

# Irrigation Systems, Sprinkler (442) Requirement Sheet

## 2012 Environmental Quality Incentives Program (EQIP)

**Eligibility:** Crop and Livestock Operations with adequate irrigation history on file.

**Purpose:** To provide planning guidance for using Irrigation System, Sprinkler scenarios in arriving at least cost alternative to address resource concern.

**Requirements:** Resource concerns exist such that application of irrigation water is inefficient and not uniformly applied. Irrigation water is typically over applied and causing erosion. The existing center pivot linear or linear move system has a Coefficient of Uniformity (CU) of less than 85%.

An **Irrigation Water Management Plan** is required before design or retrofit of system and it is developed as part of a resource management system to achieve one or more of the following purposes:

- Manage soil moisture to promote desired crop response.
- Optimize use of available water supplies.
- Minimize irrigation induced soil erosion.
- Decrease non-point source pollution of surface and groundwater resources.
- Manage salts in the crop root zone.
- Manage air, soil, or plant micro-climate.
- Proper and safe chemigation or fertigation.
- Improve air quality by managing soil moisture to reduce particulate matter movement.
- Reduce energy use.

Scenario	Description
Center Pivot low pressure retrofit	Install low pressure sprinkler retrofit package LEPA, LESA, LPIC, or MESA nozzle package to match crop needs and soil characteristics on existing (> 20 years old) inefficient Center Pivot irrigation system or existing Linear-Move irrigation system. Existing CU documented by in-field system evaluation must show that the existing CU is below 85% efficiency. Post-retrofit CU is documented by in-field system evaluation, Center Pivot Evaluation and Design (CPED), or manufacturer computer model must meet standard 442, Irrigation System Sprinkler. Retrofit Center Pivot system must have Coefficient of Uniformity greater than or equal to 85% or greater than 70% for wastewater. Flow measurement with flow meter required for retrofit design. Typical installation is 1,000 foot long center pivot or linear move covering 72 acres. An Irrigation Water Management Plan is developed for the conversion design. The upgraded low pressure sprinkler package for the center pivot linear or linear move irrigation system has a calculated CU that is greater than 85% or greater than 70% for wastewater. The new sprinklers will use less water, decrease soil erosion, and use less energy
Center Pivot Low Pressure Conversion	Conversion of existing center pivots (> 20 years old) or inefficient systems to a low pressure center pivot system is applicable scenario. A new low pressure LEPA, LESA, LPIC, or MESA nozzle package sprinkler system is installed that is typically 1000 feet long irrigating about 72 acres. The new system will increase overall system efficiency and save water. New Center Pivot system must have Coefficient of Uniformity greater than or equal to 85% or greater than 70% for wastewater. CU documented by in-field system evaluation, Center Pivot Evaluation and Design (CPED), or manufacturer computer model must meet standard 442, Irrigation System Sprinkler. Flow measurement with flow meter required for design. An Irrigation Water Management Plan is used to determine application events based on available soil moisture. The new system demonstrates that less water is used, decreased soil erosion, and less energy use
Large Traveling Gun - Large Reel Powered	A Big Gun Traveler system (including cart materials) is utilized that provides for the proper application of livestock waste effluent to effectively utilize nutrients and protect water quality. The system utilizes a large capacity nozzle and high pressure (90 to 125 psi) to throw water over the crop (175 to 350 foot radius). The traveling big gun is mounted on a cart with water supplied to the gun by a 1320 ft of 4" flexible hose. The system includes the hose, sprinkler cart, reel, and materials. Field risers or hookups are strategically placed on the mainline to ensure waste water is applied efficiently and effectively reducing offsite runoff water quality concerns. Irrigation water management plan and CNMP are applied.

**Requirements for Irrigation System Design Practices:**

When designed outside of NRCS, the design of the irrigation system and conveyance must be provided by someone meeting certification requirements of: 1) USDA NRCS TechReg Technical Service Provider; 2) Irrigation Association (IA) Certification as a Certified Irrigation Designer (CID) – Agriculture: Drip/Micro, Sprinkler, or Surface; or 2) Irrigation Association (IA) as a Certified Agricultural Irrigation Specialist (CAIS).

**Producer requirements for payment:**

Install practice according NRCS plans and specifications. Payment is made following certification by appropriate NRCS staff with engineering job approval authority or acceptance by NRCS staff that system was installed as designed and certified by TSP and applicable NRCS standards and specifications.