

Incident Summary

Glendevon WTW
Failure of coagulation
26 August 2019

DWQR Inspector:
Bill Byers

Event No. 10500

Event Category: Significant

On 26 August, the treatment works was experiencing difficult raw water conditions and the standby operator sought support from the Team Leader and Process Scientist. The accuracy of instrumentation was tested and chemical dosing checked and these were functioning as expected. Some minor adjustments were made and with processes steadied by midnight, a decision was taken to defer any changes to the next day. By 8:00am, the situation had improved but the coagulant dosing pump was now operating very close to maximum settings and the acid dosing at its lower limit, unable to adjust pH any further to maintain the necessary coagulation conditions. Specialist support enabled the acid dosing pump range to be changed which then allowed the required coagulation pH to be met. Bench testing of the raw water sources identified that a far greater alum dose was required than could be delivered by the current dosing pumps. An emergency dosing pump was installed and configured to augment the dosing but whilst delivering the calculated amount of alum, confirmed by drop tests, there was no improvement in water quality. A worsening of coagulation conditions through rapidly increasing pH values, led to the discovery that the pipe line used to feed the emergency dosing pump, utilised carrier water instead of undiluted chemical, causing the under dosage of alum. Once this was rectified, processes were optimised and stabilised, returning to more normal output by 9:00pm. Reactive samples of the final water from the works showed the aluminium standard to have been breached on two occasions throughout the incident with values of 260 and 206µg/l. Samples taken from within the distribution system and from consumer's taps however showed the water supply to meet the regulatory standards.

I am satisfied that Scottish Water's investigation of the incident has clearly identified the processes at the works to have been unable to adjust to the changing raw water conditions.

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 one additional recommendation.