Drinking Water Quality Regulator for Scotland

Incident Summary

Tighnabruaich WTW
Turbidity and Manganese failures
8 July 2018

DWQR Inspector:
Colette Robertson-Kellie

Event No. 9437

Event Category: Significant

The Intelligent Control Centre (ICC) notified operational staff of high treated water chlorine levels at 11:00 on the 8th July 2018 at Tighnabruaich WTW. On arrival at site, the Operator found that the alarm was caused by highly discoloured water interfering with the operation of the chlorine monitor. The works was shut down at 12:35 and the limestone tank was backwashed repeatedly to remove precipitated manganese. The works could not be restarted due to pressure issues in the raw water main. Attempts to restart caused a further increase in turbidity, so the limestone tank had to be backwashed again. Another Operator and the Team Leader attended site to assist with shutting down and scouring the raw water main, after which the works was restarted at 04:45 on the 9th July. The network was flushed to minimise concentrations of manganese deposits in the system.

Samples show three exceedances of the turbidity standard at the treatment works. From the network, there was one turbidity failure and six failures of the manganese standard, with one sample containing manganese levels more than seven times the regulatory standard. There were three consumer contacts reporting discoloured water.

The cause of the incident was the disturbance of manganese deposits from the limestone contactor. Low reservoir levels caused air to be drawn into the raw water main; the first open point for air to be dispersed at the treatment works is the limestone contactor, so pockets of air in the system agitated manganese precipitates on the limestone, leading to failures of the manganese and turbidity standards.

The event has been categorised as Significant. Scottish Water has identified a number actions from its Asset Capability study which it is currently reviewing. DWQR accepts these are appropriate and will monitor to ensure they are completed prior to signing off the incident. DWQR made one additional recommendation.