

Incident Summary

Strathyre WTW Disinfection Failure 25th February 2023

DWQR Inspector:
Matt Bower

Event No. 13258

Event Category: Significant

At 10:20 on 25th February, the standby operator performed routine weekend water treatment works checks via telemetry. He noticed that final water chlorine residuals were low; shortly afterwards he was notified by Scottish Water's control centre, although he was already on his way to the works. Chlorine residuals had dropped to 0.28mg/l, well below the more usual concentrations of around 0.7mg/l, and less than that needed for effective disinfection.

The operator restarted the plant and increased chlorine dosing to enable disinfection to recover. He stopped forward flow from the tank and diverted the low-chlorine water that was already in the clear water tank into one that was out of service, although chlorine had been lower than it should have been since the previous evening, so some partially disinfected water will have entered supply.

Chlorine concentrations quickly returned to normal and water was allowed to pass into supply once again.

The root cause of this incident was a sudden increase in the chlorine demand between chlorine dosing and the final water monitor. The chlorine dosing had been left on manual operation following work to resolve a dosing issue caused by a power cut a few days earlier. This meant that the chlorine dosing was unable to increase automatically in response to the reduced final water chlorine reading as it should have done in normal operation.

Scottish Water has been unable to find a cause of the increased chlorine demand. It was accompanied by a similar decrease in final water pH, suggesting a real effect rather than a monitor issue. The unexplained nature of this issue is of concern, and I am of the opinion that it has not been fully investigated by Scottish Water.

The incident was further compounded by an error with chlorine alarm and shutdown

settings. Operational staff had requested that these be decreased in September to take account of reduced chlorine contact time while one of the two clear water tanks was out of use. This had not been actioned, meaning that chlorine levels were allowed to drop lower than they should have before an alarm was generated and the plant shut down.

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



