

Big Gun Sprinkler Irrigation Design Summary Worksheet

Project Owner's Name & Address:

Project Location

Field No: Legal Description:

, Section , T , R ; County, WA

Project Designer

Design Prepared By:

Representing: (name of agency, company, etc.)

Date:

Basic Soil Data

Soil Series	% of Irrigated Area	Average Slope, (%)	Available Water Holding Capacity, AWC (in/ft depth)					Sprinkler Intake Rate, (in/hr)	Depth in feet to		EC _{e(ave)} (mmhos/cm)
			0 - 1	1 - 2	2 - 3	3 - 4	4 - 5		Inhibiting Layer	Water Table	

EC_{e(ave)} = Average Soil Extract Electrical Conductivity, (mmhos/cm)

Basic Crop Data

Crop to be Irrigated	Acres	Root Zone Depth (ft)	Total AWC (in)	MAD (%)	Peak Daily ET _c (in/day)	Peak Irrigation Requirement (in / month)	EC _{e(ct)} (mmhos/cm)

MAD =Management Allowed Depletion

EC_{e(ct)}, is the threshold salinity, maximum mean root zone soil salinity at which yield reductions will not occur.

Irrigation Water Data

Source	Average		Water Quality			
	Flow Rate (gpm)	Pressure (psi)	pH	TDS (mg/l)	EC _w (mmho/cm)	SAR

Sprinkler Design Summary Worksheet, cont.

Project Owner's Name: _____

Irrigation System Planning Data

Type of System: _____

Total Area Irrigated, **A**, (acres): _____

Crop Evapotranspiration, **ET_c**, (inches per day) _____ *(Use peak ET_c for the critical design period)*

Actual Operating Time, **T**, (hours/day): _____ *(T is not to exceed 22 hours/day)*

Assumed Application Efficiency, **E_a**, (%): _____

Minimum System Capacity, **Q_u**, (gpm/acre): _____

Design Flow Rate, **Q = Q_u x A**, (gpm): _____ Available Flow Rate, (gpm): _____

$$Q_u = \left[\frac{453 \cdot ET_c}{T \cdot (E_a / 100)} \right]$$

Sprinkler Line Data

Pipe Description: _____ Inside Diameter, ID, (in): _____

SDR _____ Number of Outlets: _____ Inlet Pressure, (psi) _____

Elev. Head, (ft) _____
 Up (-) Down (+) _____ ÷ 2.31 = _____ + Friction Loss, (psi) _____ = Actual Pressure Loss, (psi): _____

Is Allowable Pressure Loss ≤ 20% of sprinkler design operating pressure, (psi)? _____

Big Gun Data

Make: _____ Model: _____ Nozzle Size, (inches): _____

Nozzle type, tapered or orifice	Moves per day, (hrs)	Tow path width, (ft)	Pressure, (psi)
_____	_____	_____	_____

Discharge, (gpm): _____ Wetted Diameter, (ft): _____ Riser Spacing, (ft): _____

Speed, (ft/min) _____ Application Time, (hrs): _____ Lateral Type/size _____

Gross Depth, inches = (1.605 x Discharge, gpm) / (Tow path width, ft x Speed, ft/min) = _____

Net Application Depth = Gross Application Depth, inches x Efficiency, % / 100
 (this should be greater than the **ET_c**, above) _____

Sprinkler Design Summary Worksheet, cont.

Project Owner's Name: _____

Other System Components

Item	Location	Description
Flow Measuring Device		
Surge Control (valve, chamber)		
Air-Vacuum Valves		
Pressure Relief Valves		
Waterline Check Valve		
Injection Line Check Valve		
Drain Facilities		
Thrust Block		
Other		

Attach Supporting Documentation that includes: *(Check all that apply)*

- On -site Survey and Soil Investigation Field Notes, as required**
- Well/Pump Performance Test Results & Water Quality Analysis Report (< 1 year old)**
- Filter Selection & Design Computations if required**
- Hydraulic Design Computations & vendor's nozzle package design printout**
- Simulation Model(s) Data**
- Construction Drawings, Specifications, Material List and Itemized Cost Estimate**

Attach plan view(s), aerial photo(s), map(s), etc. as needed to identify and locate:

- Area Irrigated with Sprinklers**
Include field boundaries, utilities, system layout & direction of move, & prevailing wind direction
- Site Specific Elevation Grid or Contours**
Include map scale, legend, north arrow & critical elevations, note high & low points on sprinkler line
- Irrigation Well(s) or other Water Source**
Indicate design capacity (gpm) and operating pressure (psi)
- Delivery Pipeline (from source to sprinkler line)**
Indicate sizes, lengths, locations, material type, pressure ratings
- Sprinkler Line(s), Control Station & Filter Station(s) & Valves**

Design Certification

To the best of my professional knowledge, judgment and belief, these plans meet applicable NRCS standards. Signed _____ Date _____

Installation Certification

To the best of my professional knowledge, judgment, and belief this practice is installed in accordance with the plans and specifications and meets NRCS standards.

Signed _____ Date _____