Irrigation Water Management Plan (IWMP)

Requirement Clarification – 2016

Note: 2016 Requirements Sheets for CPS 441, 442 and 449 reference this clarification in regards to IWMPs. Most all irrigation related practices require an Irrigation Water Management Plan (IWMP) that meets the Conservation Activity Plan CAP 118 Irrigation Water Management Plan Criteria located at

http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/?cid=stelprdb1262227

The IWMP may be developed concurrently with design but must be in place prior to any program payments and system operation.

Requirement Clarification for IWMP creation, review and approval:

Option 1: An IWMP may be developed through the CAP program via a certified Technical Service Provider (TSP). An administrative review by an NRCS Field Office is required using the CAP118 checklist.

Option 2: An IWMP may be developed by an NRCS employee who holds the appropriate Engineering Job Approval Authority (EJAA) for CPS 449.

Option 3: An IWMP may be developed by an NRCS employee who lacks the appropriate Engineering Job Approval Authority (EJAA) for CPS 449 or other non-NRCS personnel. However, the developed plan must be administratively and technically reviewed and approved by an NRCS employee who holds the appropriate EJAA for CPS 449.

Option 4: An IWMP may be developed by non-NRCS personnel who hold one of the following certifications: 1) USDA NRCS TechReg Technical Service Provider certified for IWMPs; 2) Irrigation Association (IA) Certification as a Certified Irrigation Designer (CID) – Agriculture: Drip/Micro, Sprinkler, or Surface; or, 3) Irrigation Association (IA) as a Certified Agricultural Irrigation Specialist (CAIS). An administrative review by an NRCS Field Office is required using the CAP118 checklist.

Attachments: (applicable to all Options above)

1. IWMP Criteria
2. IWMP Review Checklist

IRRIGATION WATER MANAGEMENT PLAN CRITERIA
PRACTICE/ACTIVITY CODE (118) (NO.)

1. Definition of an Irrigation Water Management Plan

The objective of Irrigation Water Management (IWM) is to control the volume, frequency, and rate of water for efficient irrigation, and for the following purposes:

- Promote desired crop response.
- Optimize the use of available water supplies.
- Improve water quality, by reducing irrigation sources of surface and ground water contamination.
- Minimize irrigation induced soil erosion.
- Improve soil environment for vegetative growth.
- Manage salts in the root zone.
- Improve air quality, by reducing movement of particulate matter.
- Provide appropriate and safe fertigation and chemigation.
- Reduce energy consumption.

The objective of an Irrigation Water Management Plan (IWMP) is to provide the producer a guide for the proper management and application of irrigation water resources. The potential benefits of IWM can be effectively determined by interviewing the producer to identify fields, soils, crops, climate, and available water supply; measuring the volumes of water withdrawn or applied; determining irrigation system uniformity, selecting a method to schedule irrigations, and then combining these components to produce an IWMP for the farm.

2. IWMP Criteria

This section establishes the minimum criteria to be addressed in the development of

Irrigation Water Management Plans.

A. General Criteria:

1. Irrigation Water Management Plans shall be developed by certified Technical Service Providers (TSPs) or in accordance with other state policy. In accordance with Section 1240 (A), the Environmental Quality Incentive Program (EQIP) program provides funding support through contracts with eligible producers to obtain services of certified TSPs for development of Irrigation Water Management Plans. The specific TSP criteria required for Irrigation Water Management Plan development is located on the TSP registry (TechReg) web site at: http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/technical/tsp.
2. The IWMP should address the resource concerns identified, and the conservation practices needed to comprise a conservation system for IWM. In addition, the IWMP should be based on the economics of water use, energy consumption, and crop yield. Management may be limited by water (deficit irrigation), or limited by land (unlimited water). The two general management schemes for irrigation water conservation in agriculture are: Demand Management (reducing withdrawals or reducing crop requirements), and Supply Management (increasing water storage, yield, or supplies).

Technologies available for Demand Management include:

- Irrigation scheduling.
- Increased system uniformity.
- Increased irrigation efficiency.
- Reduced water evaporation.
- Reduced soil evaporation (utilize crop residue or mulch).
- Reduced water use by non-beneficial vegetation.
- Limited irrigation (applying less than maximum ET_C).
- Crop selection (lower ET_C or drought resistant strains).
- Decision-making models (optimize water, energy, and nutrient use).
- Conversion of irrigated cropland to dry land farming.

Technologies available for Supply Management include:

- Increased water storage capacity.
- Groundwater recharge.
- Water harvesting.
- Vegetative management for increased watershed runoff.
- Reuse of waste or drainage water.
- Water transfers

B. IWMP Technical Criteria. The IWMP should include, but not be limited to, the following components:

1. Farm and field information:
   a. Name of producer.
   b. Farm number.
   c. Field and/or tract number.
   d. Crops grown, and planned rotation by field.
   e. Name of contractor or consultant developing plan.
   f. Date of plan development.
2. The objectives of the producer, which should involve one of the purposes listed in Conservation Practice Standard (CPS) 449, Irrigation Water Management.
3. A map that includes field boundaries, and a soils map with the predominant soils listed and area quantified. If the qualifying acres for the plan are a subset of fields, the boundaries of the IWMP acreage should also be delineated.
4. An irrigation system map that includes the size, materials, and locations of the mains, laterals, and application systems.
5. Documentation of past water withdrawals and applications, by crop.
6. The methods planned to measure or quantify future water withdrawals and irrigation applications.
7. Planned water application volumes, on a seasonal and/or annual basis, and by crop.
8. Soil tests, to include nutrient levels and salinity. Water tests, to include nutrients, pathogens, salinity, pH, and trace elements.

9. Estimates of irrigation system uniformity, based on testing, evaluation, or observation. Distribution Uniformity (DU) should be based on the ratio of the average depth infiltrated in the low one-quarter of the field, to the average depth infiltrated over the entire field.

10. Documentation of the scientific method planned for scheduling the timing and amount of irrigation applications, based on the measurement or estimation of soil moisture, and the measurement or prediction of evapotranspiration (ET_C) of the crop(s). The proposed irrigation scheduling method should include:

    a. Estimated volume of water applied, by field, irrigation event, season, and/or year.

    b. Estimated frequency or timing of irrigation applications, by field.

    c. Estimated application rates and depths of irrigation events.

11. An Operation and Maintenance plan, to include a check list of items to eliminate non-beneficial system losses.

12. A signature page, with names, dates and signatures of all contract holders and the person who prepared the plan. The signature page should also contain a space for approval by NRCS.

13. The IWMP components shall be assembled into one complete plan.

C. Associated Practice Standards. The IWMP should address the resource concerns identified, and the conservation practices needed to comprise a conservation system for IWM. In addition to the information required in CPS 449, Irrigation Water Management, existing irrigation systems and conveyance facilities may require modification, augmentation, or replacement of components. NRCS Conservation Practice Standards to be incorporated in the IWMP could include:

Code	Practice name
449	Irrigation Water Management
441	Irrigation System, Micro
442	Irrigation System, Sprinkler
443	Irrigation System, Surface & Subsurface
430	Irrigation Pipeline
428	Irrigation Ditch Lining
388	Irrigation Field Ditch
320	Irrigation Canal or Lateral
587	Structure for Water Control
436	Irrigation Reservoir
447	Irrigation System, Tailwater Recovery
533	Pumping Plant
464	Irrigation Land Leveling
450	Anionic Polyacrylamide (PAM) Application
610	Salinity and Sodic Soil Management
590	Nutrient Management

D. References

- USDA-NRCS, National Engineering Handbook, Part 623, Section 15, Irrigation.
- USDA-NRCS, National Engineering Handbook, Part 652, National Irrigation Guide.

3. Deliverables for the Client – a hardcopy of the IWMP that includes:

- Cover page – name, address, and phone number of producer and TSP; Total Acres of the Plan, signature blocks for the TSP, producer, and a signature block for the NRCS acceptance.
- Soils map and appropriate soil descriptions.
- Resource assessment results (wind and water erosion, water availability, soil fertility, and others that may be needed).
- Complete Hardcopy of the client's plan (MsWord copy). Document the planned conservation practices showing the planned amount, the fields where the practice is to be applied, and the planned year of application.

4. Deliverables for the NRCS Field Office:

- Complete Hardcopy and Electronic copy of the client's plan (MsWord and/or other appropriate digital copies).
- Digital Conservation Plan Map with fields, features, and structural practices located.
- Digital Soils Map.

United States Department of Agriculture
Natural Resources Conservation Service

Date Received: **Control No:**

Field Office and TSP Certification Plan Review Checklist

Conservation Activity Plan – Irrigation Water Management Plan Practice Activity Code (118)

(Refer to National Bulletin 450-13-3 for a complete listing of CAP Criteria)

Purpose: The purpose of the checklist is to provide guidance for elements that need to be addressed or included in the Conservation Activity Plan (CAP). The checklists are recommended for use by NRCS staff and Technical Service Providers, but are not required. NRCS staff can use the checklist for administrative review of the sample plans submitted as part of the certification process as well as all other plans submitted after a TSP is certified. TSPs can use the checklist for a general guidance of elements to include in the plan, but it is still the TSP's responsibility to follow the CAP Plan Development Criteria for specific elements and the detail of each element to be included.

Instructions: The checklist should be completed and submitted with the sample plan or the hardcopy of the client's plan as described below:

- **Prospective TSP's** should submit the completed checklist and sample plan by mail or email (complete plans should be sent as a single electronic file for example pdf, word or scanned file) to the appropriate State TSP Coordinator for technical review to become a certified TSP. A list of State TSP Coordinators can be found at: https://techreg.sc.egov.usda.gov/RptStateContact4Admin.aspx.

- **Certified TSP's** should submit the completed checklist, hardcopy and electronic copy of the client's plan to the local NRCS Field Office or appropriate State TSP Coordinator for administrative review.

- **NRCS Staff** should complete the checklist for administrative review and place the completed checklist in the client's file. Administrative review involves a review of the content of the plan to ensure all required elements are present, but does not involve technical review for correctness. (Please Note: If technical review is needed, the completed checklist and client plan should be forwarded to the appropriate State Office staff or NHQ for technical review.)

Please Note: Should a State not have the technical specialist to conduct the technical review, requests can be submitted (by the State Office) to NHQ for review. For NHQ review please submit the complete plan and checklist by mail or email to the TSP Team. See below for address information.

Irrigation Water Management Plan	
State/County:	**Date Plan Submitted:**
Producer/Owner:	**Technical Service Provider:**

An Irrigation Water Management Plan (IWMP) provides the producer with a guide for the proper management and application of irrigation water resources. The objective of Irrigation Water Management is to control the volume, frequency and rate of water for efficient irrigation.

Technical Guidance, Criteria, and Content for the NMP is found at the URL: eDirectives http://directives.sc.egov.usda.gov/. Navigate to: Handbooks Title 210 Engineering, Section 15 – Irrigation and Part 652-National Irrigation Guide.

Minimum components of a IWMP shall include:

1.	**General Criteria: IWMP plans should address:**
☐	a. Resource concerns identified, and; b. Conservation practices needed to comprise a conservation system for IWM; c. Based on Economics of water use, energy consumption and crop yield; d. Management schemes: Demand Management (reducing withdrawals or reducing crop requirements) and Supply Management (increase water storage, yield or supplies).
2.	**Technical Criteria: Minimum criteria to be addresses in development and implementation of IWM Plan:**
☐	1. Farm and field information: a. Name of producer; b. Farm number, Field and/or Tract number; c. Crops grown, and planned rotation by field; d. Name of contractor or consultant developing plan; e. Date of plan development.
☐	2. The objectives of the producer, which should involve one of the purposes listed in Conservation Practice Standard (CPS) 449, Irrigation Water Management.
☐	3. A map that includes field boundaries and a soils map with the predominant soils listed and area quantified. If the qualifying areas for the plan are a subset of fields, the boundaries of the IWMP acreage should also be delineated.
☐	4. An irrigation system map that includes the size, materials, and locations of mains, laterals and application systems.
☐	5. Documentation of past water withdrawals and applications, by crop.
☐	6. The methods planned to measure or quantify future water withdrawals and irrigation applications.
☐	7. Planned water application volumes, on a seasonal and/or annual basis, and by crop.
☐	8. Soil tests, to include nutrient levels and salinity. Water tests, to include nutrients, pathogens, salinity, pH, and trace elements.

☐	9. Estimates of irrigation system uniformity based on testing, evaluation, or observation. Distribution Uniformity (DU) should be based on the ratio of the average depth infiltrated in the low one-quarter of the field, to the average depth infiltrated over the entire field.
☐	10. Documentation of the scientific method planned for scheduling the timing and amount of irrigation applications, based on the measurement or estimation of soil moisture, and the measurement or prediction of evapotranspiration (Et_c) of the crop(s). The proposed irrigation scheduling method should include: a. Estimated volume of water applied by field, irrigation event, season, and/or year; b. Estimated frequency or timing of irrigation applications, by field; c. Estimated application rates and depths of irrigation events.
☐	11. Resource assessment results (wind and water erosion, water availability, soil fertility, and others that may be needed).
☐	12. An Operation and Maintenance Plan, to include a check list of items to eliminate non-beneficial system losses.
☐	13. A signature page, with names, dates and signatures of all contract holders, person who prepared the plan and NRCS representative.
☐	14. The IWMP components shall be assembled into one complete plan.
☐	15. Document the planned conservation practices showing the planned amount, the fields where the practice is to be applied, and the planned year of application. The IWMP should address the resource concerns identified and the conservation practices needed to comprise a conservation system or IWM. In addition to the information required in CPS 449, existing irrigation systems and conveyance facilities may require modification, augmentation or replacement of components. See the Plan Development Criteria for a listing of NRCS Conservation Practice Standards to be incorporated in the IWMP.
☐	16. References
☐	17. Deliverables: a. Complete hard copy for the client; b. Complete hard and electronic copy of the plan for NRCS: 1. Digital Conservation Plan Map with field, features and structural practices located; 2. Digital Soils Map.

Yes	No	Checklist Approval
☐	☐	I have administratively reviewed this Irrigation Water Management Plan and it meets all the FY13 Plan Development Criteria for Conservation Activity Plan 118.

NRCS Representative Name and Title (print or type):		
NRCS Representative Signature		Date:

Notes (If "No" is checked, include reasons for denial, comments, missing items that need to be added, etc.):

Email: **tsp@wdc.usda.gov.**

Mailing Address:

Technical Service Provider Team
USDA - Natural Resources Conservation Service
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