

Incident Summary

Forehill WTW
Failure of the disinfection process
2nd October 2022

DWQR Inspector:
Andrew Kennedy

Event No. 12928

Event Category: Significant

On 1 October 2022, an SCADA general alarm was called out by the Intelligent Control Centre (ICC). On arrival at site, the operator found that the high level bund alarm for the onsite electrochlorination (OSEC) day tank was active. On investigation, a solenoid valve was found to be stuck open, resulting in water continuing to enter the day tank. Repairs were carried out the same day, but a decision was made (on agreement with the standby team leader) to leave the OSEC offline for the weekend as there was not enough time to fully test it. The standby sodium hypochlorite dosing system at Forehill water treatment works (WTW) was brought online and the operator checked levels in the sodium hypochlorite intermediate bulk container (IBC) before leaving site.

At 21:40pm on 2 October 2022, an SCADA general alarm was called out by the ICC. The operator was already on site at the time of receiving the call and quickly identified that the alarms were due to low pre and post Chlorine Contact Tank (CCT) free chlorine levels which had dropped to 0.18mg/l and 0.15mg/l respectively. On investigation, the operator found that the sodium hypochlorite IBC had emptied and the OSEC day tank was very low. The operator acted swiftly to restore tank levels and disinfection. Scottish Water took two reactive out of hours samples (one from each final water outlet), with both samples passing bacteriologically.

It is clear that this incident was as a result of the standby sodium hypochlorite IBC running empty whilst the OSEC unit was powered down following a fault the day prior. The emptying of the sodium hypochlorite IBC resulted in the OSEC day tank running low and therefore a

loss of disinfection, with pre and post chlorine contact tank free chlorine levels dropping to 0.18mg/l and 0.15mg/l respectively and the ECt dropping to 1.6mg.min/l.

It is also apparent that the failure of the standby hypochlorite was due to a lack of procedures and robust controls in place for the standby sodium hypochlorite dosing system. Due to a lack of procedure and risk control, the operator checked the level in the sodium hypochlorite IBC and believed there was enough sodium hypochlorite to last the weekend, however this was not the case. Scottish Water were also unaware that isolating the OSEC unit would inhibit the power supply to the day tank and therefore remove the visibility of the day tank level and associated alarms, which is the main risk control measure.

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



