

How Reliable is Your Pump Station?

First of all, are we in the twenty first century yet?

ClaValve and electric butterfly valves (EBV) are the technology of the past. For over fifteen years Variable Frequency Drives (VFD) have been used in pump stations. They have proven to save money both in energy efficiency and in wear and tear on pumps, motors and irrigation systems.

For those of you who are not up to speed yet, no pun intended, A VFD station controls the speed of the pump's motor to match the required flow. The VFD will reduce voltage, controlling amperage to match the required speed. Lower speeds reduce electrical energy. Also the pump will not incur any friction from throttling as it would with ClaValves and EBVs. The irrigation system will also benefit. The VFD – through microprocessor controls – will fill, restart from a faulted state, and control the line pressure without surges.

The life expectancy of a pump station

Pump station manufacturers assert that a station in the Midwest has a life expectancy of thirteen years. What does this mean? You may say, "I have a station that is twenty years old and it is still running." Let's clarify what both of these statements mean.

The manufacturer's view

The manufacturer would, of course, like to sell you a new pump station every thirteen years. It is a matter of reliability. If affordable, replacing the pump station every thirteen years will provide you with flawless operation. Of course this is not always feasible.

The optimist's view

A pump station can always be repaired. At twelve years, pumps are showing signs of wear in bearings and shafting. The integrity of the motor's insulation is breaking down.



Pump controllers and VFDs are obsolete and beginning to fail. The only thing left is piping and skid integrity. Of course water quality, operating environment, and the type of station you have will affect life expectancy. Once again it is a matter of reliability! Remember, things always break when they are needed the most.

With many stations, rebuilding pumps, motors, and updating controls will extend longevity, but the cost of these repairs all at once could be close to the cost of a new station.

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How to get the most from your pump station

Start at the beginning with a station that is new or in good shape.

Next you need a preventive maintenance program and a quality service company. Pump stations are all about controls. Make sure that your serviceman understands these controls. I like to tell my customers that I need to have an intimate relationship with the station. Of course they look at me oddly and wonder what my intentions are. There is nothing worse than meeting a new customer with an old station that is under duress with no information whatsoever about the station.

In order to achieve quick service and longevity from your station a serviceman requires the following.

- Comprehensive list of what is on the station.
- Register list of all operational parameters

Annual Maintenance

Annual maintenance is important for your pump station, primarily because most of your preventative maintenance occurs during this time. Each year the following should take place:

- Disassemble control valves to inspect working parts
- Clean all sensors and process controls
- Replace pump packing
- Meggar motor insulation

- Grease and change motor oil
- Tighten all electrical connections
- Record voltage, amperage, and pressure at each pump's deadhead (no flow max speed).
- Record voltage, amperage, pressure and flow at each pump's duty point.

With this service completed and the data obtained a serviceman should not have any trouble diagnosing a problem in a timely fashion.

Information saves money and time. A pump that is not performing can be worn or it may have a restriction. With the above data, a serviceman can determine which condition it is. This could be the difference between changing a check valve and pulling a pump. Trending performance data will also inform the serviceman of pump and motor wear.

In conclusion, let's remember that a lot of emphasis is put into maintaining your turf care equipment. Although mowers are important, a course was never lost from one mower breaking. The pump station is the heart of the irrigation system.

Have a great summer and remember Happiness is a Good Pump! **-OC**

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