

CASE STUDY

RESEARCH CONTROL® Valves

Valves



EVA-1 Electric Actuator

Municipal Pilot Control Valve Application

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Municipalities perform many functions throughout their communities to ensure fundamental services remain intact and uninterrupted. One of these is to bring potable water from treatment areas to each home, business, and public location. A major municipality in the Phoenix metropolitan area is no exception to this responsibility. They move large volumes of water from the treatment area to zones throughout their service area where it is then distributed to branch water lines and finally to individual connections.

These water mains are designed to be stable at a constant pressure in order to ensure continuous service as well as to prevent line breaks. Typically, transfer points between zones as well as transfer points to branch lines from a main to sub-mains are regulated with a large control valve. These large control valves (a 12" valve in this specific example) are used to regulate back-pressure to keep a constant preset line pressure downstream.

When this municipality installed these control valves they would adjust them to a specific setting to control their pressure (50 psi in this example). Any adjustments would have to be manually performed at each site. The large main control valve is constantly controlled by a pilot valve setup that senses up and down stream pressures and responds accordingly to open or close the large valve.

The situation in this case was that the pilot valve would not respond quickly enough (it could take between 10 and 45 minutes) in a low differential pressure condition to adjust to set point. This could cause an unfavorable pressure situation that could affect safety (fire hydrant hookups), service (too low or too high pressure), and potentially could lead to a line break that would disrupt service and be costly.

When the municipality sought out a better valve for the main itself, the Research Control Valve representative offered a solution of using a better



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pilot instead. By installing a Research Control Valve three-way valve (usually with a G trim) with an EVA-1 electric actuator, several benefits were realized. These included quick (almost instantaneous) regulation to set pressure, ability to automate the system (4-20mA driven EVA), and ability to adjust the system remotely based on overall system needs.

This setup was tried out at first with a few installations. They were installed in a way that the old pilot system would take over in case of a power failure. One concern was that the heat in the Arizona area may be too much for the EVA, so the first installations were ran for several months through the summer on test. The valves worked without fail and about twenty more valves have



been installed in needed areas throughout the city.

This particular city is fairly progressive on their utilization of automation, which made this a favorable application for them. They have now standardized on this setup on all future applications and also are changing out existing sites that have been causing problems. There are literally hundreds of lines in this one municipality alone that could use this solution.

Please find attached several pictures of one application (some specifics mentioned above). Note the large control valve, the old pilot setup on top of it, and the newly installed Research Control Valve and EVA actuator.