

Glendevon WTW Loss of Coagulation 21st October 2024

Event No. 15075

Event Category: Significant

From noon on October 21st, the operator at Glendevon WTW noticed that individual filter turbidities started rising, followed shortly by aluminium levels and combined turbidity. By 13:50, final aluminium and turbidity were affected and continuing on an upward trend, with final water Emergency Action Levels (EALs) being exceeded at 19:00 for aluminium, and at 20:40 for turbidity. Over the afternoon the operator conducted drop tests, increased the alum and poly dosing; and checked the inlet to ensure chemical dosing was operational. They also checked the zeta potential and manually washed the filters to remove the turbidity build-up. After further increase in poly dosing, the turbidity and aluminium levels began to respond, and by 01:50 on the 22nd, filtered water quality had fully recovered to below EALs.

During the incident, the final water EALs for turbidity and aluminium were breached for ten hours. Whilst online monitoring did not show a breach of the 1 NTU regulatory standard within the final water (following mixing within the clearwater tank), data indicated that water in-excess of 1 NTU entered disinfection for an extended period during the evening. The maximum turbidity encountered at the entry to disinfection, however, could not be determined due to a scaling error on the SCADA system (maximum reading 1 NTU).

During this event, there was ineffective escalation of performance issues to the Public Health Team and significant delays occurred before sampling was conducted. There were no failures of regulatory standards in the samples collected.

Glendevon WTW is a direct filtration site, with poor monitoring on the raw water, and outdoor filters which are difficult to maintain, employing a high poly dose. These asset constraints make optimising coagulation chemicals (especially poly) extremely difficult, especially with changing raw water conditions as were observed during this incident.

There was a deterioration in raw water quality from one of the Glendevon sources (Castlehill reservoir) due to a storm the previous night, which likely instigated the event; but it was the fundamental lack of ability for Glendevon WTW to adapt to changing water quality that caused this incident.

The issues with asset capability have been known for some time, with DWQR incidents and audits consistently highlighting issues and a need for improvement. I am disappointed that yet another incident has occurred at Glendevon WTW due to the lack of effective coagulation control.

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 five additional recommendations.

