

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

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the producer to identify fields, soils, crops, climate, and available water supply; measuring the volumes of water withdrawn or applied; determining irrigation system uniformity, selecting a method to schedule irrigations, and then combining these components to produce a IWMP for the farm.

IWMP General Criteria

- A. NEPA documentation National Environment Policy Act (NEPA) Documentation and other Environmental Compliance Documentation (including National Historic Preservation Act, Endangered Species Act, Environmental Justice, Air Quality compliance) —see comments below about using the Resource Concerns and Special Environmental Concerns worksheet (CPA-52) as a checklist. Reasons/justifications for data gaps or planning limitations and biases should be provided in a brief statement here.
- B. Cultural Resources and other Resource Concerns and Special Environmental Concerns, extract from State's current CPA-52, Environmental Evaluation Worksheet (see National Environmental Compliance Handbook). CPA-52 includes benchmark conditions for all resource concerns and special environmental concern (e.g. soil, water, air, plants, animals, human (cultural resources, environmental justice, scenic resources and economic and social concerns). This is just a checklist and the level of resolution for inventory of these resource concerns may vary depending upon the nature, size, and intensity of possible positive and negative effects to these resources. If any are not considered, a short explanation for these data gaps should be given here.

- C. An IWMP plan shall be developed by NRCS partners and certified Technical Service Providers (TSP). The specific criteria required for each type of certification for TSP is located on the TSP website (TechReg) at: <http://techreg.usda.gov/>.

The planner shall address the following items during the IPM Conservation Plan development process. 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).

The 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

The 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

In addition to the information required in Conservation Practice Standard (CPS) 449, Irrigation Water Management, existing irrigation systems and conveyance facilities may require modification, augmentation, or replacement of components.

IWMP Technical Criteria:

This section establishes the minimum criteria to be addressed in the development and implementation of Irrigation Water Management Plans.

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 employee or consultant developing plan
 - f. Date of plan development
2. The objectives of the producer, which should involve one of the purposes listed in CPS 449, Irrigation Water Management.
3. A soils map that includes field boundaries, 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 method 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
 - d. Moisture determination methodology identified and documented
11. Conservation plan (record of decisions) (*Utilizing Customer Service Toolkit – Plug-In or MsWord Document*) to address the identified environmental risks associated with pest suppression activities with implementation specifications and other resource concerns. The record of decisions shall include the planned practice(s), schedule for implementation, and site specific specifications to apply the conservation practice. The site specific specifications can be on an NRCS Jobsheet available for the conservation practice or in a narrative form for the non-engineering type practices. Planned

engineering type practices shall include the conservation practice, schedule of implementation, and identified on the plan map. The plan may include, but are not limited to the conservation practices listed below:

- a. Irrigation Water Management (449)
 - b. Irrigation System, Micro (441)
 - c. Irrigation System, Sprinkler (442)
 - d. Irrigation System, Surface & Subsurface (443)
 - e. Irrigation Pipeline (430)
 - f. Above Ground Multi-Outlet Pipe (431)
 - g. Irrigation Ditch (428)
 - h. Irrigation Field Ditch (388)
 - i. Irrigation Canal or Lateral (320)
 - j. Structure for Water Control (587)
 - k. Irrigation Reservoir (436)
 - l. Irrigation Tailwater Recovery (447)
 - m. Pumping Plant (533)
 - n. Irrigation Land Leveling (464)
 - o. Anionic Polyacrylamide (PAM) Application (450)
 - p. Salinity and Sodic Soil Management (610)
 - q. Nutrient Management (590)
 - r. Waste Utilization (633)
12. Provide producer forms adequate for collecting irrigation application information for the system they are using.
 13. An Operation and Maintenance plan, to include a check list of items to eliminate non-beneficial system losses.
 14. 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.
 15. The IWMP components shall be assembled into one complete plan. A basic plan layout template is found below if desired.

CONSERVATION ACTIVITY PLAN Practice Application Schedule

Client's Name: _____

Planner's Name: _____

Date: _____

CLIENT'S OBJECTIVE:				
TRACT NO.	FIELD NO.	PLANNED APPLY DATE	PRACTICE and NARRATIVE	
Landowner's Signature:				Date:
TSP's Signature:				Date:
Designated Conservationist:				Date: