Drinking Water Quality Regulator for Scotland

Incident Summary

Castle Moffat WTW
Loss of control of treatment process
June 2019

DWQR Inspector:
Matt Bower

Event No. 10229

Event Category: Significant

On the evening of 13 June, filtered water quality alarms were received by Scottish Water's Intelligent Control Centre (ICC). These were initially suppressed, only being passed out to an operator some 45 minutes later when they continued. An out of service raw water turbidity monitor and inadequate flow through the clarified water turbidity monitor meant that there was no earlier warning of a sudden change in raw water quality due to heavy rainfall in the catchment. When the operator attended site they found that the clarifier blanket had risen and had caused the quality of the filtered water to deteriorate. The operator removed the filters from service so that no water flowed into supply and monitored the water quality carefully, performing a number of tests and adjusting coagulant dose. Approximately two and a half hours later, the operator took the decision to return the works to supply. Unfortunately, a few hours later clarified water turbidities rose again and the filters were again taken offline. Some water with a high aluminium content passed forward into supply during the incident and the treatment process was undoubtedly compromised. It was the middle of the next day before final water aluminium concentrations fell below the regulatory standard. Sampling from the area served by the works over the following days demonstrated that there was minimal impact on the quality of water actually received by consumers.

This incident was caused by sudden deterioration in raw water quality and the inability of the treatment works to respond quickly to such changes. The incident was exacerbated by an absence of early stage water quality monitoring due to the few monitors that were present being out of service or incorrectly operating due to being in need of maintenance. A delay by the ICC in passing out the first filtered water alarms to the operator meant that opportunities for a prompt intervention were missed. The lack of a run to waste facility at the plant greatly hampered efforts to manage the incident. Although the root cause of the incident was outwith Scottish Water's direct control, a basic lack of resilience at the plant meant that the consequences were more severe and more prolonged than they should have been.

The event has been categorised as Significant. Scottish Water has identified seven actions which DWQR accepts are appropriate and will monitor to ensure they are completed prior to signing off the incident. DWQR made three additional recommendations.