

## Forehill WTW Loss of disinfection 25<sup>th</sup> May 2024

Event No. 14498

### Event Category: Significant

On 25th May 2024 the standby operator was contacted by the Intelligent Control Centre (ICC) reporting a SCADA generated alarm. When they attended site they found the pre and post chlorine contact tank (CCT) chlorine residuals low. While interrogating the SCADA, the operator noted that the sodium hypochlorite pump 2 tripped and was reset; however, it was not dosing chlorine. An electrical and mechanical (E&M) job was raised, and dosing was returned to hypo pump 1. Within 20 minutes the pre and post CCT chlorine residuals had returned to acceptable levels. The operator contacted ICC to update and escalate the issue for further sampling to be arranged.

The incident was entirely avoidable. It was caused by hypo pump 2 being left in 'pause' mode following planned maintenance. There is a TOMS procedure to carry out post-work checks, however these were not carried out. Therefore when the hypo pumps routinely changed over from pump 1 to pump 2, there was no dosing and the PLC did not recognise the fault.

It is worrying that no alarm was generated at the ICC, and I note that Scottish Water has identified this as an action for investigation. Alarm visibility at Forehill is extremely poor (there is only a general P2 alarm for all water quality issues for the whole site) and the planned PLC upgrade has been delayed.

Final water samples were all within normal ranges; however this is mostly due to the secondary chlorine dosing to maintain a network residual. This dosing takes place before the

final sample tap and masks the poor disinfection at Forehill. One cell of the CCT has been out of service since 2014, and currently the best case Ct is 4.7. Even when this work is complete, the disinfection strategy shows that Ct will still be below 10. Despite this WRAP gives a 'very low' score of 4 for breakthrough due to insufficient contact time or Ct. This is the third disinfection failure at Forehill in 2024 – the first two for PLC issues relating to power brown-outs.

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

