

ClearCense Colour Monitoring System

On-line Turbidity for Control of Discolouration during large Valving Operations

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Challenge

Following the history of discolouration incidents associated with operating large valves on the Bradford Intermediate Ring Main (BIRM), the refurbishment of the BIRM and attendant valving offered the potential of creating large scale temporary deterioration for a large proportion of customers. This would generate large numbers of customer contacts and lead to potential regulatory failures. In response, an informal team was convened to examine how we could minimise the effects that this essential work would have on customers.

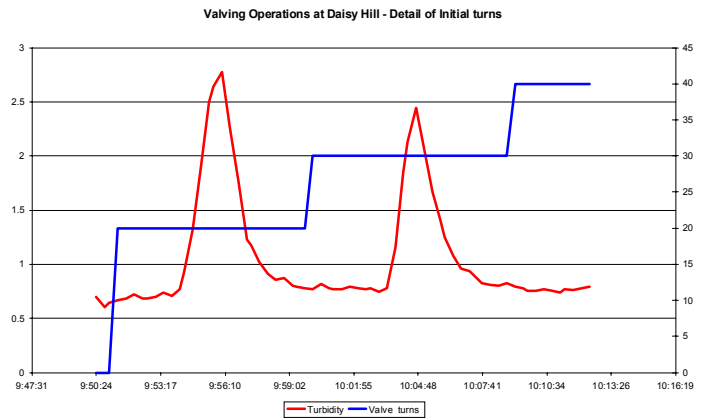


Solution

We concluded that monitoring turbidity on-line in-mains downstream would allow us to feedback and control how we operated the valve. The feedback comprises a mobile phone call to instruct the person doing the valving when to turn, when to reverse turns, and when to wait. A large valve may have between 150 and 900 turns to open/close it and this approach allows valves (irrespective of size/type) to be operated at maximum rate with minimum impact thus saving time, disruption and costs. ClearCense devices have already been used to great effect in distribution and can be introduced into pressurised live mains. However, this requires an access point on the main and creating these with supplementary infrastructure would be effective but costly. So ClearCense installation was performed on a standpipe that could be attached to a hydrant downstream of the valve being operated. A small flow was introduced through the standpipe/ClearCense and turbidity levels were

monitored on a real time graph using a laptop PC that also recorded the data.

Before any valving operation the team meets several days beforehand and details and methodology are openly discussed. Items explored include whom to warn about possible discolouration, the level of warning, and the optimum place(s) to monitor. Before operation, ClearCense devices are put in place at least 30 minutes before any valving occurs to measure background levels. The duty managers monitor relevant flows, pressures, customer contacts and permanent ClearCense and Censar devices. The ClearCense/Censar monitoring point is used as the control using all available data – but central to this is turbidity.



Benefits

The use of this system has enabled us to control valving on several very sensitive valves. So much so that in many cases customers are unaware we have changed the distribution system. By recording results, we can demonstrate due diligence to regulators and by examining data after the event we can highlight what we did well and what we can improve on (which we have done!). We expect this approach to be adopted throughout the company on valving operations that present a high risk.

The system has proved to be very accurate, easy to use, rugged and reliable.

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