

Ardfern WTW Failure of disinfection process November 2024

Event No. 15117

Event Category: Significant

Approximately 3.7m³ of undisinfected and turbid water passed forward to the clear water tanks and into supply equating to approximately 3-4% of the combined tank volume. Sampling undertaken by Scottish Water showed that two samples failed the standard for Iron and Manganese respectively. All associated resamples passed.

The disinfection failure was caused by the plant being shutdown incorrectly, permitting 0.12l/s to gravitate to the clear water tank while the treatment process was offline for a period of eight and a half hours. The turbidity, iron and manganese failures were caused by a disturbance of fines in the limestone contact tank (LCT) due to entrapped air affecting permeate flow. The impact of the disturbance was exacerbated by the accumulation of deposits in the LCT which had been allowed to build up as maintenance of the tank was not being carried out sufficiently.

Once the standby operator was made aware of elevated final water turbidity, action was promptly taken to check monitor readings, limestone contact tank quality and inlet pressure. A decision was made after escalation to the Intelligent Control Centre to shut the plant down and address the low inlet flow issue later that morning. The plant was not shut down correctly because the standby operator lacked familiarity with the shutdown procedure. This permitted 0.12l/s of water to flow forward without disinfection until the following morning when a second operator noticed and proceeded to shut the plant down fully. The issue was escalated and an incident team formed. Appropriate remedial actions were taken to flush the LCT to waste while analysing iron, manganese, turbidity and chlorines. Once water quality

was deemed acceptable, the plant was returned to supply and the chlorine setpoint increased.

The event has been categorised as significant. Scottish Water has identified eleven 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.

