Drinking Water Quality Regulator for Scotland

Incident Summary

Hopes WTW
Disinfection Failure
7th August 2021

DWQR Inspector:
Moira Malcolm

Event No. 11932

Event Category: Significant

On 8th August at 01:53 the Intelligent Control Centre (ICC) received alarms from Hopes WTW for low pre Chlorine Contact Tank (CCT) and sodium hypochlorite (hypo) dosing failure. The standby operator attended site at 02:00 and found that there was no chlorine dosing because the dosing day tank was empty but the auto shutdown for low chlorine was not in operation. The operator initiated a shutdown and manually batched the hypo day tank. The works was restarted and chlorine dosing set at 1.3mg/l rather than the usual 1.15mg/l to compensate for the lack of dosing. The operator escalated the event to their team leader who informed the public health team (PHT). PHT requested that samples were taken for lab analysis and that the operator consider spiking the Clear Water Tank (CWT). The operator decided that as the final chlorine levels were above target the CWT did not require spiking and they did not take final water samples as were no appropriate sample bottles on site. The operator then washed the filters and took chlorine bench tests until the process and dosing stabilised, and took final water laboratory samples when replacement bottles were obtained from Rawburn WTW. The contractor arrived on site at 10:00 to investigate the lack of auto shutdown, which was attributed to a loose wire in the power supply to the PLC. Throughout the duration of the incident, there was no chlorine dosing at Hopes WTW for 1hr 20 minutes.

Scottish Water's investigation showed that the root cause of the incident was the hypo day tank emptying which led to no hypo dosing. This was compounded by the PLC failure which inhibited the auto shutdown on low chlorine. The hypo batching system at Hopes WTW is usually automatic, however a fault had developed with the carrier water not batching into the day tank three weeks earlier, so operators were manually batching the day tank on a daily basis, but this had not been done on the day before the incident. The TOMS (Treatment Operation and Maintenance Strategy and a multitude of procedures) procedure for a change from automatic to manual processing involves completing a form which is issued to ICC so they are aware that the site is at a higher risk, however the site staff did not think it was appropriate in this case so it was not done.

The event has been categorised as significant. Scottish Water has identified seven actions which DWQR accepts are appropriate and will monitor to ensure they are completed prior to signing off the incident. DWQR made one additional recommendations.