Drinking Water Quality Regulator for Scotland

Incident Summary

Eela Water WTW
Aluminium Failures
November – December 2018
Event Category: Serious

DWQR Inspector:
Matt Bower

Event No. 9846

Summary of Incident

On 7th November, the polyelectrolyte batching at the site failed due to insufficient capacity in the temporary service water pipe installed during work to install an additional filter at the works. This caused a deterioration of water quality which took a while to rectify.

The following day, planned work commenced to clean one of the two flat bed clarifiers (FBCs) at the site. Due to inadequate sludge treatment facilities at the site, temporary sludge storage was arranged. The FBCs had not been cleaned since 2013, and flow through the plant was higher than the last time the operation was performed, with the other clarifier no longer able to take the full works output. Consequently levels in the clear water tank were dropping throughout the operation, adding pressure on staff to complete the process as quickly as possible. Additionally, the very rudimentary flow control at the site meant that it was not possible to properly restrict (or measure) the flow through the reintroduced clarifier. Shortly after re-introduction of the cleaned FBC, aluminium concentrations and turbidities began to rise, reaching in excess of 300 microgrammes per litre. Concentrations did not return to normal for approximately six days.

The following week, senior operations staff visited the site to discuss the two issues that had occurred. It was agreed that the planned clean of the second FBC should proceed, and this took place on the 27 November using the same process. It was assumed that, as the other clarifier that would take the full works flow was now clean, similar issues with elevated post-clean aluminium concentrations would not recur. Unfortunately, similar issues were encountered, and aluminium concentrations exceeded the PCV for aluminium in service reservoir samples until at least 12 December. Service Reservoir samples were below PCV by 17 December, although results just below the PCV for Aluminium were being recorded at consumers' taps until well into January 2019.

DWQR's assessment was that this incident was caused by operational staff trying to maintain an asset that was operating well above its design capacity and has archaic facilities for flow control and monitoring. A lack of rigour around planning and escalation procedures exacerbated the issues and resulted in the same mistake being repeated.

By their own admission, Scottish Water's response in terms of escalating this cluster of events, triggering the necessary reporting and sampling actions, fell well short of its own expectations. Although breaching the PCV, the concentrations of aluminium are not likely to have presented a risk to health. No consumer complaints were received.

DWQR visited the site to investigate in March 2019.