LIVESTOCK WATERING NRCSAK DATA SHEET

Landowner: _____ **Date:** _____

Field Office _____ **Completed By:** _____

INDICATE NUMBER OF HEAD IN EACH ANIMAL GROUP:

	LIVESTOCK DAILY WATER REQUIREMENTS – Gallons per head per day			
No. Head	**Species**	**Penned**	**Pastured**	**NRCS Std 614**
	Dairy Cow – Lactating	20-35	25	25
	Dairy Heifer or Yearlings	6-15	10	N/A
	Beef Cattle	6-15	10	12
	Cow/Calf Pair	12-20	15	N/A
	Swine	N/A	N/A	4
	Horse	N/A	N/A	12
	Sheep / Goats / Llama	1-3	2	2

TOTAL DAILY WATER REQUIREMENT

Species				
Number of Head	_____ ea	_____ ea	_____ ea	_____ ea
Gallons/Head/Day[1]	_____	_____	_____	_____
Gallons/Day Total[2]	_____ gpd	_____ gpd	_____ gpd	_____ gpd

BASIC SYSTEM INFORMATION

Will waterers be permanent (winter use) or seasonal? ☐ Permanent ☐ Seasonal

If seasonal, will water supply lines be buried or above ground? ☐ Buried ☐ Above Ground

To highest waterer? Distance _____ Elevation _____

To farthest waterer? Distance _____ Elevation _____

Operator interested in alternative watering methods? ☐ Solar Pump ☐ Ram Pump[3] ☐ Nose Pump[4] ☐ Wind Power

[1] Use NRCS Std 614 values from table above. Use other references if not listed for animals to be watered.
[2] Multiply (Number of Head) times (Gallons/Head/Day) for (Total Gallons/Day) for that group.
[3] Ram Pump needs stream site with three feet of fall above the pump and at least 1 gpm flow rate during summer.
[4] Nose Pump maximum distance = 300 feet on flat terrain or 125 feet with a 25 foot elevation difference

WATER SOURCE INFORMATION

Groundwater resources are usually more reliable than surface water, but require power for pumping. Consider condition of existing well water system and impact on other water needs. Surface water sources tend to be less expensive but may have water quality concerns or unreliable flow.

☐	**Existing Well**			
	Well Location			
	Well or Pump Elevation			
	Pump Information	_____ Make	_____	Model
	Pump Information	_____ gpm	_____	psi
	Pressure Tank Present?	☐ Yes	☐	No
	Pressure Tank Location:			
	Pressure Tank	_____ gallons	_____	psi
	Existing Supply Line	_____ Diameter	_____	Type Pipe
	Hydrant closest to waterer	_____ gpm	_____	Pipe Size
☐	**Proposed Well**			
	Well Location			
	Well Elevation			
	Pressure Tank Proposed?	☐ Yes	☐	No
☐	**Stream or Pond** (circle one)			
	Stream or Pond Elevation			
	Perennial Flow	☐ Yes	☐	No
	Stream Crossing Needed?	☐ Yes	☐	No
☐	**Spring Development**			
	Perennial Flow	☐ Yes	☐	No
	Spring Information	_____ Elevation	_____	Flow Rate

COMMON CONVERSIONS		
1 PSI	=	2.31 FEET
1 CFS	=	450 GPM
1 CUBIC FOOT	=	7.48 GALLONS
1 CUBIC FOOT	=	62.4 POUNDS
1 GALLON	=	8.34 POUNDS

DETERMINE NUMBER OF WATERING SPACES REQUIRED:

WATERING SPACES REQUIRED PER PADDOCK		
Herd Watering Pattern[5]	Distance from farthest point in paddock to Watering Facility	Percent of Herd at Waterer
Case I: Individual Watering	Less than 900 feet	5 %
Case II: Group Watering	900 feet or more	10%
Sheep	N/A	100%

Paddock or Field Number				
Maximum Distance, feet				
Watering Pattern	☐ Case I Individ ☐ Case II Group	☐ Case I Individ ☐ Case II Group	☐ Case I Individ ☐ Case II Group	☐ Case I Individ ☐ Case II Group

CASE I:
Individual Watering: Water is available within 900 feet and livestock drink individually:

Spaces = _____ (Total number of head) x 0.05 = _____ spaces Round to: _____ spaces

CASE II:
Group Watering: Distance to water is 900 feet or greater and herd drinks as group:

Spaces = _____ (Total number of head) x 0.10 = _____ spaces Round to: _____ spaces

WATERING SPACES PER TANK:

ROUND TANKS: *(Need 20 inches of the perimeter per space)*

New round tank: Minimum diameter if animals have access to entire perimeter:

Diameter = _____ spaces (Watering Spaces) x 0.53 = _____ ft diameter Use: _____ ft. diam min.

Existing round tank: Maximum number of watering spaces per tank:

Spaces = _____ feet (Diameter of tank in ft) x 1.88 = _____ spaces per tank Need: _____ tanks

RECTANGULAR: *(Need 30 inches of perimeter per space)*

Existing rectangular tank: Maximum number of watering spaces per tank:

Spaces = _____ feet (Length of tank) x _____ feet (Width of tank) x 0.4 = _____ spaces per tank Need: _____ tanks

[5] Animals drink individually when far corner of paddock to the waterer is less than 900 feet. When water is 900 feet or more away, grazed animals tend to drink as a herd and more watering spaces are required.

WATERER TANK CAPACITY RECOMMENDATIONS:

TANK CAPACITY OF WATERER BASED ON REFILL RATE		
Trial	Refill Rate	Tank Capacity (gallons)
1	Instantaneous (2 gpm/space)	Tank capacity can be nominal. Nose pump is feasible.
2	1 hour	2 gallons/animal
3	4 hours	25% of total daily water requirement
4 or Sheep	Greater than 4 hours	100% of total daily water requirement
5	Solar or Unreliable source	200% of total daily water requirement

Trial 1: Tank capacity is not an issue if flow rate is considered instantaneous:

Flow Rate = _____ (Number of spaces) x 2 gpm / space = _____ gpm OK? ☐Yes ☐No

Trial 2: Need minimum tank capacity of 2 gallons per animal if tank can be refilled in one hour:

Tank Size = _____ (Number of animals) x 2 gallons = _____ gallons

Must meet the following minimum refill rate:

Flow Rate = Volume of Tank / 60 mins = _____ gal / 60 = _____ gpm OK? ☐Yes ☐No

Trial 3: Need tank capacity of 25% of daily requirement if refill rate is 4 hours:

Tank Size = _____ (Daily Water Requirement) x 0.25 = _____ gallons

Must meet the following minimum refill rate:

Flow Rate = Volume of tank / 240 mins = _____ gal / 240 = _____ gpm OK? ☐Yes ☐No

Trial 4: Need tank capacity of 100% of daily requirement if refill rate is more than 4 hours:

Tank Size = _____ (Daily Water Requirement) x 1.00 = _____ gallons

Must meet the following minimum refill rate:

Flow Rate = Volume of tank / 1440 minutes = _____ gal / 1440 = _____ gpm OK? ☐Yes ☐No

Trail 5: Need tank capacity of 2 days for solar pump systems or unreliable water supply:

Tank Size = _____ (Daily Water Requirement) x 2.00 = _____ gallons

Must meet the following minimum refill rate:

Flow Rate = Volume of tank / 1440 minutes = _____ gal / 1440 = _____ gpm OK? ☐Yes ☐No