

Travis County Water District Keeps Pressure Balanced by adding intelligence to Cla-Val Solenoid Control Valves



Travis County Water District 17 is located 20 miles west of downtown Austin, Texas. The service area is approximately 14,000 acres and includes the cities of Austin, Lakeway and Bee Caves. Part of the district also includes Steiner Ranch, a rapidly growing community closely located to many of Austin's high tech industries.

In 1994 the district installed a Cla-Val 136 series solenoid control valve at Cloudy Ridge Street. The purpose of the valve was to separate two pressure zones and open to fill ground storage tanks in a lower zone. Whenever the valve was opened the upper zone pressure often dropped excessively, causing problems in the upper zone.

Adding Intelligence

In spring 2002, the district decided to convert the simple On/Off control at their Cloudy Ridge valve to a 133 Series Electronic Metering and Flow Control Valve to better manage the system pressures and filling of the storage tanks. In addition, the Water District wanted to be able to monitor and adjust the flow rate into the lower zone through their SCADA system. The valve was retrofitted with a 133-01 metering kit. The kit included a position transmitter, differential pressure transmitter, two solenoids for valve control, and a 131VC-3 valve controller. The plumbing hardware was tailored to the eight inch valve to make the conversion process a simple matter. The controller was mounted inside



the panel with the associated SCADA equipment.

The controller accepts both position and differential pressure 4-20mA signals and calculates the flow rate passing through the valve. A remote set point signal can also be received from the SCADA system. The controller compares the remote set point from the SCADA system with the internally calculated flow rate and adjusts the valve until they match each other. Tracy Staats, Cla-Val District Manager in Texas, performed the setup and tuning

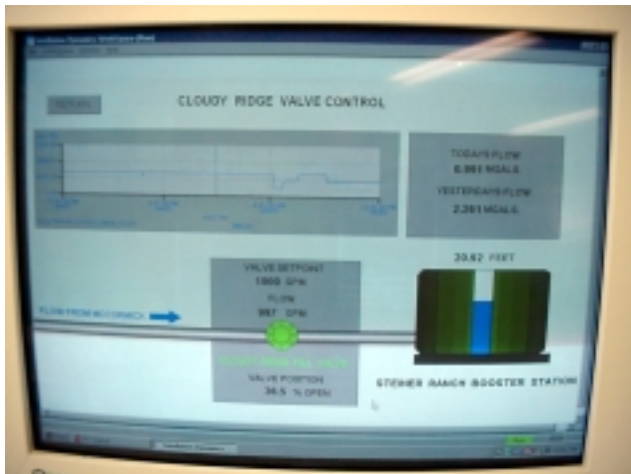


of the controller. Tracy also worked with the district to specify the right options including digital inputs. The digital input option allows the flow to be staged based on tank level. This also allows the district to close the valve or lock it in a set position remotely using their SCADA system.

The digital input option accepts up to 5 digital inputs. This allows the SCADA system to switch the controller to manual mode and designate valve close, valve open or valve lock in position output. The digital input option may also be used to select up to 8 pre-selected set points, or to select a 4-20 mA remote set point command signal.

Startup Confirms Suspicions

During startup the water district personnel noticed immediately that "the system flow readings exceeded 2700 gpm" reported Thurman Carlisle, Water Operations Supervisor. This instantly confirmed their suspicions that the downstream demand exceeded the upstream capacity. With the valve open, the flow passing to the lower zone was greater than their pumping capabilities in the upper zone. Now they can set controlled flow set points that do not strain the upper system and allow precise management of both zones.



The Result - Better Management

Now it is possible to react to system irregularities remotely using the SCADA system. Thurman reports they "can partially or fully close the Cloudy Ridge valve if there is a sudden increase in demand" such as a broken pipe or heavy demand. By altering the flow rate they will be able to quickly divert water and keep their customers satisfied while necessary repairs are made. Currently the district uses the digital input option of the VC-3 controller to change to a second set point but they plan to use more digital inputs to provide more set points to control flow based on tank level. This precise management of system flow results in fewer pressure problems and more satisfied customers.

At the office the SCADA system displays the ground storage tank levels, valve position, flow rate through the valve, and set point flow rate. A trend of the Cloudy Ridge Valve Flow is also plotted along with the current valve position and tank level.

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