

U.S. Department Of Agriculture  
Natural Resources Conservation Service  
Nevada

**Operation and Maintenance Plan  
Pumped Irrigation Pipeline (430)**

Landowner/Operator: \_\_\_\_\_  
Project: \_\_\_\_\_  
Location: \_\_\_\_\_ Sec. \_\_\_\_\_ T. \_\_\_\_\_ R. \_\_\_\_\_  
NRCS Office: \_\_\_\_\_ Phone: \_\_\_\_\_

*A properly operated and maintained irrigation pipeline system is an asset to your operation. This system was designed and installed as a permanent solution to irrigation delivery system deficiencies. The estimated life span of the installation is at least 25 years and can be assured and usually increased by carrying out the following recommendations.*

**OPERATION AND MAINTENANCE CHECKLIST**

**Do this before turning on the pump.**



- Check that all pre-season maintenance is complete.
- Before starting, read and record flow meter totals.
- Inspect all drains to be sure that drain valves are closed.
- Inspect all mainline, lateral, and turnout valves. Open the operational turnout. The first and last risers on each line, as well as any riser that is at a high point in the line, should be cracked open to allow air to be released from the system.
- Open all manual air release valves.
- Inspect all air-vac valves to see that the airway is open (stem pushed down) and the float ball and seat are in place and undamaged.
- Visually inspect all pressure relief valves to be sure they are free to operate and have not been adjusted to a higher or lower pressure setting.
- Check pipeline area for settlement and erosion and fill low areas.

**Flushing and filling the pipelines:**



- Before turning on the pump, the valve at the pump should be closed to the point that it is not more than 1/4 open.
- When the pump is turned on, not more than 60 feet of pipe per minute should be filled.
- After the pipeline is filled, slowly open the valve to full open. If the flow must be throttled during operation, consideration should be given to making changes in the system. A throttled valve wastes energy.

### **Operation during the irrigation season:**

- Pipelines should be operated within the capacity and pressure ranges designed for the system. Flow to lateral lines should be increased and decreased gradually to allow adequate time for removal of air and to prevent pressure surges in the main line.
- Whenever possible, open the new turnout before closing the old one. Always close valves slowly to prevent water hammer.
- Inspect the pipeline inlet daily or more often if necessary. Remove trash or debris. Observe flow conditions in the canal and make adjustments necessary to keep the pipeline inlet submerged.
- Check pressures regularly. A change means there is probably an operational or maintenance problem.
- Inspect flow meters at least monthly for proper operation.
- Check pump and valves for noisy operation. Noise is an indication that cavitation may be occurring. Cavitation can greatly reduce the life of the pump and valves.
- Check that air-vacuum valves are seated and not discharging water.

### **Pre-season maintenance:**

- Check pump impellers for wear. Repair if necessary.
- Re-pack bushings if necessary and lubricate pump.
- Install the suction pipe on a centrifugal pump. Make sure it is well supported and has no air leak. A vacuum gauge installed in the suction line is a good way to monitor suction problems.
- Make sure a pressure gauge is installed at the outlet and is operable. A good fluid filled pressure gauge is a good monitoring tool.
- Check power panel, wiring and pump enclosure to make sure mouse nests, bird nests, and other such problems are resolved.
- Inlet screens should be cleaned and trash removed from the structure. Repair screens as necessary.
- Check headgates and valves for proper operation. Grease gate stems. Check structures and pipeline for damage and repair as needed.
- Check pipeline area for leaks, settlement and erosion and fill low areas.

### **Winterizing system:**

- Drain and pull the suction line on centrifugal pumps.
- Drain the pump and protect it from the elements. If the pump is in need of maintenance, now is a good time to get it done.
- If sediment buildup in the line is a problem, flush the pipeline.
- Close and lock the inlet structure gates and crack open all turnouts located at high points in the line and all low lying turnouts.
- Open all drains and allow the pipe to drain. Pump out all low spots in the pipeline.

