

Kirbister WTW Coagulation Failure 16 August 2016

DWQR Inspector:
William Byers

Event No. 7911

Event Category: Significant

A system alarm was raised from Kirbister treatment works, alerting to filters being out of service. Inspection of the works did not find any issues within the plant and the filters were returned to service. A further alarm, some 2¾ hours later, of high aluminium content in the final water, was then received and the treatment operator attending, noting an increase in clarifier turbidity, flushed the instrumentation sample line, calibrated monitors and reduced the aluminium dose rate which appeared to stabilise the process. Attendance in response of subsequent filter alarms found a blockage in the polyelectrolyte dosing system and this was cleared. After monitoring production for an hour, the process again seemed to have stabilised and the operator left the site. The works however automatically shut down later due to exceedence of the aluminium standard.

Investigation of the coagulant dosing system found the aluminium sulphate dosing pump to be dosing significantly above its set level and it was removed from service. A managed restoration of the works with on-going jar tests being undertaken, then progressed, until normal process was restored. Samples taken to monitor final water quality showed a single failure of the aluminium standard with a level of 318µg/l. There were no failures in samples taken from Burgir Hill Storage tank from which the supply distributes to consumers.

DWQR is satisfied that the investigations carried out by Scottish Water have shown the cause of the failure of the coagulation process to be a blockage in the polyelectrolyte dosing system. A calibration issue with the aluminium sulphate dosing pump caused a subsequent elongation of the process recovery period.

The event has been categorised as Significant. Scottish Water has identified three 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.