Drinking Water Quality Regulator for Scotland

Incident Summary

Mannofield WTW Coagulation process 13 July 2021

DWQR Inspector:
William Byers

Event No. 11863

Event Category: Significant

In the days prior to the coagulation failure, the operators were encountering difficulty in controlling the process because of deteriorating raw water quality following heavy rain in the catchment. On the 13th July, the operators cleaned and calibrated monitoring instruments to ensure effective control and optimisation of chemical dosing. Shortly after this activity, an increase in raw water inlet flow from the intakes was required to compensate for the reduced inlet flow available from Invercannie. The resulting change in the combined raw water quality gradually caused poor floc formation, ultimately carrying forward from the clarifiers onto the filters and resulting in increased turbidity and high Aluminium levels in the filtered water. The operators were alerted to the process failure in the evening due to alarms being raised to the control centre. Once at the works, they proceeded through a number of steps to make incremental process adjustments to recover coagulation. The works was restored to performing within normal operating parameters after some 13 hours. Formal monitoring of final water quality showed the standard for aluminium to have been breached in three samples taken between 02:00 and 13:22 on 14th July. Samples taken from the outlet of the clear water tank and in distribution all showed no failure of water quality standards.

The cause of this event was the failure of process controls to respond adequately to changing raw water quality. It is clear that the actions taken by the operators to adjust processes and recover treatment work performance, ensured there was no significant impact on the water quality supplied to consumers.

The event has been categorised as significant. Scottish Water has identified four actions which DWQR accepts are appropriate and will monitor to ensure they are completed prior to signing off the incident. DWQR made one additional recommendation.