

12510-SPD SOUTH PACIFIC DIVISION REGULATORY PROGRAM WETLANDS DETERMINATION AND DELINEATION PROCEDURES FOR IRRIGATED LANDS

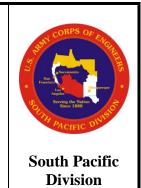


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1.0 Purpose.

To provide guidance for determining whether, and to what extent, wetlands occurring on irrigated land would persist in the absence of irrigation and meet the definition of wetlands under the 1987 Corps of Engineers (Corps) Wetland Delineation Manual (1987 Manual) and the appropriate regional supplement.

2.0 Applicability.

This process applies to wetland determinations or delineations made or verified by South Pacific Division (SPD) subordinate Districts on irrigated land. This includes, but is not limited to, areas in rice production and irrigated pastureland.

This guidance is intended solely to address identifying wetlands that would exist absent irrigation. It is not intended to address the jurisdictional status of any such wetlands, issues

relative to permitting discharges of dredged or fill material in jurisdictional wetlands, or mitigating impacts to jurisdictional wetlands.

This guidance is consistent with all applicable Corps wetland identification and delineation standards and practices, and with applicable guidance for wetland identification and delineation. Wetland determinations and wetland delineation verifications within SPD are to be conducted in accordance with Corps regulations, guidance, and technical standards, including those listed below.

3.0 References.

Section 404 of the Clean Water Act, 33 USC 1344.

33 CFR Parts 320-332, Regulatory Program of the Corps of Engineers.

Environmental Laboratory. (1987). "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1 (on-line edition), U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)

Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region (Version 2.0)

<u>Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)</u>

National Food Security Act Manual, Fifth Edition

"Joint Guidance from the Natural Resources Conservation Service (NRCS) and the Army Corps of Engineers (COE) ConcerningWetland Determinations for the Clean Water Act and the Food Security Act of 1985", dated 25 February 2005.

U. S. Army Corps of Engineers. (2005). "Technical Standard for Water-Table Monitoring of Potential Wetland Sites," *WRAP Technical Notes Collection* (ERDC TN-WRAP-05-2), U. S. Army Engineer Research and Development Center, Vicksburg, MS.

<u>USDA</u>, Natural Resources Conservation Service, National Water and Climate Center, WETS Tables (http://www.wcc.nrcs.usda.gov/climate/wetlands.html) (WETS Tables)

U.S. Army Corps of Engineers. (1998). "Methods to Determine the Hydrology of Potential Wetland Sites," (WRP Technical Note HY-DE-4.1), U.S. Army Engineer Research and Development Center Vicksburg.

Sprecher, S. W., and A.G. Warne. 2000. Accessing and Using Meteorological Data to Evaluate Wetland Hydrology. U.S. Army Engineer Research and Development Center Vicksburg, MS. ERDC/EL TR-WRAP-00-1. (Sprecher and Warne (2000))

Sumner JP, MJ Vepraskis, and RK Kolka. 2009. Methods to evaluate normal rainfall for short term wetland hydrology assessment. Wetlands. 29(3):1049-1062. (Sumner et al (2009))

Natural Resources Conservation Service. (1997). "Hydrology tools for wetland determination," Chapter 19, Engineering field handbook, Donald E. Woodward, ed., USDA-NRCS, Fort Worth, TX. (Hydrology Tools for Wetland Determination)

Sprecher, S. W. (2000). "Installing monitoring wells/piezometers in wetlands," WRAP Technical Notes Collection, ERDC TN-WRAP-00-02, U.S. Army Engineer Research and Development Center, Vicksburg, MS.

4.0 Related Procedures.

QMS Process 12500-SPD, 14 September 2010, subject: South Pacific Division Regulatory Program Signature Authority.

5.0 Definitions.

- 5.1 See Glossary for further QMS definitions and acronyms.
- 5.2 The Corps and EPA wetland definition from the 1987 Manual is: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

6.0 Responsibilities.

District Regulatory personnel are responsible for following the process outlined in Paragraph 7 of this document when identifying and delineating wetlands on irrigated land.

7.0 Procedures.

- 7.1 In accordance with the 1986 preamble to 33 CFR Part 328.3 (51 FR 41217), the Corps generally does not consider artificially irrigated areas which would revert to uplands if the irrigation ceased to be waters of the United States under Section 404 of the Clean Water Act. To determine whether irrigated land, or a portion of irrigation land, is a wetland under 33 CFR 328.3(b), the Corps must first determine whether the irrigated land, under normal circumstances, exhibits the three factors for wetland identification and delineation provided in the 1987 Manual, or the applicable criteria in Chapter 5 of the appropriate regional supplement. Conducting a wetland determination or delineation in accordance with the 1987 manual and the indicators, guidance, and procedures provided in the appropriate regional supplement is critical for determining the extent and location of wetlands on the site. Due to the complexity of these circumstances in irrigated areas, and the need for rigorous documentation, a comprehensive determination, as described in the 1987 Manual, will generally be necessary unless the wetland boundaries are obvious. For areas greater than five acres, transects will normally be required. The following are important considerations when delineating irrigated wetlands:
- 7.1.1 Where irrigation is ongoing, wetland indicators may be the result solely of the irrigation. Therefore, discontinuing the application of irrigation water is usually the best method for determining whether or not wetland hydrology would be present under normal circumstances. Wetland identification and delineation in these situations is also complicated by land modifications, such as leveling or diking, and/or ongoing grazing or vegetation management practices, including those described in the difficult wetland situations in the regional supplements. Following the procedures in the regional supplements to accurately delineate wetlands in those situations is critical.
- 7.1.2 Some of the technical methods typically employed for wetland delineations may not be useful for irrigated lands. For instance, hydrophytic vegetation can be established and maintained solely by irrigation water. Under irrigated conditions, hydric soils indicators may be present as a result of past irrigation practices or the land condition prior to conversion to agriculture, and those indicators may still be found after irrigation ceases, even if wetland hydrology is not present under normal circumstances. Hydric soils are defined as soils formed under conditions of flooding, ponding, or saturation sufficient to create anaerobic conditions in the upper part. Therefore, the removal of irrigation water and monitoring of site hydrology and/or anaerobic soil conditions usually represents the best method for determining whether or not wetlands would be present under normal circumstances and without the application of irrigation water. In irrigated areas, the presence of hydric soil indicators may depend on whether hydric soils were present on the property before irrigation commenced. Hydric soils may also form as a result of physical alterations of the land that change hydrology on the site by increasing soil inundation or saturation that cause hydric soil indicators to develop, and/or the length of time the land has been subject to irrigation.
- 7.1.3 The determination of whether normal circumstances exist in a disturbed area "involves an evaluation of the extent and relative permanence of the physical alteration of wetlands hydrology and hydrophytic vegetation" and consideration of the "purpose and cause of the physical alterations to

hydrology and vegetation." (See Regulatory Guidance Letter 90-7, Clarification of the Phrase "Normal Circumstances" as it Applies to Cropped Wetlands). Physical alterations of the land typically meet the definition of normal circumstances if they are relatively permanent (e.g., land leveling). Certain relatively permanent physical modifications of the land alter the subsequent hydrologic regime. Examples of relatively permanent physical alterations of the land include, but are not limited to, laser leveling, ditching, diking and/or the installation of water control structures. As a result of physical modifications, the land in question may have different hydrologic characteristics than those present prior to the implementation of the land modifications. The surface or sub-surface hydrology that existed before those land modifications were made may or may not return once irrigation has ceased. The normal circumstances on irrigated lands is represented by the vegetation and hydrology that would occur on the site during a normal rainfall year in the absence of irrigation and the absence of a planted crop, in its current physical condition. Depending on the nature of the land manipulation, the wetland status of the area prior to the initiation of irrigation may or may not be representative of wetland conditions that may persist in the absence of irrigation. Wetland determinations in irrigated lands shall be made by considering the current normal circumstances independently from the historical distribution or abundance of wetlands on the site.

- 7.1.4 Application of the three factor wetland identification and delineation methodology in rice fields, irrigated pastures and other irrigated lands is problematic. Hydric soil indicators may be present because of the historic presence of wetlands, irrigation practices or land manipulation which may have affected hydrology and caused hydric soil indicators to develop. Hydrophytic plant species inhabiting a site that was recently irrigated may be present because of opportunistic conditions for establishment and growth, not because they are indicative of current wetland conditions, under normal circumstances. Hydrology is the most reliable, measureable, factor for making wetland determinations on irrigated land, but caution must be exercised when assessing hydrology in these areas. In areas where natural hydrology occurs only during a portion of the year, assessing hydrology during the wet or non-irrigation season may be the most reliable for making wetland determinations. The effects of irrigation may persist for some time, so it is important, when irrigation ceases, to ensure that sufficient time has passed and the observed hydrology is not an artifact of irrigation.
- 7.1.5 Delineating wetlands based solely on hydrology may be problematic due to annual and seasonal variations in rainfall and other considerations. The information derived from WETS tables should be used to determine whether the actual precipitation that is observed during the evaluation period is within the normal range for the area. Detailed information on WETS Tables and how to use them is provided by the NRCS National Water and Climate Center. Hydrology tools for wetland determination and ERDC TN-WRAP-05-02 give a procedure to weight the information for each month to determine whether the period is normal, wetter than normal, or drier than normal. Sumner et al (2009) and Sprecher and Warne (2000) also provide reviews of these methods and guidance for determining rainfall normality. The validity of field data obtained in above or below normal rainfall years can be further examined through the use of reference sites as discussed below. Other sources of local precipitation data may also be consulted, when available.

- 7.1.6 In some situations the procedures established in ERDC TN-WRAP-05-2 may be used to determine whether wetland hydrology would be present under normal circumstances. If this Technical Standard is used, it is to be applied absent irrigation, and after sufficient time has passed so that the effects of irrigation are no longer present and the current natural hydrologic regime can be observed. In accordance with this standard, wetland hydrology is considered to be present on an atypical or problem site if the following standard is met:
 - The site is inundated (flooded or ponded) or the water table is ≤12 inches below the soil surface for ≥14 consecutive days during the growing season at a minimum frequency of 5 years in 10 (≥50% probability). Any combination of inundation or shallow water table is acceptable in meeting the 14-day minimum requirement. Short-term monitoring data may be used to address the frequency requirement if the normality of rainfall occurring prior to and during the monitoring period each year is considered.
- 7.2 Absent irrigation, irrigated areas would revert to all wetlands, no wetlands, or a mixture of uplands and wetlands depending on current geomorphology, hydrology patterns, and other factors. District Regulatory personnel must evaluate the influence of irrigation in maintaining wetland conditions in the area in question. To this end, one of two general approaches, depending on the property owner's decision concerning whether to continue irrigation, will be taken by District Regulatory personnel. Option 1 will be followed when the property owner chooses to cease irrigation to the area in question for a sufficient period of time. Option 2 will be used when the property owner chooses to continue irrigation (e.g. where rice fields or pasture lands are intentionally flooded during some portion of the year).
 - In either option, the initial submittal must include a wetland determination or delineation, performed following either the cessation of seasonal irrigation or continued irrigation, using the comprehensive approach, described in the 1987 Manual, appropriate regional supplement, and local delineation guidance or standards of the site under normal circumstances. District Regulatory personnel may use or approve the use of the routine method for wetland delineation when wetland boundaries are obvious and/or the site is small. The map or drawing which accompanies the submittal must depict all areas that exhibit the three factors for wetland identification and delineation provided in the 1987 Manual, or the applicable criteria in Chapter 5 of the appropriate regional supplement, with appropriately placed data points. The delineation map or drawing must also show the boundaries of other water bodies (e.g., streams, drainage ditches, ponds) to their Ordinary High Water Mark, within the surveyed area. The submittal must include completed data sheets for each data point. In areas subject to seasonal hydrology, determinations and delineations should be conducted during the normal wet period (e.g., for the central valley of California, during January, February, March, and potentially April). Preliminary conclusions that any of the delineated areas would not be wetlands, absent irrigation, must be accompanied with an explanation and supporting information.
- 7.2.1 Option 1: Property owner chooses to discontinue irrigation

- 7.2.1.1 This approach provides the most direct and conclusive approach to determining if irrigated lands meet the definition of a wetland under the 1987 Manual and appropriate regional supplement. Project proponents are strongly encouraged to apply this option when practicable, because it is a more reliable method for identifying wetlands.
- 7.2.1.2 This approach may require the cessation of irrigation for at least two growing seasons, depending on whether precipitation during those growing seasons falls within normal ranges according to information derived from WETS tables. If normal precipitation does not occur during the initial evaluation period because of drought or extraordinarily wet weather conditions, longer non-irrigated hydrology monitoring periods will be necessary.
- 7.2.1.3 Under this option, data is gathered by conducting an on-site wetland determination and delineation of the property, in accordance with the 1987 Manual, the appropriate regional supplement, and local delineation guidance or standards after irrigation has ceased for at least two growing seasons, and the site, including vegetation, has not been recently manipulated (e.g., ditched, disced, plowed, or planted). Naturally occurring vegetation (not planted vegetation) must be used and documented in the wetland determination or delineation as it more accurately represents the normal circumstances in the area absent irrigation.
- 7.2.2 Option 2: Property owner chooses to continue irrigation
- 7.2.2.1 Continuing irrigation increases the likelihood of making a wetland determination based on a false positive for wetland hydrology due to effects of irrigation. District Regulatory personnel will conduct and/or verify a wetland determination or delineation of the property in accordance with the comprehensive determination method described in the 1987 Manual, and appropriate regional supplement, and local delineation guidance or standards. District personnel will make the decision as to the extent of wetlands and other waters on the site.
- 7.2.2.2 In areas where there have been few or no topographic modifications, including irrigation or drainage ditches, District Regulatory personnel will review current and past aerial imagery and land use information, including maps, to ascertain whether wetlands may have existed on the property prior to the application of irrigation. The review of historic aerial photography is likely to be of limited use in areas where there has been moderate to extensive topographic modification, such as with laser-leveling, or where extensive ditching has occurred.
- 7.2.2.3 District Regulatory personnel will review information from federal, state, and local agencies, as well as the landowner, neighbors, and others who may have knowledge of the hydrologic characteristics of the property and surrounding area. This may include information concerning topographic modifications made to the property, such as "laser-leveling", that altered the hydrologic regime of the site.
- 7.2.2.4 District Regulatory personnel will review the most current information regarding soils in the area documented by the NRCS or other appropriate agencies. The NRCS Soil Survey for the

area provides data on soil characteristics, and will usually provide groundwater and flooding information, as well as information on the type of vegetation found in particular soil types. The NRCS Soil Survey may also help determine the presence or absence of hardpans, clays, or other restrictive layers that may indicate potential for inundation or saturation close to the soil surface. Once the soil series is identified and confirmed at the site, determine whether the soil is listed as a hydric soil or a soil with hydric inclusions on the local and national hydric soils list.

- 7.2.2.5 District Regulatory personnel will check with federal, state, and local agencies to determine if any recent surface or groundwater records for the property are available for review. This information may indicate the contribution of natural surface or subsurface hydrology on the property or the surrounding area.
- 7.2.2.6 District Regulatory personnel will review irrigation schedules and other documentation from irrigation districts and/or water companies regarding water delivery and use on the property to determine the schedule, extent, and duration of irrigation.
- 7.2.2.7 District Regulatory personnel will review weather information, including the period of record, and determine whether drought or extraordinarily wet conditions exist.
- 7.2.3 In certain cases District Regulatory personnel in coordination with the project proponent may choose to establish reference sites. Reference sites will help provide information on the normal circumstances for sites that have been intensively managed for agriculture, such as irrigated lands. One or more reference sites may be identified and described based on their proximity to the project site, similar soil types, type of wetlands present or previously existing on the project site, landscape position, extent and type of manipulation, topography, elevation, depth to hardpan, drainage features, and other relevant criteria. Reference sites must be approved by District Regulatory personnel. Evaluating wetland factors, under normal circumstances, on appropriate and approved reference sites, in light of the effects of annual and seasonal variability, may provide useful information as to what may be expected to occur under normal circumstances on the subject site. If a sufficient number of reference sites are established and observed over an appropriate time period, the possibility of false positives for wetland hydrology should decrease.
- 7.2.4 Additional data, including that identified in the following sections, should be provided. That data should be collected in accordance with the above references and at appropriate times during normal precipitation years.
- 7.2.5 District Regulatory personnel will evaluate topographic maps and other maps that show topography and general flow and drainage patterns across the site. These maps should be drawn at the same scale as the wetland delineation map. This should identify any areas sloped to drains, and any low spots where water may linger when the field is allowed to drain. Where readily available, LIDAR mapping/data may be used to help identify micro topographic low points, which may remain inundated or saturated, absent irrigation.

- 7.2.6 Show drainage ditches or other drainage structures near the review area. If there are drainage ditches or other drainage structures near the review area, the wetland determination or delineation report should evaluate the zone of influence of those drainage ditches or structures. Show current conditions including:
 - Detailed description of past and current drainage and irrigation practices
 - Cropping history and type and extent of any recent manipulation
 - Current practices, including length and schedule of crop production
 - Rotation crops and how often rotation occurs
 - Stubble control techniques used in past five years
 - Site description, including whether it was "laser-leveled" or rough graded
 - A soil profile for each soil type found in the review area and soil survey data, including County hydric soil mapping and data for the site
- 7.2.7 Describe the proposed field hydrology monitoring protocol to attempt to evaluate the influence of irrigation on hydrology. District Regulatory personnel should consider the potential utility of placing monitoring wells as described in ERDC TN-WRAP-05 to monitor hydrology outside of irrigation season. Alternatively, visual observation of site hydrology at targeted locations on a regular schedule during the normal wet season may help identify those areas which remain inundated or saturated for sufficient duration to meet the wetland hydrology factor in the 1987 manual and regional supplement. District Regulatory personnel and the project proponent should work together to select monitoring well locations, develop a hydrology monitoring schedule, and establish appropriate timing of field hydrology monitoring surveys to be conducted.
 - This will be based on the observed hydrology of the delineation site through monitoring conducted during the time of year when wetland hydrology normally occurs (e.g., in California, over the rainy season, typically during January, February March and April). Monitoring should be conducted during the period that naturally occurring wetlands are saturated or inundated and irrigation has ceased. Monitoring at identified sites within the area being evaluated should be done in accordance with the procedures in ERDC TN-WRAP-05-2, or alternative Corps approved method and schedule, during the peak of the rainy season, when there is the maximum potential to observe seasonal saturation, and/or inundation.
 - As natural hydrology increases (e.g., for California, at the beginning of the rainfall year), the degree of inundation or saturation, and/or proximity to the surface of the water table within the project area and reference site(s) should be monitored at a frequency sufficient to determine if the hydrology criteria set out in the Technical Standard is met.
- 7.2.8 If precipitation during the monitoring period is determined, through the use of WETS tables, to be either substantially above or below normal, the hydrology monitoring period should

be extended, and/or subsequent normal wet season monitoring may be necessary.

- 7.2.9 Wetland area will vary in irrigated areas that are plowed, disked and re-leveled on an annual basis (e.g. certain rice fields). Therefore surveying and analyzing non-planted vegetation or applying other methods identified in the difficult situation section of the regional supplement, may be necessary to identify what would occur under normal circumstances.
- 7.2.10 The suggested protocol and interpretation criteria outlined above are intended to be a general guide. It is recognized that there are many site-specific factors that may require modifying this protocol. Where such modifications appear to be warranted, the alternative protocol and evaluation criteria should be developed in consultation with District Regulatory personnel during the initiation procedures. Any alternative protocols or evaluation criteria used for the wetland determination or delineation, and the reason(s) for using those other procedures or criteria, must be documented in the Corps administrative record.
- 7.2.11 In making the final wetland determination or delineation verification decision, Districts will make every effort to utilize all existing data, since soil and hydrology information for a flooded site may be difficult to determine and analyze. Districts will also work with the property owner to gather and review information for the property that has been subject to irrigation.
- 7.3 One of the following findings will be made upon completion of the procedure established in 7.2:
- 7.3.1 An irrigated area, under normal circumstances, does not meet the definition of a wetland.
 - If it is obvious that the area would not meet the wetland hydrology factor without irrigation based on the information obtained and/or field observations, the area does not meet the Corps/EPA definition of a wetland under the procedures in the 1987 manual and regional supplement.
- 7.3.2 An irrigated area, under normal circumstances, meets the definition of a wetland.
 - If positive indicators for all three wetland identification factors are present, and the source of natural hydrology (e.g. rainfall, runoff, springs, seeps, surface flooding, groundwater, etc.) provides water at or near the surface for sufficient duration to satisfy the wetland hydrology factor, and can be clearly identified, then those areas that exhibit wetland hydrology meet the Corps/EPA definition of a wetland under the procedures in the 1987 Manual and regional supplement.
- 7.3.3 It is unclear whether an irrigated area, under normal circumstances, would meet the definition of a wetland.

• If there are positive indicators for hydric soils and hydrophytic vegetation, but the relative contributions of irrigation versus natural hydrology in establishing the site's hydrologic regime cannot be precisely determined, additional information should be obtained to make a more definitive evaluation of whether wetland hydrology.

7.4 Irrigated areas that, under normal circumstances, meet the definition of a wetland under the 1987 Manual and regional supplement are potentially subject to jurisdiction under Section 404 of the CWA. A wetland is considered jurisdictional if it meets the definition of waters of the U.S. in accordance with 33 CFR Part 328.3 and guidance provided by the Corps and EPA.

8.0 Records and Measurements.

8.1 Records

All documents listed in Paragraph 7 are to be filed in the corresponding project files in accordance with

ES-QMS140, "Records Management."

| Typ e | Description | Responsible Office | Location | Record Media | Retention | Disposition |
|----------|-------------------|-----------------------|-------------------|-----------------|-----------|-----------------|
| R | Wetland | Regulatory | Project file | P | 7 years | Send to records |
| | determinations | Divisions | folders in filing | | | holding |
| | and delineations, | within SPD | cabinets | | | |
| | maps, supporting | Districts | Regulatory | | | |
| | documentation | | Divisions within | | | |
| | | | SPD Districts | | | |

8.2 Measurement

The SPD Regulatory Program Manager and District Regulatory management personnel at SPA, SPK, SPL, and SPN will periodically inspect project files to ensure compliance with this guidance by all Regulatory Program personnel.

9.0 Attachments.

None

10.0 Flow Chart.

10.1 Delineation process for irrigated wetlands

Flow Chart - Delineation process for irrigated wetlands

