

## **IRRIGATION SYSTEM, SPRINKLER (CODE 442)**

### **GENERAL**

Irrigation sprinkler systems shall be installed in accordance with a design and plan approved by the responsible technician. Details of construction shown in the design and plans, but not included here, shall be considered as a part of this specification. Construction activities shall be in accordance with applicable Occupational Safety and Health Administration (OSHA) regulations.

### **SCOPE**

The work shall consist of furnishing and installing a new sprinkler irrigation system, including the application sprinkler nozzle package. It also includes all appurtenances for operation of the sprinkler system.

### **PUBLIC AND PRIVATE UTILITIES**

Utilities are defined to be overhead and underground power or communication lines, and pipelines. All utilities discovered to be in the work area are shown on the drawings or sketches. However, the absence of indicators on the drawings or sketches does not assure the non-existence of utilities in the work area. The landowner and contractor are alerted to conduct their own search and discovery for utilities in order to lessen or avoid potential damages.

### **ELECTRICAL SAFETY**

Extra care should be taken when installing electrical powered irrigation systems. Electric power shall be disconnected or switched off from the power source to the irrigation system prior to the installation of any sprinkler nozzle package.

### **INSTALLATION AND MATERIALS**

All materials shall be new, of high quality, and supplied by companies regularly engaged in the manufacture of this type of irrigation equipment.

If the Operator proposes to install a used system, the system will have new drop hoses and sprinklers with nozzles. The nozzle size and type will be based on a design package from the contractor and approved prior by Natural Resources Conservation Service (NRCS) or a Technical Service Provider (TSP). The system may also need new gaskets, tires, gearboxes, drain plugs, levelers or hydraulic controls and have a minimum life expectancy of 15 years. Written evidence by the contractor is required stating that the used system will meet NRCS specifications and must be approved by the NRCS Area Engineer according to the National Engineering Manual, Part 512, Construction, Subpart A, Introduction, Sub-Section 512.21, Evaluation Procedures and Part 543, Materials, Montana Amendment 43, dated July 2001, prior to purchase and installation.

The nozzles shall discharge the water above the planned crop canopy with the same spacing and height as shown on the approved plans. All nozzle heights shall be uniform above the soil surface, for the majority of the field, when the system is operating.

A hose connection and hydrant (valve opener) will be supplied with each wheel line unit.

## **CONSTRUCTION SPECIFICATION**

### **SYSTEM MANAGEMENT**

Application rates shall be set such that runoff, translocation, deep percolation and erosion are eliminated or additional measures, such as furrow diking, in-furrow chiseling, conservation tillage and/or residue management shall be applied.

### **CHEMIGATION SAFETY**

All applicable federal, state, tribal, and local laws and regulations in reference to backflow prevention shall be followed in the installation of the system. All irrigation distribution systems into which any type of chemical (except disinfecting agents), or other foreign substances, will be injected into the pumped water from water wells shall be equipped with an in-line, automatic quick-closing check valve capable of preventing pollution of the groundwater, or potable water systems.

### **CERTIFICATION**

The installing contractor shall furnish the (NRCS) a copy of the sprinkler nozzle design printout, which will be made part of the supporting records for the sprinkler system. This sprinkler design printout is the installing contractor's certification that the sprinkler system was installed according to the design.

A field check of the installed sprinkler system will be made by the NRCS or TSP personnel to compare the installed sprinkler nozzle package to the sprinkler nozzle design printout. The field check will also verify that all new materials were used in the installation of the sprinkler system.

### **TESTING**

The system shall be given an operational test. This test shall consist of normal start-stop and running operations. All of the

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system components shall operate without difficulty. Leakage or defects caused by poor materials or workmanship shall be corrected immediately by the Contractor.

### **MEASUREMENT AND PAYMENT**

The amount of the sprinkler system installed will be determined by measuring the length of the sprinkler system, in feet.