

## HYDROLOGY INDICATORS

There are three steps that can be used to determine wetland hydrology. The first two steps can only be used to confirm the presence of hydrology.

**Step 1.** Wetland hydrology is met if **ONE** or more of the following Primary Indicators is present. **If a Primary Indicator is NOT met, then move to Step 2.**

### Primary Indicators

- INU** Inundation:
- Simply observing the extent of inundation
  - Consider recent weather conditions

- SS** Soil Saturation:
- Requires digging a soil pit to a depth of 16 inches and observing the level to which water rises in the pit
  - The season of the year and weather conditions must be considered

- WM** Watermarks:
- Most common on woody vegetation
  - Stains on bark, fences, bridge pillars, etc.

- DL** Drift Lines:
- Most likely to be found adjacent to streams
  - Evidence is a debris line consisting of branches, leaves, sediment, or other waterborne materials

- SD** Sediment Deposits:
- Plants and other vertical objects have a thin layer, coatings, or depositions of organic matter after inundation

- DP** Drainage Patterns Within Wetland:
- Usually in wetlands adjacent to streams
  - Consists of drainage pattern eroded into soil, vegetation piled against thick vegetation

**Step 2.** Wetland hydrology is met if **TWO** or more of the following Secondary Indicators are present. **If NEITHER a Primary nor Secondary Indicators are met, then go to Step 3.**

### Secondary Indicators

- ORC** Oxidized Root Channels
- Surrounding living roots within upper 12 Inches

- HY** Local Soil Survey Data  
(can **NOT** be used for hydrologically altered sites)
- Soil is on hydric soils list and/or
  - Soil meets a hydric soil indicator (i.e., F6)

- WSL** Water-stained Leaves

- FNT** FAC-Neutral Test  
(can **NOT** be used to prove hydrology if reference site/off-site vegetation used sites)
- The number of dominant species that are OBL and FACW exceeds the number that are FACU and UPL.

- OT** Other: explain in written remarks

### **Step 3. RMS Remote Sensing**

Wetland hydrology is met if an approved hydrology tool confirms it.

Engineering Field Handbook (EFH), Chapter 19 tools provide a wetland hydrology determination assuring that the preponderance of evidence requirement of the NFSAM, 513.11c is met. Currently this is Procedure 2 as denoted in 650.1903 of Chapter 19 of the EFH (see Nebraska Remote Sensing Methodology). Tools **CAN** be used to confirm the presence or absence of hydrology. However, the tools can **NOT** override the presence of field indicators in Steps 1 or 2 without clear documentation and explanation as to how the preponderance of evidence negates the onsite indicator(s) found (e.g., timing, duration, recorded data).

#### **Evaluating Hydrology using Mapping Conventions**

This method should be used when evidence of hydrology cannot be determined onsite with Primary or Secondary Indicators.

Document the remote sensed data on form NRCS-CPA-32.

- if available, aerial slides or photographs from pre-1986 are used to provide the wetland delineator (prior to making the onsite determination) information regarding possible manipulations of the potential wetland(s) that could provide information regarding the appropriate label.
- climatological conditions, especially unusual precipitation events preceding the dates of photography should be considered.
- a minimum of five years of aerial photographs which indicate normal precipitation will be used, or when an insufficient number of normal years slides are available then an equal number of wetter and drier years are used. Precipitation tables that identify “normal”, “wetter”, and “drier” years are available for each county.
- Depending on quality and location, wetland signatures that may be observed on photography or slides include:
  - **HV** hydrophytic vegetation
  - **SW** surface water
  - **SAT** saturated conditions
  - **FC** flooded or drowned-out crops
  - **SC** stressed crops due to wetness
  - **PD** differences in vegetation due to different planting dates
  - **WA** inclusion of wet areas as set-aside
  - **UC** unharvested crops
  - **NF** isolated areas that are not farmed with rest of field
  - **GV** patches of greener vegetation (especially during dry years)
  - **OT** other (must specify and include reasoning for use)
  - **PHM** Potential hydrological manipulations should be noted to factor into labeling decision but **NOT** for use as a hydrology indicator

**If >50%** of all “normal”<sup>1</sup> year slides show a wetland signature **then hydrology verified.**