# ENVIRONMENTAL QUALITY INCENTIVE PROGRAM AND PRACTICING IRRIGATION WATER MANAGEMENT

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All conservation water management practices done in cooperation with the Natural Resources Conservation Service (NRCS) Environmental Quality Incentive Program (EQIP) Ground and Surface Water Management (G&SW) involve some level of irrigation water management. The EQIP project does not end with the installation of an irrigation practice, it is only the beginning.

Once the NRCS and an EQIP Participant have entered into a contract it is the goal of NRCS to be involved "in the field" by demonstrating and showing the irrigator how to utilize the available water management tools. Although the irrigator is in control of when and how much to irrigate; NRCS teaches that irrigation water management is a balance of science and forecasts predictions to determine when and how much to irrigate. NRCS hopes to improve upon the current water management techniques while preserving and sustaining our natural resources.

The level and techniques of irrigation water management are a function of how the irrigator wishes to manage the irrigation system. NRCS traditionally teaches and demonstrates conventional techniques such as: using soil moisture probes for soil sampling, using the appearance-feel method for available soil moisture content, and using locally published crop Evapotranspiration ($ET_c$) data to forecast crop water use. These measurement techniques, or versions there-of, can be a very effective means of practicing irrigation water management.

NRCS also recognizes the technological advances in the arena of automated irrigation water management. These automated techniques can use data logging and/or telemetry type equipment with soil moisture sensing equipment to provide continuously recorded real time soil moisture readings. This information can then be readily available to the system operator in order to adjust and schedule the irrigation system for real time field conditions.

Once the technique of irrigation water management has been established record keeping and documentation become a vital means of implementing the irrigation water management part of the EQIP Contract. Every EQIP Ground and Surface Water Contract contains a clause in which the irrigator agrees to practice and document his or her particular irrigation water management program for a specified time. Typically this is for two to three irrigation seasons after the practice has been installed on the field. Subsequent records are provided to the NRCS for the items agreed to within the EQIP Contract.

The primary documentation tool that NRCS has offered to irrigators for use in documenting their irrigation water management program is the attached NE-ENG-80 Form (IRRIGATION WATER MANAGEMENT RECORD SHEET). Instructions on how to complete and use this form are also attached. Assistance in completing this form can also be provided through your local NRCS Office. Populating and utilizing this form regularly can aid in the process of deciding when and how much to irrigate. It will also allow the irrigator to know exactly how much water has been pumped per irrigation and how much has been pumped over the course of an irrigation season. An irrigator can use a different version of this form if they so chose, as long as the form is equivalent in content.

The irrigation water management tools, techniques, documentation forms and one-on-one NRCS Technical Assistance all work toward sustaining and preserving our natural resources. It is also the hope that after EQIP contractual requirements have been met the irrigator will continue to utilize these tools to fine tune their irrigation water management techniques.

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# IRRIGATION WATER MANAGEMENT RECORD SHEET

Name (1) _____ Field (2) _____ Tract (3) _____

Irrigated Area (4) _____ acres Length of Run (gravity irrigated) (5) _____ Average Furrow Grade or Slope(6) _____

Well/Water Source Output (7) _____ GPM Date Measured (8) _____ Crop (9) _____ ET Station (10) _____

Soil Type (11) _____ Available Water at Field Capacity in Root Zone (12) _____ inches Maximum Allowed Depletion (13) _____ inches

## Irrigation Record

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date (14) | | | | | | | | | | | | | |
| Soil Moisture Def[1] (15) | | | | | | | | | | | | | |
| (ET) Rate[2] (16) | | | | | | | | | | | | | |
| Inches Appl.[3] (17) | | | | | | | | | | | | | |
| Meter Read – Start (18) | | | | | | | | | | | | | |
| Meter Read – Stop (19) | | | | | | | | | | | | | |
| No. Gates Open (20) | | | | | | | | | | | | | |
| Out Time[4] (21) | | | | | | | | | | | | | |
| Set or Rev. Time (22) | | | | | | | | | | | | | |

## Rain Gauge Record

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date (23) | | | | | | | | | | | | | | | | | | | |
| Inches (24) | | | | | | | | | | | | | | | | | | | |
| Date | | | | | | | | | | | | | | | | | | | |
| Inches | | | | | | | | | | | | | | | | | | | |

Notes (25)

[1] Soil Moisture Deficit in inches beginning of day in root zone.
[2] The ET rate used for scheduling the current irrigation.
[3] Gallons pumped /27,154/acres = inches applied (gross).
[4] Average time for water to reach the end of 50% of the rows (conventional furrow).

Seasonal Water Application (26) _____ inches Seasonal Rainfall (27) _____ inches

**INSTRUCTIONS FOR IRRIGATION WATER MANAGEMENT**
**RECORD SHEET**

(1) Name of producer.
(2) Field number in which IWM is being applied.
(3) ASCS tract number.
(4) Number of acres in field.
(5) Length of furrows if gravity irrigated.
(6) Average furrow grade if gravity irrigated or slope of field if sprinkler irrigated.
(7) The well or water source output in gallons per minute.
(8) The date that the water source output was last checked or measured.
(9) Crop grown.
(10) Location, phone number, radio station, of evapotranspiration (ET) data for the nearest weather station.
(11) Soil type.
(12) Available water at field capacity in the crops root zone for the soil listed (normally 3 foot).
(13) The maximum allowed depletion of the available water before irrigation should be scheduled.
(14) The date each irrigation is started.
(15) The soil moisture deficit on the day that irrigation is started, this is the amount in inches that the soil will hold, without runoff or deep percolation.
(16) The evapotranspiration (ET) rate, or the average daily crop water use rate on the day the irrigation is started.
(17) Inches applied, this is the gross amount of water pumped or delivered to the field or to the set, whichever applies. The sum of this line equals the gross amount delivered to the field for the season.
(18) This is to record the meter reading, clock time or hour meter reading at the beginning of each irrigation.
(19) Meter reading at the end of each irrigation. (Same as above)
(20) The number of furrows being irrigated for this set or irrigation. The average gallons per minute flowing down the furrows may be substituted when furrow length varies or set size is not constant.
(21) This is the average time it takes for one half of the furrows in any given set to reach the end of the field, and the data can be used to evaluate the irrigation to make adjustment to achieve higher efficiency, more uniform distribution, or decrease deep perk.
(22) This line is used to record the time water is allowed to run on the set being evaluated. In cases where this record is being pushed on Center Pivot irrigation, record the hours for one revolution of the pivot.
(23) Record the dates of rainfall during the growing season.
(24) Record the rainfall amounts for the field.
(25) Keep factors that need explanation in the notes.
(26) Total irrigation water application for the season.
(27) Total rainfall for the growing season, at a minimum rainfall from May through September must be kept.

Note: The use of this form is intended to satisfy requirements to record irrigation information for various water quantity or quality programs in Nebraska. It is not intended for this form to be considered a water management plan or complete scheduling tool. The information included on this form will be used to evaluate the irrigation system to determine the effectiveness of the system.