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# **Normal Circumstances: Wetland Identification Challenges Associated with Disturbance/Atypical Situations**

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# Wetland Identification No. 1 Normal Circumstances: Wetland Identification Challenges Associated with Disturbance/ Atypical Situations

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## Purpose

The purpose of this technical note is to provide information to U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) personnel in the identification of wetlands subject to the wetland conservation compliance (WC) provisions included in the Food Security Act of 1985 (FSA), as amended. Specifically, this technical note provides technical information and guidance to NRCS agency experts when facing wetland identification challenges associated with disturbance (typical and atypical situations) and should not be interpreted as a NRCS internal policy document. Rather, NRCS policy is provided in the Food Security Act Manual (NFSAM).

## Food Security Act of 1985 wetland identification mandates

**Act**—The Food Security Act (FSA) provides technical definitions to be used in the identification of wetlands for FSA purposes. Specifically, the terms “wetlands,” “hydrophytic vegetation,” and “hydric soils” are each defined in the statute, related to how they will be applied by the USDA in the administration of the WC provisions. This is the only place in any Federal law where these terms are defined. In addition to the definition of these three technical terms, the FSA provides a requirement that the USDA base wetland identification decision not necessarily on the site conditions at the time of the site visit, but rather on the site conditions (vegetation, soils, and hydrologic conditions) that would occur under normal circumstances (NC). Thus, the consideration by the USDA of what would be a site’s NC is mandated by law when identifying those wetlands subject to the WC provisions.

**Regulations**—In response to the FSA, the Secretary of Agriculture published the Highly Erodible Land (HELCS) and Wetland Conservation (WC) rule in Code 7 of the Federal Regulations Part 12 (7CFR12). This rule was first published in 1986 and revised in 1991 and 1996. The 1996 version (current rule) provides man-

dates to the NRCS and other USDA agencies related to the identification of wetlands for FSA purposes. In the rule, the Secretary provides limited guidance to the NRCS on how the concept of NC would be applied for FSA purposes. In 7CFR12.31, On-site wetland identification criteria, the Secretary explains that the identification of hydrophytic vegetation must occur in consideration of normal circumstances—and that normal circumstances are “the soil and hydrologic conditions that are normally present, without regard to whether the vegetation has been removed.”

**NRCS policy:** The NRCS policy and procedural manual related to the HELC and WC provisions is the National Food Security Act Manual (NFSAM). The body of the NFSAM provides processes and procedures in a concise format, while the appendix houses detailed technical guidance and procedures. All information in the NFSAM is internal Agency policy.

Within the body of the NFSAM (Part 514) is Subpart A, Wetland Determination and Delineation, where the NRCS provides a general description on Hydric Soils (514.4), Hydrophytic Vegetation (514.5), and Wetland Hydrology (514.6). In 514.3(2), Wetland Identification, the NRCS states, “The Food Security Act Wetland Identification Procedures will be used to decide if a sampling unit meets the definition at the diagnostic factor level.” The Food Security Act Wetland Identification Procedures (FSA Procedures) were issued as Circular No. 6, Part 527, appendix to the NFSAM on December 1, 2010. These procedures will be inserted later into the appendix to the NFSAM on the NRCS eDirectives system. The concept of NC is further defined and explained in the FSA Procedures.

## The concept of normal circumstances for FSA purposes

Wetlands are dynamic ecosystems where site conditions are under a constant state of change. These changes, attributed to either disturbance or climatic influences, can be problematic to the identification of

wetlands since decisions are most often made from data obtained from a single site visit. Without consideration of these natural or human-induced changes in the conditions that might occur at any point in time, wetland identification decisions could potentially change each time the site conditions change.

In the administration of a Federal regulatory program, it is imperative that the agency provide a consistent answer based on proper application of approved methods and proper consideration of the facts. The legal standard for all Federal agencies is that decisions not be arbitrary or capricious. Accordingly, the NRCS must provide a wetland/nonwetland decision that is made fairly after proper consideration of the facts and is repeatable regardless of timing of the site visit or date of remotely sensed data.

This consistency is assured by the requirement in the FSA, the regulations (7CFR12), and then again in internal Agency policy (NFSAM) that the NRCS agency expert base decisions not necessarily on what is occurring on the site at the time of the site visit, but rather what would be expected to occur under NC. Thus, the law not only allows, but mandates that the evidence (indicators or direct observation) discovered during a site visit (or from a remote resource) be tempered with the reality that this evidence only represents a single point in time and might not be representative of what would be NC for the site in question.

Within the FSA Procedures, the NRCS defines NC as:

*“The soil and hydrologic conditions that are normally present, without regard to whether the vegetation has been removed (7 CFR Section 12.31(b)(2)(i)). For FSA wetland identification purposes, this concept is the consideration of normal and abnormal climate-based site changes and natural and artificial disturbance-based site changes that can create wetland identification challenges. “Normally present” is further explained as the vegetative, soil, and hydrologic conditions that occur under both of these conditions:*

*(a) Without regard to whether the site has been subject to drainage actions (see drainage definition) after December 23, 1985, and without regard to whether the vegetation has been removed or significantly altered.*

*(b) During the wet portion of the growing season under normal climatic conditions (normal environmental conditions).”*

Item (a) addresses the potential influences of disturbance while item (b) addresses the potential influences of climate.

The consideration of the disturbance and climatic portions of normal circumstances is made three different times for each sampling unit when answering the following questions.

- Under NC, would the sampling unit under consideration support a prevalence of hydrophytic vegetation?
- Under NC, would the sampling unit under consideration support a predominance of hydric soils?
- Under NC, would the sampling unit under consideration support wetland hydrology?

It is important to understand that each decision (on each of the three wetland diagnostic factors) is predictive (would) rather than being restrictive to what might be occurring at the time of a single site visit or the date of a remotely sensed data source and includes consideration of the influences of disturbance and climate.

**Disturbance**—“(a) *Without regard to whether the site has been subject to drainage actions (see drainage definition) after December 23, 1985, and without regard to whether the vegetation has been removed or significantly altered.*”

Site changes resulting from disturbance (natural or human-made) can make wetland identification more difficult by altering or removing evidence that would be suggestive of the condition that would exist under normal circumstances. Many sites have experienced some human-made disturbance since 1985. The question is if these post-1985 disturbances are significant enough to change the findings compared to what would have been the determination prior to such post-1985 disturbance(s).

**Climate**—“(b) *During the wet portion of the growing season under normal climatic conditions (normal environmental conditions).*”

Site changes resulting from normal and abnormal fluctuations in climate (e.g., rainfall, snowmelt, storm intensity, and temperature) can make wetland identification more difficult. The climate-based concept of NC is referred to as normal environmental conditions (NEC). The FSA Procedures defines NC as “the physical conditions, characteristics (hydrology, soils, vegetation), or both that would exist in a typical situation on a site during the wet portion of the growing season in a normal climatic year.”

In summary, NC includes the consideration of both disturbance and climate. Further, FSA wetland identification decisions must be reflective of what the site conditions would be under NC, not necessarily the conditions occurring during any particular site visit or the date of a remotely sensed product.

This technical note is designed to provide NRCS agency experts with information on the proper consideration of the disturbance-based portion of normal circumstances—“*Without regard to whether the site has been subject to drainage actions (see drainage definition) after December 23, 1985, and without regard to whether the vegetation has been removed or significantly altered.*” Those wetland identification challenges related to the climate portion of NC (or normal environmental conditions) are described in this technical note.

Before moving forward with the disturbance (typical/atypical situations), an understanding of NRCS policy, essential terms, and technical concepts is required.

## Food Security Act Wetland Identification Procedures

In the development of the FSA Procedures, the NRCS desired to be as consistent as possible with the methods used by the U.S. Army Corp of Engineers (USACE) and others for the identification of wetlands for Clean Water Act purposes. However, legal differences (e.g., definitions and procedures) between the Corps methods and what is provided in the FSA and in the HELC and WC rule (7CFR12) prohibited the NRCS for adopting the USACE methods in total. The NRCS needed to ensure that the FSA Procedures maintained statutory and regulatory authorities and were consistent with Federal court decisions. Because the NFSAM is utilized by USDA National Appeals Division appeal officers and district courts to render decisions, it was critical that the NRCS provide clear links between the technical wetland identification procedures and legal authorities.

To meet these goals, the NRCS adopted the use of the fourth section (Part IV – Methods) of the USACE Wetland Delineation Manual (Corps Manual) and all applicable Corps Regional Supplements to the USACE Wetland Delineation Manual (Corps Supplements). Included in the FSA Procedures are FSA Variances to the USACE methods, to assure that the wetland identification decisions made by the NRCS agency expert would not exceed the statutory and regulatory authorities provided in the statute and regulations.

## Definitions

*Agency expert*—An individual granted job approval authority by a State Conservationist to make technical decisions related to the WC provisions. Job approval authority criteria are found in the NFSAM, Part 514.1(B). All agency experts must be listed on a roster of qualified employees, maintained by the State Conservationist and filed in section III of the Field Office Technical Guide.

*Comparison site*—A site in the local area that has the same hydric soil map unit as the subject site. The comparison site is used to make a decision on the presence of hydrophytic vegetation when the subject site is altered and the plant community that occurred prior to the alteration cannot be determined from onsite inspection or remote data sources. The comparison site should support hydrologic conditions that are similar to what existed on the subject site prior to the alteration.

*Diagnostic factor*—A physical characteristic common to all wetlands that is used in the identification of a wetland. The three diagnostic factors are hydric soils, hydrophytic vegetation, and wetland hydrology. In the Corps Manual, these are referred to as diagnostic environmental characteristics or parameters, whereas they are referred to as factors in the supplements.

*Drainage*—Any human-induced onsite or offsite activity that results in an altered depth, duration, frequency, or timing of the hydrologic condition (inundation or saturation by surface or groundwater) of the site.

*Hydric soils*—Soil that, in its undrained condition, is saturated, flooded, or ponded long enough during a growing season to develop an anaerobic condition that supports the growth and regeneration of hydrophytic vegetation (16 U.S.C. section 3801(a)(12)).

*Hydrophytic vegetation*—A plant growing in (A) water; or (B) a substrate that is at least periodically deficient in oxygen during a growing season as a result of excessive water content (16 U.S.C. section 3010(a)13).

*Normal circumstances (NC)*—The soil and hydrologic conditions that are normally present, without regard to whether the vegetation has been removed (7 CFR Section 12.31(b)(2)(i)). For FSA wetland identification purposes, this concept is the consideration of normal and abnormal climate-based site changes and natural and artificial disturbance-based site changes that can create wetland identification challenges. Normally present is further explained as the vegetative, soil, and

hydrologic conditions that occur under both of these conditions:

- Without regard to whether the site has been subject to drainage actions (see drainage definition) after December 23, 1985, and without regard to whether the vegetation has been removed or significantly altered.
- During the wet portion of the growing season under normal climatic conditions (normal environmental conditions).

*Normal environmental conditions (NEC)*—The climate-based concept of NC, defined as the physical conditions, characteristics (hydrology, soil, and vegetation), or both that would exist in a typical situation on a site during the wet portion of the growing season in a normal climatic year.

*Sampling unit*—The smallest portion of the area subject to the wetland determination, delineation, or both for which consideration is made regarding a wetland determination decision. In part IV of the Corps Manual, this unit is referred to as a unique plant community. In the supplements, the concept is referred to interchangeably as plant community, vegetative unit, and landscape unit. Sampling units are selected based on having (or would have) similar plant communities resulting from similar soil properties, hydrologic regimes, and landscape positions.

*Typical and atypical situations*—A typical situation is one in which neither of the following occurred:

- An alteration (removal or change) in the plant community such that a decision cannot be made using routine methods if the site would support prevalence of hydrophytic vegetation if undisturbed or in the absence of a post-12/23/1985 drainage action.
- A post-12/23/1985 drainage action that has altered the normal soil or hydrologic conditions.

An atypical situation is one that does meet either a or b.

*Undrained condition*—This phrase is used in the FSA hydric soils definition. A hydric soil may be either drained or undrained. In the FSA hydric soil definition, a hydric soil in its undrained condition supports hydrophytic vegetation. A drained hydric soil is one in which sufficient ground or surface water has been removed by artificial means.

*Wetland hydrology*—Inundation or saturation of the site by surface or groundwater during a growing sea-

son at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation.

## Indicator-based approach

Part IV of the FSA Procedures provides an explanation of how wetland identification decisions are rendered for FSA purposes. The FSA Procedures make it clear that because wetland conditions are dynamic, decisions should be reflective of what the site conditions would be under NC, and not necessarily based on the site conditions at a single point in time (day of site visit or day that the remotely sensed product was produced). Specifically, the NRCS utilizes two types of evidence to determine what the site conditions would be under NC; direct evidence or indirect evidence. Each can provide information regarding site conditions under NC.

- Direct evidence is obtained from direct observations (onsite visit or remote resource) made when the sampling unit is experiencing normal circumstances (no disturbance-based wetland identification problems and during the wet portion of the growing season of a normal climatic period). During these ideal conditions, direct observations can be used to decide if the site does or does not meet the definitions for each of the three wetland diagnostic factors. Direct observation is direct evidence that under NC, the FSA wetland definition is (or is not) met.

The opportunities for visiting a site during these ideal conditions are limited. In the vast majority of situations, decisions must be rendered from data (onsite or remote) obtained during less than ideal conditions (not under NC). Under these conditions, indirect (circumstantial) evidence is used to render a decision. Indirect or circumstantial evidence is referred to as indicators, as this evidence is indicative of what the site conditions would be under NC. The FSA Procedures explain that in the absence of direct evidence, the decision if a site meets a particular diagnostic factor is assisted by the confirmation of the presence or absence of indicators. The use of indicators to predict the conditions that would occur under NC is referred to as the indicator-based approach to wetland identification. There are two types of indicators used to identify wetlands for FSA purposes:

- USACE indicators—These are provided in a Corps Supplement and are primarily onsite wetland diagnostic characteristics.
- FSA indicators—These are provided in State Mapping Conventions (SMC) or State Off-site

Methods (SOSM) and are commonly used by the NRCS when faced with disturbance- or climate-based wetland identification challenges. Primarily, these are indicators that are observed from remotely sensed data sources (e.g., aerial imagery), but are not necessarily limited to such.

What is important to understand when identifying wetlands for FSA purposes is the fact that since indicators are only suggestive of what the conditions would be under ideal conditions (normal circumstances), the agency expert must be assured that the indicator (or the absence of indicators) is not due to an atypical situation (reflective of disturbance) or due to recent climatic conditions that differ from what would occur during normal environmental conditions. Basically, when the site visit (or remote resource data source) is made outside of NC, there is a risk that indicators observed might be:

- False positive—The occurrence of an indicator, but that indicator is not reflective of conditions that would occur under NC. An example might be a drift line when the drift material was deposited as a result of a newly constructed road blocking natural drainage and reducing flow rates.
- False negative—The absence of an indicator for the factor under consideration, but this absence is not reflective of the conditions that would occur under NC. An example might be the lack of a hydrology indicator due to recent plowing activity, but all other evidence suggests that the site would pond water under NC.

False positives and false negative can occur due to disturbance, climate, or inherent reasons specific to the site. Because of the possibility of false positives and false negatives, the agency expert must decide if the circumstantial evidence (indicators) found (or not found) are supportive of the conditions that would occur under NC. Ultimately, the decision is not if the same indicator would be found under NC, but rather if the indicator (or lack of) is suggestive of the conditions that would occur under NC. If not, then the site conditions and/or evidence (indicators) discovered are not reflective of NC and alternative methods and considerations are required. These alternative methods and considerations, collectively referred to as nonroutine methods are provided in:

- Corps Manual Section F: Atypical Situations (and related sections in the FSA Procedures) provides assistance with disturbance-based challenges.

- Corps Manual Section G: Problem Areas (and related sections in the FSA Procedures) provides assistance with climate-based challenges.
- Chapter 5 of a Corps Supplement (and related sections in the FSA Procedures) provides assistance with challenges associated with disturbance, climate, and inherent site characteristics.
- NRCS SMCs or SOSMs can provide assistance with challenges associated with all of these.

## Typical and atypical situations

The use of the terms typical and/or atypical situations in the identification of wetlands is limited to the consideration of disturbance. The FSA Procedures define a typical situation as one in which neither of the following occurred:

- (a) An alteration (removal or change) in the plant community such that a decision cannot be made using routine methods if the site would support prevalence of hydrophytic vegetation if undisturbed or in the absence of a post-12/23/1985 drainage action.
- (b) A post-12/23/1985 drainage action that has altered the normal soil or hydrologic conditions.

An atypical situation is one that does meet either a or b. Thus there are two independent considerations in the determination if the sampling unit might be problematic in regards to disturbance (atypical situation).

Wetland identification challenges related to disturbance are addressed by deciding if the agency expert has confidence that the evidence obtained (direct observations or indicators) can be used to render a valid decision. If it is determined that the routine methods provided for in part IV of the Corps Manual and routine indicators provided in chapters 2 through 4 in the Corps Supplement are not sufficient or suitable due to disturbance, then the sampling unit fails to support a typical situation for the factor under consideration (typical and atypical situations are determined for each of the three wetland diagnostic factors independently, not for the sampling unit as a whole). To address these situations, guidance can be found in the atypical situations section of part IV of the Corps Manual and/or in chapter 5 of the Corps Supplement, as well as in NRCS SMCs or SOSMs. For FSA purposes, the date of December 23, 1985, becomes critical in this assessment.

## December 23, 1985

Because the NRCS is conducting the determination for Food Security Act purposes, the FSA Procedures link the disturbance (typical and atypical situations) portion of the concept of NC to the statutory date of December 23, 1985 (date the FSA was enacted). The use of 1985 in the FSA Procedures and in this technical note implies December 23, 1985. Drainage actions that occurred pre-1985 were “grandfathered” in the FSA and the resulting hydrologic conditions of any pre-1985 drainage action are considered NC (typical situation for the hydrology factor). The maintenance of pre-1985 drainage systems to original scope and effect is allowed by law. Thus, the resulting hydrologic conditions from exempted (maintenance) drainage actions are considered NC. There is one exception to the maintenance allowances and that is when a field or drainage system has been determined to be abandoned (7CFR12.33 (c) and (d)). If determined to be abandoned, the resulting hydrologic conditions are now NC.

In summary:

- If drainage was installed prior to 1985, the resulting hydrologic condition of that system is considered NC.
- If the maintenance of a pre-1985 drainage system is allowed (determined not to exceed the original scope and effect), then the effects of the maintenance action are considered NC.
- The effects of nonexempt drainage actions are not considered NC and will most likely result in an atypical situation for at least the hydrology factor. The timing (how recent) and nature (drainage vs. filling) of the drainage action will determine whether an atypical situation exists for the soil and vegetation factors.

## Disturbance as related to each of the wetland diagnostic factors

Note: The following will target the information and processes provided in section F of the Corps Manual; the disturbance related descriptions within chapter 5 of the Corps Supplement; and the related sections of the FSA Procedures that deal with these sections of the Corps Manual and Supplement.

As introduced, there are two situations related to the disturbance-based concept of NC that would trigger the need for the agency expert to utilize section F (atypical situations) of the Corps Manual and/or

Chapter 5, Difficult Wetland Situations, in the Corps Supplement as well as resources provided for in NRCS SMCs or SOSMs. These are collectively referred to as nonroutine methods.

The first situation is when a post-1985 drainage action has altered the normal soil or hydrologic conditions of the sampling unit, and the second is when the vegetation has been removed or significantly altered. If either, or both, have occurred (to the degree that a decision cannot be made for any one of the three wetland factors), then the sampling unit is considered atypical for that factor and the use of routine methods is not appropriate.

## Making a determination of a prevalence of FSA hydrophytic vegetation on atypical (disturbed) sites

### Drainage

The first situation that would trigger the need for the agency expert to utilize nonroutine methods is when a post-1985 drainage action has altered the normal soil or hydrologic conditions of the sampling unit. The agency expert would use these methods when the drainage action has had such an effect on the vegetation that routine methods can no longer be used.

Based on the unique definition of hydrophytic vegetation in the law, drainage actions can have an immediate impact on hydrophytic vegetation for FSA determinations. This requires careful consideration by the agency expert when using direct observation to gather evidence. Plants may be observed not growing in water during the normal wet portion of the growing season, but if that condition is due to a post-1985 drainage action, the site is not experiencing NC (and is considered atypical).

Equal consideration is needed when using indicators of hydrophytic vegetation. If it is determined that there has been a nonexempt drainage action (post-1985 drainage), then the hydrophytic vegetation answer should be based on the conditions that occurred prior to the nonexempted action (as those are the conditions that reflect NC).

### **FSA Definition of Hydrophytic Vegetation**

**“a plant growing in (A) water; or (B) a substrate that is at least periodically deficient in oxygen during a growing season as a result of excessive water content.”**

## Removed or significantly altered vegetation

The second situation that would trigger the need for the agency expert to utilize nonroutine methods is when an alteration (removal or change) of vegetation creates difficulty in applying routine methods or the agency expert suspects that such alterations might result in a false positive or false negative.

The date of December 23, 1985, does not apply to situations where the vegetation has been altered or removed (as supported in the NC definition, “without regard to whether the vegetation has been removed or altered”). The decision if the sampling unit is experiencing a typical or atypical situation related to removed or altered vegetation is based on the level of removal or disturbance. If direct evidence or indicators can be applied with confidence, then the findings are reflective of NC and conditions are typical. If the vegetation is absent or so altered that there is concern regarding the validity of the presence or absence of the hydrophytic vegetation indicator observed, then the sampling unit is not considered typical and additional consideration is required.

### Examples of typical situations for the hydrophytic vegetation factor

- A forested site was clear-cut prior to the site visit. Enough regeneration and/or logging debris remains to run the dominance test with confidence.
- A sampling unit is used as pasture land, but the management is such that enough native herbaceous and/or woody species qualify using the 50:20 rule as dominants. The agency expert has confidence that the species composition is rich enough to be a valid representation of NC.
- A sampling unit is cropland, but the timing of the field visit allows for the use of annual herbaceous species (weeds) as data for the 50:20 rule. The agency expert has confidence that species richness is high enough for a valid representation of NC.
- A sampling unit has been recently drained, but the species present are reflective of the pre-drainage hydrologic regime.

### Examples of atypical situations for the hydrophytic vegetation factor

- A nonexempt post-1985 drainage action has resulted in a shift in the plant community to plants with a wetter or drier wetland indicator status. Alternative methods are needed to determine if

hydrophytic vegetation (plants growing in water or a saturated substrate deficient in oxygen) would have occurred prior to the post-1985 action.

- A sampling unit is managed for hay production. Past and current herbicide treatments and cutting of hay have resulted in a plant community lacking species richness and not particularly reflective of the site’s hydrology. This site is atypical, not because the vegetation is absent, but rather because the hydrophytic vegetation decision may not be reflective of the normal hydrologic conditions.
- A sampling unit is tilled and insufficient species richness remains to make a valid decision.
- A forested area has been recently cleared of woody vegetation and insufficient vegetation remains for the application of the 50:20 rule with confidence.

Eight options are provided in the atypical situations section of the Corps Manual that might assist agency experts with decisionmaking when NC do not occur for vegetation. In the FSA Procedures description of the Corps Manual section F, the NRCS provides guidance and four different minor FSA variances to this section. Then, in the Corps Supplement, chapter 5, the NRCS provides guidance and one FSA variance related to these chapters. All NRCS agency experts must be familiar with these variances, although minor, when faced with challenging wetland identification situations related to disturbance.

## Making a determination of a predominance of FSA hydric soil on atypical (disturbed) sites

Soils are typically less problematic than vegetation or hydrology as hydric soil indicators are less subject to the impacts of disturbance or drainage. Disturbance can make the decision more challenging, particularly if the soil is filled or deep plowed (mixed).

Note: The inclusion of the phrase “in its undrained condition” in the hydric soil definition means that soils will always be hydric regardless of drainage actions. If a site has been fully or partially drained, it would still meet the factor for hydric soil if it would be hydric under natural hydrology, regardless of when the drainage action was performed (“once hydric always hydric”). In figure 1, a forested site has been recently cleared of all vegetation, but no drainage action has occurred. No regeneration has occurred and the agency expert

can not apply the 50:20 rule with confidence. This is a classic atypical situation for vegetation. However, with the FSA definition of hydrophytic vegetation, if this ponding (during the normal wet portion of the growing season) is the NC for this portion of the site (sampling unit), then a decision might be able to be made using direct observation that this sampling unit does, under normal circumstances, support a prevalence of plants growing in water or in a substrate that is periodically deficient in oxygen and confirm hydrophytic vegetation. Decisions for other sampling units without ponding will need to be made using nonroutine methods..

The USACE provides guidance on making hydric soils determinations on disturbed sites in subsection 2 of the atypical situations section which provides four options to gain insight regarding the soil conditions that existed prior to the disturbance. This section is supplemented in chapter 5 of the applicable Corps Supplement.

There is no FSA variance regarding the use of the soils portion of the atypical situation section or the soils portion of chapter 5. The only consideration unique to the FSA regarding hydric soils is the definition and the fact that the legal mandate is a predominance of hydric soil.

#### **Examples of typical situations for hydric soils**

- A wetland site was fully drained prior to 1985. This is typical because the drainage action was performed prior to 12/23/1985. Due to the presence of the phrase “in its undrained condition” in the hydric soil definition, the site would meet the factor for hydric soils if it would be hydric under natural hydrology.
- A wetland site was fully drained after 1985. Hydric soil features remain and the agency expert determines that they are reliable. Routine methods for the hydric soil factor can be used.

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**Figure 1** Recently cleared forested site where no drainage has occurred



The site would meet the hydric soil factor due to “once hydric, always hydric” if it would be hydric under natural hydrology.

- Soils were filled prior to 1985. Since the drainage action occurred prior to 1985, this meets the definition of a typical situation. However, the hydric soil determination would be based on the pre-fill conditions due to “once hydric, always hydric.”

#### Examples of atypical situations for hydric soils

- Soils were filled in 2005. The hydric soil determination would be based on pre-2005 conditions (fig. 2).
- Soils were mixed during a land-leveling operation in 1990. The hydric soil determination would be based on pre-1990 conditions.
- Soils have been irrigated for years and the redoximorphic features found are reflective of the irrigation, rather than normal conditions. In the absence of irrigation, the soils would not meet the hydric soil definition.

**Figure 2** Thirteen inches of recent fill over an undisturbed surface is an example of an atypical situation for the hydric soils wetland diagnostic factor



### Making a determination of the occurrence of FSA wetland hydrology on atypical (disturbed) sites

Wetland hydrology as defined in the FSA Procedures is linked to the FSA hydrophytic vegetation definition (a plant growing in water or a saturated substrate). Quite simply, wetland hydrology is surface or shallow groundwater that occurs under NC (which by definition is during the growing season) sufficient to support plants growing in water or a saturated substrate that is deficient in oxygen.

Similar to hydrophytic vegetation, the conditions used to base decisions regarding wetland hydrology must be those present under NC (undrained conditions during the wet portion of the growing season of a normal climatic period). Thus, decisions must be rendered based on the conditions that exist (or would have existed) in the absence of any post-1985 drainage activity.

Post-1985 drainage activities can complicate the wetland hydrology decision when using either direct observations or indicators. Wetland hydrology indicators are even less persistent than vegetation. In fact, many are ephemeral during a normal year, even without disturbance. Most all land management practices (e.g., mowing, burning, plowing, and grazing) can remove many wetland hydrology indicators. For this reason, false negatives are common for the wetland hydrology factor even without any post-1985 disturbance. Add disturbance to the mix and decisionmaking is further complicated. Accordingly, much consideration is needed prior to decisionmaking for this factor but particularly for disturbed sites. Not only can disturbance result in false negatives, but it can result in false positives too. For example, recent logging operations can result in temporary ponding in nonwetland due to compaction, rutting, and debris. Irrigation can be particularly problematic by creating false positives as the hydrologic conditions created by irrigation are not NC.

#### FSA definition of wetland hydrology

“Inundation or saturation of the site by surface or groundwater during a growing season at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation.”

NRCS SOSMs and SMCs can provide valuable assistance in determining if wetland hydrology existed prior to any post-1985 drainage activity. In addition, the Corps Manual provides 6 methods in subsection 3 of the atypical situations section that might assist in the decisionmaking. This is supplemented by guidance provided in chapter 5 of the Corps Supplement.

The NRCS provides some minor FSA variances to both sections in the FSA Procedures, and agency experts must review these prior to decisionmaking.

### Examples of typical situations for wetland hydrology

- A wetland site was fully drained prior to 1985. These hydrologic conditions are now NC.
- A nonfloodplain field was land-leveled prior to 1985, removing depressions. The post-1985 conditions are now NC.
- Tile drainage in a basin's watershed was installed prior to 1985. The system diverts water to a road ditch and reduces the hydroperiod of ponding along the edge of the basin. The tile system has not been abandoned. The resulting hydrologic conditions of the effected basin are now NC and wetland identification and delineation decisions are based on current conditions.

### Examples of atypical situations for wetland hydrology

- A depression was partially filled in 2005. The wetland hydrology determination would be based on the pre-2005 conditions (fig. 3).

**Figure 3** A depressional wetland that has been impacted by drainage actions in 2005 is an example of an atypical situation for the hydrology wetland diagnostic factor



- Tile drainage was installed within a depressional wetland's watershed in 1988, and the installation was not determined to be minimal. The wetland hydrology determination would be based on the pre-1988 hydrologic conditions.
- A pasture was mowed after the normal wet portion of the growing season (period of NEC), removing any potential evidence of flooding or ponding.
- A pit/pond was constructed in a playa lake in 1998. The wetland hydrology determination would be based on pre-1998 hydrologic conditions.
- A levee was constructed in 1988 to protect a field from flooding. The wetland determination would be based on pre-1988 hydrologic conditions.
- A California vernal pool wetland was deep ripped in 2009 to increase internal drainage. The wetland hydrology determination would be based on pre-2009 hydrologic conditions.

## Summary

By law, regulation, and policy, the NRCS is mandated to base decisions for each of the three wetland diagnostic factors on the site's NC. For FSA purposes, NC addresses, both disturbance-based (typical and atypical situations) and climate-based (normal environmental conditions), wetland identification challenges. This technical note focuses on the disturbance-based portion of NC.

Few, if any, wetlands associated with agricultural operations are undisturbed. The trigger in deciding if a site (sampling unit) is atypical for any factor is not as much as disturbance itself, but rather the level of disturbance and the impacts of the disturbance on the sampling unit and/or available indicators. The question that must be asked by the agency expert when deciding if the sampling unit is typical or atypical for the factor under consideration is if the routine wetland identification methods can be applied with confidence. If so, then the sampling unit is not atypical for that diagnostic factor. If routine methods fail to provide sound results, then the sampling unit is atypical for that factor and alternative/additional consideration is required.

Unique to FSA wetland identification is the date of December 23, 1985 and exemptions provided to USDA program participants in 7CFR12. Nonexempted drainage actions that are significant enough to alter site conditions will typically result in a decision that site

conditions for least one wetland diagnostic factor is atypical.

Guidance on how to address atypical situations is provided in the following documents, referred to collectively as nonroutine methods:

- atypical situations portion of part IV of the Corps Manual
- portions of chapter 5 of the applicable Corps Supplement
- State mapping conventions
- State off-site methods

The NRCS provides for FSA variances to the USACE methods in the FSA Wetland Identification Procedures. Regarding atypical situations and chapter 5, the variances are minor, but important nonetheless. Agency experts must apply the variances as applicable.

The FSA Procedures provide clarity that the presence or absence of an indicator listed in the Corps Supplement is suggestive that the FSA definition for the diagnostic factor under consideration is met or not met; however, false positives and false negatives can occur when the site visit is made outside of NC. This is particularly problematic for vegetation and hydrology decisions as these indicators are more sensitive to the effects of disturbance than are hydric soil indicators. For this reason, the agency expert must balance their findings (absence or presence of indicators) with best professional judgment of the conditions that would be expected to occur in the absence of such disturbance. In most situations, the NRCS has the advantage of having a wealth of remote sensed tools and local experience to predict the vegetative, soil, and hydrologic conditions prior to disturbance.

The understanding of NC and in particular how to effectively address atypical situations allows the NRCS wetland specialist to render sound and consistent decisions—even when the site has been altered.

## References

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