Drinking Water Quality Regulator for Scotland

Incident Assessment

Roughrigg SR / Balmore C PWSZ
Discoloured water
Oct 2014

DWQR Inspector:
Matt Bower

Event No. 6429

Event Category: Significant

Summary of Incident

Planned work to change the water supply to an area of Coatbridge in order to improve water quality by increasing turnover of water resulted in discoloured water temporarily being supplied to 3,700 properties. This resulted in over 300 calls to Scottish Water's contact centre. A number of PCV breaches for iron and manganese were present in samples taken in response to the incident. Microbiological samples were satisfactory.

DWQR Assessment of Cause of Incident

Scottish Water had planned work to increase turnover within Roughrigg Service Reservoir by increasing the number of properties supplied from it. This work involved reversing the flow of water through a trunk main, and a large amount of preparation was undertaken in advance. The valve operations to enable the change were undertaken at night in order to minimise disruption to consumers. At first it was thought that this had been successful, however once water demand increased the following morning, velocities in the mains increased and lifted iron deposits, creating discoloured water.

DWQR met with Scottish Water in order to discuss the incident and actions taken. From analysis of complaint patterns, it is highly likely that the discolouration arose directly from the trunk main itself, rather than from the distribution system.

DWQR Assessment of Actions Taken by Scottish Water

Scottish Water was aware that this rezoning was a significant piece of work which carried some risk, and consequently undertook a reasonable amount of preparation to minimise the impact on consumers. This work began six months previously, with the installation of equipment to enable the flushing of the system. Following this, night time flushing was undertaken to attempt to remove loose deposits from pipes. Although effective in the smaller diameter pipework of the distribution system, it is widely acknowledged within the water industry that flushing is not effective in larger diameter trunk mains. Scottish Water also accepts that flushing could have taken place over a longer period of time.

Scottish Water has demonstrated to DWQR that the operators involved in the work were appropriately trained and were monitoring the quality of water at strategic points during the work to change flows. A DOMS impact assessment was completed in line with procedures and work would have stopped had any adverse effect on quality been noted during the procedure. It was only after the work was completed, once water

demand and flows increased, that the impact of the change was felt. There is no fully up to date calibrated hydraulic model for the supply zone, and it is possible that had one existed it could have been used to predict that velocities in the trunk main would be sufficient to create water quality issues.

DWQR is of the opinion that, generally, Scottish Water acted appropriately and tried its best to undertake the work with minimal impact on consumers, however a lack of understanding of the condition of the trunk main and hydraulic conditions within it caused the incident. Consequently, DWQR recommends that Scottish Water reviews its strategy for managing the risk from discolouration in trunk mains and provides DWQR with a copy of the proposed approach.