



AUTOMATIC Control Valves

INNOVATION SINCE 1936

The CLA-VAL Control Valve rtWRAP Scheme

**MMBentley/Yorkshire Water
July 2007**

MMB



YorkshireWater

Overview

Throughout Yorkshire Water supply network, there were many instances where controlling flows into reservoirs to balance the system was undertaken manually. This was a labour intensive and lengthy process which had to be carried out by experienced operations staff.

Without automation, it was often necessary for two operators to be available. One person at the control centre the other(s) on site. This involved adjusting valves by hand to achieve the desired flow rates comparative to average daily demand. Moreover, this process would sometimes take place during the night. It was a crude means of controlling level particularly if the operator had to climb into the reservoir to do this (not desirable with fresh drinking water!).

This could be difficult to manage and often resulted in inconsistent reservoir levels.

There needed to be way that could fully automate this process and employ a hydraulic actuated valve that could not only monitor flows into a reservoir but could follow the demand taken from the reservoir in order to keep levels at a fully maintainable level – in ‘real time’ and at low power.

Yorkshire water identified – Staincliffe, Penfield, Muffit Lane, Marsh, Woodhead Rd, Gawthorpe and Kirkhamgate across Leeds and the Calderdale region of West Yorkshire as their key sites.

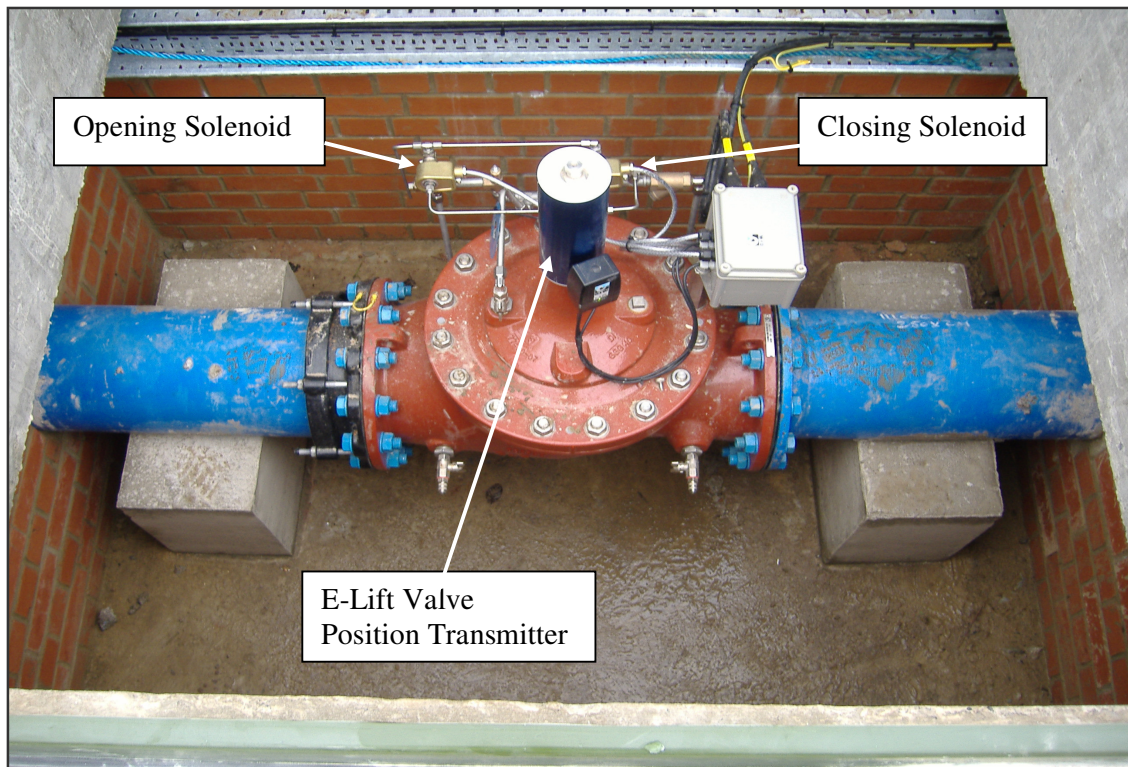
Solution

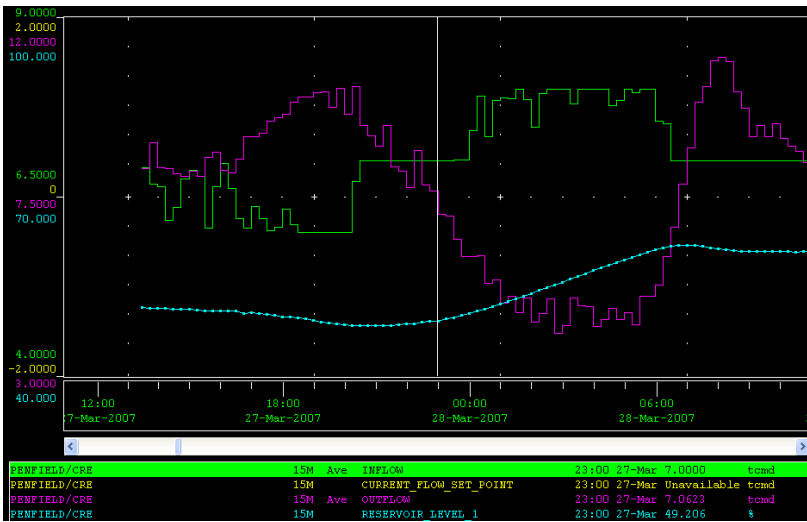
Working closely with Yorkshire Water and their contractors MM Bentley, Cla-Val offered their Series 136-38 hydraulically operated Electronic Control Valves to automatically control flow. The valves operate with a mere 24V DC power supply in conjunction with the on site Flow Meter, a Digital Controller Module all orchestrated by the SCADA system. These three elements together allow the Flow Control Valve to literally balance in flows as a function of demand from the reservoir.

This is achieved by a digital output to two 9 Watt powered open/close solenoids mounted onto the valves pilot system, by controlling the solenoids would modulate the valve into any desired position and therefore maintain the desired flow rate/set point.

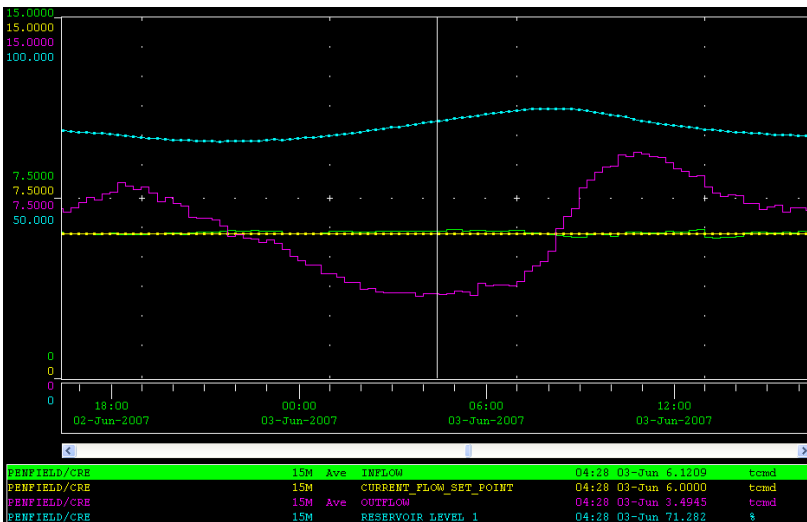
Conclusion

By installing these types of low power and low maintenance valves offers YW the desired control they require both safely and accurately. The result of which offers YW has contributed to a nett saving of approximately £1m a year. The following slide shows how these savings are made via a ‘before and after’ snapshot of a network.

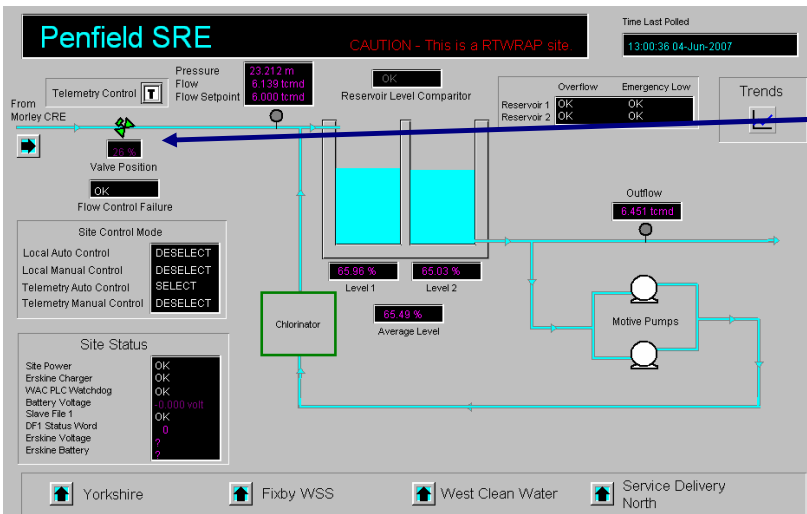




Before: The green line indicates poor flow control - moving erratically.



After: The yellow line shows the set point now with a much smoother inflow. Note! The green line is barely visible behind the yellow line.



E-Lift device showing the valve stem lift position in % open.

The Cla-Val Flow Control Valve will save YW up to £1m per year.