Drinking Water Quality Regulator for Scotland

Incident Summary

Forehill WTW
Coagulation failure
6 November 2016

DWQR Inspector:
William Byers

Event No. 8116

Event Category: Significant

The standby Operator for Forehill water treatment works was called to attend site by the Intelligent Control Centre (ICC) at 23:53 on 6th November following a common priority 2 alarm. After interrogating the WTW supervisory control and data acquisition (SCADA) system, he found the alarm had been generated following coagulant pump failure. Both duty and standby coagulant dosing pumps had failed. The loss of coagulant dosing resulted in the formation of a poor flocculant blanket and elevated clarified turbidity in the precipitator's. This passed forward to the rapid gravity filters which struggled to remove the poorly formed and broken flocculant. Investigation of the failure found a blockage in the chemical feed line from the Ferric Sulphate storage tanks to the dosing pumps. Once this was cleared the dosing was restored to auto control approximately 3 hours after the system had entered alarm. A further issue emerged during the Operator response where an alarm, indicating failure of the disinfection system, was generated. Investigation found this to be a failure of the sodium hypochlorite transfer system to the day tank. The tank was replenished manually to restore disinfection and this was shown to be back to normal by 07:30 on 7th November.

Although sampling took place for Cryptosporidium monitoring at the works, communications to enable monitoring of other potential hazards within the distribution system did not take place. There was one Cryptosporidium sample where a small number of Oocysts were detected. All others showed no detections.

DWQR is satisfied that the failure of the ferric sulphate dosing system led to the breakdown in the coagulation process.

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