

Pumping Plant (533) Requirement Sheet

2012 Environmental Quality Incentives Program (EQIP)

Eligibility: Livestock Operations or Irrigation Systems

Purpose: To provide planning guidance for using Pumping Plant scenarios in arriving at least cost alternative to address resource concern.

Requirements: This is a component practice used to help solve a resource concern identified by other practices such as the need for livestock drinking water, to improve irrigation efficiency, or to transfer animal waste. It may be applied as part of a resource management system to achieve one or more of the following purposes:

- Delivery of water for irrigation, watering facilities, wetlands, or fire protection
- Removal of excessive subsurface or surface water
- Provide efficient use of water on irrigated land
- Transfer of animal waste as part of a manure transfer system
- Reduce energy use

The pump delivers water at a designed pressure and flow rate. Includes the required pump(s), associated power unit(s), plumbing, appurtenances, and may include on-site fuel or energy source(s), and protective structures.

Scenario	Description
Solar Pump (watts)	A solar-powered pump is a normal pump with an electric motor used to supply water to a livestock watering system. Electricity for the motor is generated on-site through a solar panel (typical 48 volts, 4 - 75 watt panels) which converts solar energy to direct-current (DC) electricity. This scenario is applicable for either grazing or irrigation systems. For either a grazing system or an irrigation system install a submersible solar powered pump. For a grazing system existing surface waters are impacted by unrestricted access by livestock and inadequate water is available for livestock. For an irrigation system existing pump produces inadequate supply of water and is energy inefficient or a new pump is needed for a new well. No feasible access to nearby electrical source is available.
Ram/Nose Pump	Ram or Nose Pump used to transfer water to storage and distribute water to gravity fed livestock watering system or nose pump away from surface water as a low energy method of getting water to pastured livestock. RAM pushes water to storage tank for distribution to a water facility or facilities and is anchored to concrete pad. In the case of ram pumps, bypass water is returned to the stream or storage facility, without erosion or impairment to water quality.
Livestock Water Pump (less than 2 HP)	Typical application of a less than 2 HP pump at water source (well or spring) in order to pump water uphill to appropriate locations within the prescribed grazing system. Pump enables the development of new watering sites that are removed from hydrologically sensitive areas and provide for a better distribution of animal wastes and associated nutrients. Cattle exclusion from surface water results in improved surface water quality, reduced erosion.
Small Irrigation Pump or Waste Transfer (2-5 HP)	The typical scenario supports replacement of a pump in an existing micro irrigation system (includes backflow prevention device, filters and/or water meter as appropriate) on cropland using a typical 3 HP pump. Size of pump is determined by required GPM derived from a design for specific irrigation system on cropland. Scenario could also be used for a 3 HP for silage leachate, barnyard runoff, and milkhouse waste (as part of a waste transfer system) at farm headquarters. Irrigation Setting: existing micro irrigation system employs an inefficient, improperly sized pump that leads to inefficient water delivery resulting in high energy costs; or

	<p>Waste Transfer Setting: various types of liquid waste at the headquarters is uncollected causing surface and ground water issues. Due to topography, gravity transfer is not possible and a properly sized pump is needed to transfer waste as part of a waste transfer system.</p> <p>Also can be used as Livestock Water Pump for systems requiring 2 HP or greater.</p>
Irrigation or Waste Transfer Pump > 5 hp	<p>The typical scenario supports replacement of a pump in an existing irrigation system (includes backflow prevention device or water meter as appropriate) on cropland with a typical 7.5 HP permanent pump. Size of pump is determined by required GPM derived from a design for specific irrigation system on cropland. Scenario could also be used for a 7.5 HP pump for silage leachate, barnyard runoff, and milkhouse waste (as part of a waste transfer system) at farm headquarters. The combination of higher solids content and volume require a larger horse power pump. This liquid manure pump is used to transfer semi-solid manure from a small reception pit located either below a barnyard or at the end of a free-stall barn or scrape alley.</p> <p>Irrigation Setting: Either an existing irrigation system employs an inefficient, improperly sized pump that leads to inefficient water delivery resulting in high energy costs; or</p> <p>Waste Transfer Setting: various types of semi-solid or liquid waste at the headquarters is uncollected causing surface and ground water issues.</p>
PTO Pump	<p>This scenario involves a PTO driven pump permanently installed to transfer either water for an irrigation system (includes backflow prevention device or water meter as appropriate) on cropland or to transfer semi-solid/ liquid manure (as part of a waste transfer system) at the farm headquarters from a small reception pit. In both cases, a PTO driven pump is selected because the landowner has equipment available to supply power to the pump and wired electricity is not readily available and/or a stationary engine is not practical. In the case of waste transfer the PTO pump is used at multiple pump out locations.</p> <p>Irrigation Setting: An existing irrigation system employs an inefficient, improperly sized pump that leads to inefficient water delivery resulting in high energy costs.</p> <p>Waste Transfer Setting: various types of semi-solid or liquid waste at the headquarters are uncollected causing surface and ground water issues. A transfer method for waste is needed. Due to topography, gravity transfer is not possible and a properly sized pump is needed to transfer waste as part of a waste transfer system.</p>
Pivot Irrigation Pump 20 - 40 HP	<p>This scenario involves installation of a new energy efficient pump for a low pressure energy efficient center pivot irrigation system to deliver between 0 and 1000 GPM on cropland. Use of this scenario is based on required GPM derived from a design for specific irrigation system on cropland.</p>

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.