, and woody vine) described in the 1987 Manual are appropriate. However, a 5-stratum approach (tree, sapling, shrub, herb, and woody vine) is an acceptable alternative.

d. The 1987 Manual states on page 79 that hydrophytic vegetation is present if 2 or more dominant species exhibit morphological adaptations or have known physiological adaptations for wetlands. This rule should be used only after the basic rule is applied; use caution with adaptations (e.g., shallow roots) that can develop for reasons other than wetness. Furthermore, the morphological adaptations must be observed on most individuals of the dominant species.

e. In areas where the available evidence of wetlands hydrology or hydric soil is weak (e.g., no primary indicators of hydrology), the Facultative Neutral (FAC neutral) option may be used to help clarify a wetland delineation. Use of the FAC neutral option is explained in paragraph 35(a), page 23, of the 1987 Manual. Use of the FAC neutral option is at the discretion of the District. Further, the FAC neutral option cannot be used to exclude areas that meet the "basic vegetation rule" and the hydrology and hydric soil requirements.

3. Hydrology:

a. Areas which are seasonally inundated and/or saturated to the surface for a consecutive number of days for more than 12.5 percent of the growing season are wetlands, provided the soil and vegetation parameters are met. Areas wet between 5 percent and 12.5 percent of the growing season in most years (see Table 5, page 36 of the 1987 Manual) may or may not be wetlands. Areas saturated to the surface for less than 5 percent of the growing season are non-wetlands. Wetland hydrology exists if field indicators are present as described herein and in the enclosed data sheet.

b. To evaluate hydrologic data (e.g., from stream gages or groundwater wells) growing season dates are required. Soil temperature regime (i.e., period of the year when soil temperature at 20 inches below the surface is above 5 C) is the primary definition of growing season, but data are rarely available for individual sites. Broad regions based on soil temperature regime (e.g., mesic, thermic) are not sufficiently site-specific. For wetland determinations, growing season can be estimated from climatological data given in most SCS county soil

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surveys (usually in Table 2 or 3 of modern soil surveys). Growing season starting and ending dates will generally be determined based on the "28 degrees F or lower" temperature threshold at a frequency of "5 years in 10." In the south, at the discretion of the district, it may be more appropriate to use the 32 degree F threshold.

c. In groundwater-driven systems, which lack surface indicators of wetland hydrology, it is acceptable to use local Soil Conservation Service (SCS) soil survey information to evaluate the hydrology parameter (p. 37 in the Manual) in conjunction with other information, such as the FAC neutral test. Use caution in areas that may have been recently drained.

d. Oxidized rhizospheres surrounding living roots are acceptable hydrology indicators on a case-by-case basis and may be useful in groundwater systems. Use caution that rhizospheres are not relicts of past hydrology. Rhizospheres should also be reasonably abundant and within the upper 12 inches of the soil profile. Oxidized rhizospheres must be supported by other indicators of hydrology such as the FAC neutral option if hydrology evidence is weak.

4. Soil:

a. The most recent version of National Technical Committee for Hydric Soils hydric soil criteria will be used. At this writing, criteria published in the June 1991 Hydric Soils of the United States are current. These criteria specify at least 15 consecutive days of saturation or 7 days of inundation during the growing season in most years.

b. Local Lists of Hydric Soil Mapping Units recently developed by SCS and available from county or State SCS offices give local information about presence of hydric soils on a site. When available, these local lists take precedence over the national list for hydric soil determinations.

c. SCS is currently developing regional indicators of significant soil saturation. Until finalized and adopted, these indicators may not be used for hydrology or hydric soil determinations.

d. The statement (p. 31 of the 1987 Manual) that gleyed and low-chroma colors must be observed "immediately below the A-horizon or 10 inches (whichever is shallower)" is intended as general guidance. Certain problem soils may differ.

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5. Methods:

a. As stated in the 1987 Manual (footnote, p. 76), alternative plot sizes and dominance measures are acceptable.

b. For comprehensive determinations involving a patchy or diverse herb layer, a single, centrally located 3.28 x 3.28-foot quadrat may not give a representative sample. As an alternative, the multiple-quadrat procedure presented in the 1989 Manual (p. 42) is recommended.


6. Problem Areas

a. Page 93, paragraph 78 of the 1987 Manual states that similar problem situations may occur in other wetland types; therefore, problem areas are not limited to this list.

b. Problem soil situations mentioned elsewhere in the Manual include soils derived from red parent materials, some Entisols, Mollisols, and Spodosols.

7. Questions concerning this information should be directed to Ms. Karen A. Kochenbach, HQUSACE (CECW-OR), at (202) 272-1784, or Mr. James S. Wakeley, WES, at (601) 634-3702.

Encl


ARTHUR E. WILLIAMS
Major General, USA
Directorate of Civil Works

DISTRIBUTION:
(SEE PAGE 2 & 3)

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: _____ Applicant/Owner: _____ Investigator: _____	Date: _____ County: _____ State: _____
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: _____ Transect ID: _____ Plot ID: _____

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. _____	_____	_____	9. _____	_____	_____
2. _____	_____	_____	10. _____	_____	_____
3. _____	_____	_____	11. _____	_____	_____
4. _____	_____	_____	12. _____	_____	_____
5. _____	_____	_____	13. _____	_____	_____
6. _____	_____	_____	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): _____

Remarks: _____

HYDROLOGY

<p> <input type="checkbox"/> Recorded Data (Describe in Remarks): <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No Recorded Data Available </p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 Inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands </p> <p>Secondary Indicators (2 or more required):</p> <p> <input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (Explain in Remarks) </p>
<p>Remarks: _____</p>	

SOILS

[illegible]

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No (Circle)	(Circle)
Wetland Hydrology Present?	Yes	No	
Hydric Soils Present?	Yes	No	
Is this Sampling Point Within a Wetland?		Yes	No
Remarks:			

Approved by HQUSACE 3/92



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7 October 1991

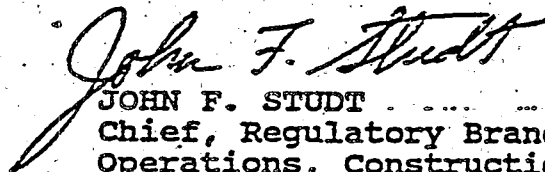
CECW-OR

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Questions & Answers on 1987 Manual

1. In response to questions from the field, the Qs & As on the 1987 Corps of Engineers Wetland Delineation Manual (1987 Manual) have been further clarified (in particular, questions #7 & 8). We clarified that for saturated only systems, the saturation must be to the surface for the appropriate number of days during the growing season. Furthermore, we clarified that the number of days for inundation or saturation to the surface are consecutive, not cumulative. The enclosed Qs and As dated 7 October, 1991 supercede those previously distributed under the cover memorandum of 16 September, 1991.

2. I want to again emphasize that the 1987 Manual stresses the need to verify that all three parameters exist prior to identifying and delineating an area as a wetland. Further, the 1987 Manual focuses on hydrology (i.e., inundation & or saturation to the surface). In situations where hydrology is questionable, the 1987 Manual requires stronger evidence regarding the hydrophytic nature of the vegetation. The 1987 Manual also stresses the need to use sound professional judgement, providing latitude to demonstrate whether an area is a wetland or not based on a holistic and careful consideration of evidence for all three parameters. As indicated in the 1987 Manual and the attached Qs and As, careful professional judgement must be used in situations where indicators of hydrology are not clear and the dominant vegetation is facultative.


JOHN F. STUDT
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Enclosure

Questions & Answers
on 1987 Corps of Engineers Manual

1.Q. What is the definition and practical interpretation of the growing season which should be used in the application of the 1987 Manual?

A. The 1987 Manual defines the growing season as "the portion of the year when soil temperatures at 19.7 inches below the soil surface are higher than biological zero (5 degrees C)". This is the definition found in Soil Taxonomy, and growing season months can be assumed based on temperature regimes (e.g., mesic: March-October). The 1987 Manual further states this period can be approximated by the number of frost-free days. The Waterways Experiment Station (WES) indicates that the county soil surveys, which utilize 32 degrees, provide the growing season for each county. There is some flexibility in the determination of the growing season in the 1987 Manual. The growing season, based on air temperature in the county soil surveys, can be approximated as the period of time between the average date of the first killing frost to average date of the last killing frost, which sometimes does not accurately reflect the period of time when the soil temperatures are higher than biological zero. The source of the information may vary, however, the growing season generally is to be determined by the number of killing frost-free days. In certain parts of the country where plant communities in general have become more adapted to regional conditions, local means of determining growing season may be more appropriate and can be used.

2.Q. Should the determination of hydric soils be based on the presence of an indicator listed in the 1987 Manual or on the series name appearing on the Hydric Soils of the United States list, an indicator which is listed as less reliable in the hierarchy of hydric soil indicators in the 1987 Manual?

A. The order of soil indicators reliability as listed in the 1987 Manual remains valid and will be used. The reliability of the indicators is based on the fact that field verification of a soil's hydric characteristics is more accurate than mapping or soils lists. Soils listed on the most recent Hydric Soils list have been determined by the National Technical Committee for Hydric Soils (NTCHS) to meet the criteria for hydric soils. When in the field, verification that mapped hydric soils actually exhibit indicators identified in the 1987 Manual for hydric soils is recommended. Although a soil may appear on the list of hydric soils, inclusions or disturbances may alter this designation to some degree, so the list alone may not always be reliable. In obvious wetlands, if the soil is on the list and the area meets the hydrology and vegetation criteria, the area is a wetland. As found with the 1989 Manual, one cannot rely solely on the fact that a soil is mapped as hydric in making the wetland delineation. In all cases, best professional

judgement should be used. The county lists provide valuable information, but again should not solely be relied on to make a final determination as to whether hydric soils are present. Verification of the presence of at least one of the indicators for hydric soils on the list (pgs. 30-34) is required in conjunction with the use of a county soils list. The national soils list to be used has recently been updated by the NTCHS (June 1991), and this list will be used by the Corps in conjunction with the 1987 Manual.

3.Q. How should the 1987 Manual be applied with respect to the definition of "normal circumstances"?

A. The definition of "under normal circumstances" in the 1987 Manual states briefly that "this term refers to situations in which the vegetation has not been substantially altered by man's activities". As stated in item #3 of the memorandum of 27 August, 1991, the definition of normal circumstances used in the 1987 Manual has been clarified by Regulatory Guidance Letter (RGL) 90-7. Although this RGL deals primarily with agricultural activities in wetlands, paragraphs #3 & #4 discuss normal circumstances with respect to all areas potentially subject to 404. Further guidance on normal circumstances is found in RGL 86-9 regarding construction sites and irrigated wetlands. The guidance should be followed in preferential sequence of; 1) RGL 90-7, 2) RGL 86-9, and 3) 1987 Manual.

4.Q. Does the vegetation criteria in the 1987 manual require the use of the facultative (FAC)-neutral vegetation test (i.e., count the dominant species wetter & drier than FAC, and ignore all of the FACs in the vegetation determination)?

A. While the 1987 Manual mentions use of the FAC-neutral test for determining the presence of wetland vegetation in several places, the first indicator of wetland vegetation criteria is the presence of more than 50% of the dominant plant species FAC or wetter (not including FAC- species, which are considered non-wetland indicators under the 1987 manual). The indicator status of each of the dominant species is determined by consulting the current regional plant list published by the FWS. The 1987 Manual provides an option in this determination of applying the FAC-neutral test in cases where the delineator questions the status designation of a particular plant species on a subregional basis (see page 23). As always, any deviation from established protocol requires documentation. The FAC-neutral option may also prove useful in questionable areas or when the determination relies on the vegetation call in an area that is not otherwise an obvious wetland. Specifically, the 1987 Manual is replete with cautions and guidance that the Corps regulators must be confident that the area is wetland when the area has a FAC-dominated plant community. Uncertainty regarding the status of an area as a wetland where the dominant vegetation is FAC would be a valid reason to use the FAC-neutral option. Situations exist where use of the FAC-neutral

method will not serve to provide any additional information as to the hydrophytic nature of the plant community (e.g., all species are FAC or there is an equal number of species wetter and drier than FAC such that they cancel each other out). In these cases, it may be appropriate to consider the + and - modifiers associated with some FAC species, which indicate the species frequency of occurrence in a wetter or drier environment, in the overall assessment of the vegetation parameter. Documentation supporting reasons for using the FAC-neutral option must always be provided and acceptance of delineations, as always, remains up to the discretion of the District.

5.Q. Can indicators for any of the criteria in the 1989 Manual be used as indicators for verification of the same or other criteria presented in the 1987 Manual?

A. The indicators of hydrology in the 1987 Manual differ from those of the 1989 Manual, and are not interchangeable. In particular, the hydrology determination in the 1989 Manual often relied on evidence of properties from the soil and/or vegetation parameters. Indicators provided in the 1989 Manual for field verification of a certain criterion that are not presented in the 1987 Manual for application with the same criterion cannot be used except as additional information in support of the verification. It is unlikely that an area which is a wetland will fail to meet a criteria utilizing the indicators which are listed in the 1987 Manual.

6.Q. Will the other Federal agencies be utilizing the 1987 Manual in their wetland determinations as well as the Corps of Engineers?

A. EPA has concurred with the Corps using the 1987 Manual for all actions. Further, we understand that EPA will likely use the 1987 Manual for EPA's delineations as well. The other agencies (SCS & FWS) typically do not make delineations for purposes of Section 404.

7.Q. To what depth should one look in the soil to find indicators of hydrology?

A. In accordance with the 1987 Manual's guidance on reading soil color (D2), after digging a 16" soil pit observations should be made immediately below the A-horizon or within 10" of the soil surface (whichever is shallower). This guidance pertains to observations of indicators of the soil criterion. For indicators of saturation to the surface in the hydrology criterion, observations are made within a major portion of the root zone (usually within 12"), again in the 16" pit. Visual observation of standing water within 12" of the surface may, under certain circumstances, be considered a positive indicator of wetland hydrology (i.e., saturation to the surface) as stated on page 38.

When using water table within 12" of the surface as an indicator of hydrology, care must be used to consider conditions and the soil types (i.e., to ensure that the capillary ability of the soil texture is considered in regard to the water table depth). Vegetation and soil properties used in the determination of hydrology in the 1989 Manual, are typically not available for field verification of this criterion in the 1987 Manual. However, the 1987 Manual allows for some flexibility with regards to indicators of wetland hydrology, and states that indicators are not limited to those listed on pages 37-41. Other indicators, such as some type of recorded data (e.g., soil surveys which provide specific and strong information about the soil series' hydrology) may be used to verify a wetland hydrology call in a saturated but not inundated area. Appropriate documentation to support the call is necessary in all cases.

8.Q: What length of time must wetland hydrology be present for an area to be determined a wetland under the 1987 Manual?

A. In the hydrology section of Part III, the 1987 Manual discusses the hydrologic zones which were developed through research at WES to indicate the duration of inundation and/or soil saturation during the growing season. Wetland hydrology is defined in the 1987 Manual as the sum total of wetness characteristics in areas that are inundated or have saturated soils for a sufficient duration to support hydrophytic vegetation. The 1987 Manual discusses hydrology in terms of a percent of the growing season when an area is wet (page 36). Generally speaking, areas which are seasonally inundated and/or saturated to the surface for more than 12.5% of the growing season are wetlands. Areas saturated to the surface between 5% and 12.5% of the growing season are sometimes wetlands and sometimes uplands. Areas saturated to the surface for less than 5% of the growing season are non-wetlands. The percent of growing season translates to a number of days, depending on the length of the growing season in any particular area (e.g., 12.5% of a 170 day growing season is 21 consecutive days). This system for the classification of hydrologic zones based on stream gauge data transformed to mean sea level elevations is useful as a guide to time frames of wetness sufficient to create wetlands. The length of time an area is wet for hydrology is based on consecutive days during the growing season. If an area is only saturated to the surface for a period of between 5% and 12.5% of the growing season and no clear indicators of wetland hydrology exist (i.e., recorded or field data; also see answer #7 above), then the vegetation test should be critically reviewed. Specifically, in such cases a vegetative community dominated by FAC species would generally indicate that the area is not a wetland (unless the FAC-neutral test was indicative of wetlands). The actual number of days an area is inundated and/or saturated to the surface for an area to be called a wetland varies; the identification of an indicator of recorded or field data is necessary to document that an area meets

the wetland hydrology criterion of the 1987 Manual (i.e., the list of hydrology indicators on pages 37-41, which are to be used in the preferential order shown; also see question #7). The number of days specified in the June 1991 Hydric Soils of the United States (i.e., usually more than 2 weeks during the growing season) as the criteria for hydric soils pertains to hydric soils and not the hydrology criterion of the 1987 Manual, which varies with the growing season as previously discussed.

9.Q. Will delineations made now under the 1987 Corps Manual be subject to redelineation under the revised 1989 Manual after it is finalized?

A. Wetland determinations made after 17 August, 1991, are made following the guidance provided in the 1987 Corps Manual and memoranda of 23 & 27 August, 1991 and these questions and answers. These delineations are subject to and remain valid for the period of time described in RGL 90-6. As discussed in Issue #4 of the preamble to the proposed revisions to the 1989 Federal Manual for Identifying and Delineating Jurisdictional Wetlands issued 14 August in the Federal Register, wetland calls made after the issuance date of these revisions but prior to finalization of the revised manual may be subject to redelineation under the new manual at the request of the landowner. Final actions will generally not be reopened. Wetland calls made under the 1989 Manual are already subject to redelineation under the 1987 Manual in accordance with the guidance issued 23 August. Until such time as the proposed revisions to the 1989 Manual are finalized, it is unclear as to what effect, if any, the equity provision in the preamble to the proposed revisions will have on the 404 program. Therefore, written delineations made with the 1987 Manual will explicitly state they are final for a period of three years as specified in RGL 90-6, subject to any equity provisions that may be adopted as part of implementation of the final revisions to the 1989 Manual.

10.Q. How does the 1987 Manual compare to the 1989 Manual or its proposed revisions?

A. The various manuals have been compared by WES and the side-by-side comparison is available for your information.

11.Q. Will applicants be subject to delay with use of 1987 Manual?

A. During the initial transition to use of the 1987 Manual for wetland delineations as of 17 August, some delays are unavoidable. The Corps field offices must adhere to the procedures provided in the 23 August memorandum, while striving to expedite the review process to the extent possible. No offices should indicate that they cannot operate due to lack of guidance during this transition period. HQUSACE recognizes that there will be delays associated with implementing the Corps 1987 Manual and we will take these delays into account when reviewing district application performance

data (e.g., % of IPs evaluated in 60 days). Districts should not stop the permit clock, but should indicate where substantial impacts to permit evaluation performance have resulted from implementation the 1987 Manual.

