Module 2: Determining if Normal Circumstances (NC) and Normal Environmental Conditions (NEC) Exist

In this module, the course participant will be presented with the tools used to determine if normal circumstances and normal environmental conditions exist. Discussion will include discerning the difference between the two, when they should be applied, and how the growing season fits into the discussion.

Developers:

Modified from the National Wetland Phase I Training Course

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Module 2 – Normal Circumstances and Normal Environmental Conditions for Wetland Determinations and Delineations

Objectives

Upon completion of this module, the student will:

- **Understand the term Normal Circumstances (NC)**
- **Understand the term Normal Environmental Conditions (NEC)**
- **Recognize growing season**
- **Understand and utilize available tools to recognize, support, and document NC and NEC**
- **Understand basic terminology used by NRCS to determine wetlands**

Key Concepts

- Wetlands are defined according to the NFSAM as lands that have: (i) A predominance of hydric soils; (ii) Are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions and (iii) under normal circumstances support a prevalence of hydrophytic vegetation.
- For a site to be considered a wetland according to the FSA all three wetland factors must be present, hydrophytes, hydric soil, and hydrology. **Normal Circumstances** are considered for each factor.
- Normal Circumstances is basically the absence of a post-1985 drainage action
- Normal Environmental Conditions refer to the climate-related concept of NC which is 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.
- Growing Season in Alaska is determined by evaluating the dates of vegetation green-up, maintenance, and senescence at the site location based on direct observation or remote-sensing methods.

This module is designed to take 60 minutes and includes required exercises. Links are provided to necessary information and additional learning opportunities.

Starting Time: _____

Learning Concept 2-1: What are Normal Circumstances (NC) and Normal Environmental Conditions (NEC)?

In many instances the terms *Normal Circumstances* and *Normal Environmental Conditions* are "collectively" referred to NC or Normal Circumstances (refer to the NFSAM and the NFSAM Appendix, Circular 6). Basically, for FSA wetland identification purposes, the concept of NC is what would occur:

1. In the absence of a post-1985 drainage action (**disturbance**) and
2. Under normal environmental conditions (**climate**)

For purpose of this training, the term *Normal Circumstances* (NC) will refer to disturbances and Normal *Environmental Conditions* (NEC) will refer to climate.

Normal Circumstances (NC)

Normal circumstances are related to disturbance and the *December 23, 1985* date. Alterations that occurred *prior to 1985* (pre-1985) are grandfathered by the provisions, while those implemented *after 1985* (post-1985) are subject to potential determinations of non-compliance. Under the WC provisions, if a sampling unit was altered (drained, filled, diverted, or woody vegetation cleared) prior to 1985 then the determination is based on recent site conditions for hydrology, soils, and vegetation. The conditions resulting from the *pre-1985 alteration are now considered normal circumstances.* When this occurs, the determination is based on current conditions.

If the alterations were conducted *after* 1985, and the alterations are significant enough to potentially alter the outcome of the wetland determination, then *normal circumstances are not met* and the determination shall be based on conditions prior to the alteration. A reference site is needed if the disturbance action is significant enough that a decision cannot be made regarding a prevalence of hydrophytic vegetation. The conditions at the reference site are presumed to be representative of what the conditions were on the sampling unit in question prior to the disturbance.

If vegetation is still present on the site and that vegetation is "representative of the hydrological conditions prior to the alteration" then a reference site is not needed as long as indicators obtained from the altered site have not been influenced by the alteration. However, in most cases in Alaska, if the disturbance action is significant enough that a decision cannot be made regarding a "prevalence of hydrophytic vegetation" then the indicators for soil and hydrology have also been impacted and a reference site is needed.

References: Wetland Identification No. 1 Normal Circumstances: A Critical Ecological Concept to the Proper Application of FSA Wetland Determination Methods, Tech Note, April 2010 on the SharePoint Site under References:

https://nrcs.sc.egov.usda.gov/west/ak/ecological_sciences/

Why is this important? The premise for the concept of normal circumstances is that for many wetlands where the vegetation has been removed, the soil and hydrological characteristics remain to the extent that hydrophytic vegetation could return if vegetation management ceased. In the event that 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 (reference site). If normal circumstances do not exist the wetland specialist has the option to modify sampling methods or postpone the

wetland determination based solely on the reasonable opinion or judgment of the specialist. This is reflected in the COE Regional Supplement, *"…experience and professional judgment may be required to adapt the vegetation sampling scheme or use other sources of information to determine the plant community that is normally present".*

Data sources such as imagery that best represent 1985 conditions and the most recent conditions are targeted to determine if the sampling unit supports *normal circumstances* (refer to COEM, NFSAM). All hydrology alterations installed prior to 1985 are noted (i.e. surface drainage, subsurface drainage, micro/macro topographic features, levees, diversions, terraces). The information of pre-1985 conditions are then compared to current/recent conditions. A *normal circumstances* decision is then rendered for each preliminary *sampling unit* (refer to Module 4). In most situations in Alaska, there is no pre-1985 imagery. The best source of information therefore is the landowner or others who might know the history of the area in question. Another source is looking at the surrounding area (reference site) and comparing the vegetation (species, productivity), soil properties (organic mat thickness, presence), and other site properties.

A landowner purchased a parcel of agricultural land that was cleared prior to their puchase in 1995. They asked for a wetland determination from NRCS. Do normal circumstances exist? In most areas of Alaska, data sources such as imagery do not exist prior to 1985. What other data source elements would you use?

Normal Environmental Conditions (NEC)

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

Similar to NC and impacts or changes to wetland indicators caused by disturbance, climate can impact wetland indicators. A "non-wetland" can exhibit wetland characteristics during abnormally wet periods, while wetlands can lose characteristics during abnormally dry periods. The timing of a site visit in relation to weather cycles must be considered when conducting a wetland determination, both offsite and onsite. A wetland determination must provide assurances that the decision is based on normal environmental conditions that are consistent and repeatable over different seasons and across many years. The decision is not necessarily based on the site conditions at the time of the site visit.

Decisions should reflect what would occur on the site if the agency expert could have visited the site during ideal hydrologic conditions which is the wet portion of the growing season when the site is experiencing normal hydrologic conditions.

Before rendering a decision, the procedures under the FSA ask that the agency expert base their decision (wetland or non-wetland) on those indicators that would occur if they could have visited the site under ideal conditions. This concept is fully supported in the 1987 Manual and Chapter 5 in the Alaska Supplement.

What are normal environmental conditions? Data source information that can be used to evaluate whether *normal environmental conditions* exist are:

- Aerial imagery of the same location that can show/compare
  - Wetland hydrology signatures changing over time
  - Altered pattern of cropping patterns resulting from wetness
  - Standing water or no water
  - Crop Stress
- WET tables (http://www.wcc.nrcs.usda.gov/climate/wetlands.html)
- Local rainfall monitoring (www.wunderground.com) (or similar site)
- Personal knowledge (or personal communication) of the site

To help evaluate normal environmental conditions, the 1997 NRCS Hydrology Tools for Wetland Determination" (NEH, Chap. 19) (located on the SharePoint Site) is often referenced. This is fine if you live in the mid-west but in most cases in Alaska, it is not applicable. However, it is important for the planner to be able to document their decision whether or not NEC exists. This requires collecting information within the project area that is reliable for supporting a decision. Several variables other than just precipitation can result in an area having non-normal environmental conditions such as ice-jams and ice bulldozing which can cause flooding; or deep frost from wind-blown areas in the winter causing surface water ponding for longer than normal or the formation of redoximorphic "redox" features from frost; not associated with saturated conditions. Knowledge of the area can be as valuable as climate station data in Alaska. What is important for the agency expert is to determine:

- What would be the NEC on the site in question?
- Are the indicators observed or not observed during the site visit (or using remote resources) indicative of these NEC?

A landowner purchased a parcel of agricultural land that was cleared prior to their puchase in 1995. They asked for a wetland determination from NRCS. From imagery analysis, the area under investigation was forested until 1984. The site is currently in hay. The soils map shows the site as having loamy soils with a deep loess mantle. The site is located in south central Alaska. Previous imagery shows small drainages criss crossing the slightly undulating landform but the area looks dry with no standing water. In accessing previous precipitation data from the WET tables for Palmer and also pulling current precipitation information from Weather Undeground, the planner doesn't notice much difference in precipitation. However, winds were strong all winter and the area received very little snowfall. In addition, looking at temperature data, temperature was below average. It is early June and the area has standing water in the micro-depressions. Do normal environmental conditions exist? Even if NEC do not, can the planner justify his decision to proceed in making a wetland determination?

Growing Season

Growing season is frequently used within the context of normal environmental conditions. In Alaska, growing season dates are determined by evaluating green-up, maintenance, and senescence at the site location, based on direct observation or on remote-sensing methods. Once the soil temperatures warm, biological activity begins, and plants begin to grow. It would be difficult to assess the vegetation factor if there is still snow on the ground so it is important to recognize when plants are starting to green up. In the Alaska Supplement, growing season is discussed under the hydrology factor and is used as an indicator for hydrology (refer to SharePoint Site for the Alaska Supplement).

A Few Other Terms

Typical situation: this term is used in the COEM and also referred to in the NSAM appendix. Typical is expressed as the "normal condition" but for the purpose of FSA, this is further refined as "normal condition after December 23, 1985" (the date the FSA was enacted; not the date the CWA was enacted which was 1972).

Atypical situation: this term is used in the COEM and also referred to in the NFSAM appendix. Atypical is expressed as a situation in which one or more of the factors (vegetation, soil, and/or hydrology) have been sufficiently altered by recent human activities or natural events to preclude the presence of wetland indicators of the factor. For the purpose of FSA, this is further refined as a:

1. Drainage action AFTER 1985 that has altered the normal soil or hydrologic conditions; or
2. The removal or change in the plant community such that a decision cannot be made whether or not the site would support a prevalence of hydrophytic vegetation if undisturbed or in the absence of a post-1985 drainage action

To provide clarity:

1. Typical and atypical situations are disturbance based circumstances addressed under Section F, Atypical Situation in the COEM
2. Normal environmental conditions are climate based conditions addressed under Section G, Problem Areas in the COEM or Chapter 5 in the Alaska Supplement.

What reference can I go to for clarification of definitions? Hint: go to the Alaska Home Sharepoint Site and refer to the FSA Wetland Identification Procedures (2010) (alias, NFSAM Appendix) under Policy and Procedures.

Stop Time: _____

Notes:

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Congratulations! You have finished with Module 2. Proceed to Module 3.