

Daer Camps 'B' Supply Zone Discoloured Water Complaints 1 June 2015

DWQR Inspector:
William Byers

Event No. 6926

Event Category: Serious

Summary of Incident

Compartment 1 of Tannochside Service Reservoir (SR) was isolated and removed from service on the 25th of May 2015 to repair the inlet ball valve and carry out a routine clean. The work and cleaning took place on the 29th May. At 09:22 on the 1st June, the operation to begin refilling the tank commenced. Shortly after this, the Contact Centre began receiving calls from consumers seeking information on the water supply or reporting discoloured water. Initially, these contacts were from an area supplied off the water main providing the inlet flow to the SR but later, the same problems were reported from areas supplied from Tannochside. Just after 11:00pm in the evening, the Control Centre (ICC) received a low-level alarm from Dechmont SR, the tank higher in the system providing the water to Tannochside and a Network Service Operator (NSO) was called out to investigate. This investigation showed that Tannochside had not filled to any appreciable level due to a scour valve remaining in a fully open position. The NSO closed the inlet to the tank to allow the system to recover and closed the scour valve.

By this point, SW had received 60 consumer contacts regarding the condition of the water. Some localised flushing and site water quality checks were carried out in the affected areas the following day and although consumer contacts were reducing, the total number had risen to 88 by the end of the day. At 09:57 on 3rd June, the inlet valve to the empty Tannochside compartment was opened to again commence filling and this continued without further event until it was full and the automatic level control valve closed off the flow as normal. Water quality sampling in the areas affected by the discoloration were taken on 2nd June and these showed there to be two failures of the aluminium standard (highest being 288 µg/l) and four failures of manganese (highest being 445 µg/l). There were a total of 95 customer contacts for this incident.

DWQR Assessment of Cause of Incident

DWQR has determined that this discoloration incident was caused by the significant, uncontrolled flow generated in the inlet main to Tannochside SR. In opening the inlet valve, a flow of up to 90 l/s occurred over an extended time period, which lead to disturbance of pipeline deposits being carried forward into the direct distribution system and also into the 'live' compartment of Tannochside SR. Normal maximum daily flow would be of the order 50 l/s. DWQR considers the disregard demonstrated to the magnitude and effect of the inlet flow to be a significant failure of operational procedures designed and in place to safeguard water quality. The issue of the open scour valve at Tannochside also demonstrates a lack of rigour in checking the system following the commencement of filling. This caused a significant loss of water from the system with the further consequence of excessive draw-down on the stored water at Dechmont SR requiring a call out of standby staff.



DWQR Assessment of Actions Taken by Scottish Water

DWQR considers this to have been an entirely avoidable incident. Scottish Water has Distribution Operation and Maintenance Strategy (DOMS) procedures and a check, actuate, listen, and monitor (C.A.L.M) initiative in place to ensure the water supply and service to consumers remains unaffected by maintenance works. It is clear the guidance these provide was not followed.

The incident reveals a number of shortcomings: awareness of flow rates generated by valve operations and the impact on water quality; role of the ICC in monitoring and alerting to unexpected asset status or performance following maintenance interventions i.e. the failure of Tannochside SR to fill as expected and the inordinately high inlet flow rate following flow control valve repair works; communications between Operations teams and ICC on alarm suppression (and cessation of suppression) for maintenance activities.

During the second filling of the cleaned compartment, cognisance was taken over controlling the inlet flow rate. On this occasion, flows were sustained in the range 40-50 l/s over an extended period to fill the tank, incurring no additional consumer complaints.

The issue of the open scour valve is an unfortunate consequence of different 'direction of closing' of valves being prevalent across the country. This is a result of historical preference of SW's predecessor organisations and it is incumbent on Scottish Water to ensure the correct direction is shown on valve records. In this case, the wrong direction had been ascribed to the valve and understandably, the NSO believed it was therefore closed when it was not. Scottish Water has informed DWQR that this error has been rectified in the valve records and is also clearly marked on site.

Scottish Water responded well to calls from consumers reporting discoloured water and took water quality samples within the areas affected by the incident. Whilst the initial round of sampling identified failures of the Aluminium and Manganese standards, all subsequent resamples showed that water supply in the various areas met the required standards.

The event has been categorised as Serious. Scottish Water has identified a number of actions and DWQR accepts that these are appropriate. Additionally, DWQR has made three recommendations and will be monitoring to ensure both these and the actions are completed prior to signing off the incident.

