

# Flow control valves eliminate manual monitoring for proper water treatment

**E**very water system in Kansas is required to maintain a minimum of 0.2 mg/L of free chlorine or 1.0 mg/L of total chlorine. If a water system has multiple points of entry with several different sources, then adding chlorine is required at each point.

When working with systems that have multiple wells all channeled or manifolded through one gas chlorination point, it is possible to use only one chlorinator for disinfecting the water. The tricky part is adjusting the chlorine setting depending on the number of wells operating and the varying rate of flow through the location where chlorine is to be added. If one well is operating the chlorinator may be delivering only three pounds per

day. So, what happens when two or more wells are operating? Typically the operator would have to adjust the chlorine setting based on the flow and conduct tests to make sure that a proper amount of chlorine is being fed into the

system. This is not a very efficient operation, and manually monitoring the situation is not practical.

One option is to have chlorinators on each of the wells. They would only operate when that well was operating. While this will work, there is duplication in the services being performed. Each well would have a chlorinator,

extra chlorine cylinders, scales, building to house the units, etc.

## State-of-the-art

Another option that some water systems have opted for is to use a unit called a SmartValve™. A SmartValve is a sophisticated flow

proportional control valve. These units are what the name implies, “smart” valves. The units can be factory configured to operate in either flow proportional or step rate control mode. The valves are adjustable; they have digital displays that indicate the

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proportional control valve. These valves can be used to feed chlorine, sulfur dioxide or ammonia and at locations where the requirement is to treat varying water flow rates.

flow rate, valve plug/position in pounds per day (PPD) of actual gas feed rate, dosage value, mode of operation (automatic or electric/manual) and low flow alarm in percent.



Doug Guenther  
Tech Assistant



Steve Goble, operator for the City of Logan in northwest Kansas, adjusts settings on the city's Regal SmartValve from Chlorinators Inc. The valve is a flow-pacing valve that uses state-of-the-art electronics with a polymer LED display. The valves can feed chlorine, sulfur dioxide, or ammonia gas. Regal literature says that the SmartValve can be configured to operate in either flow proportional or step-rate control modes and in the field four ways: fully automatic, electric/manual and two methods of manual.

Two systems that I am aware of that use the flow control valves are utilities in the cities of Osborne and Logan; each uses the Regal SmartValve from Chlorinators Incorporated.

Recently operators in Logan called for assistance because the correct amount of chlorine was not being injected. My review found that the injector had a collapsed check valve. This collapsed check valve was blocking most of the vacuum, thereby not allowing sufficient chlorine to be drawn. After repairing the injector, we still were not getting the correct amount of chlorine to achieve adequate residual and proper disinfection.

A call to Chlorinators Incorporated resulted in a very helpful technician leading us through the process of reprogramming the SmartValve.

The mechanical zero was out of spec, which more than likely was caused by the malfunctioning injector. We reset the unit as instructed by the technician. The unit began performing flawlessly.

smart option. If you have a facility similar to the one described here and want more information, I would be pleased to share my experiences with the units and how they might apply. I

**For water systems that have more than one well that feeds into a central chlorination point and the potential to have fluctuating flow rates, smart valves may be a smart option.**

Again, chlorine was being injected automatically without the operator standing by to adjust the unit manually when more than one well was in operation.

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could also provide names of reps that would be able to provide more detailed information.

I encourage operators to also monitor the KRWA Web site for training sessions that may address other operation and maintenance issues.



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