

Kilberry WTW, Argyll
Disinfection Failure
28 October 2014

DWQR Inspector:
Matt Bower

Event No. 6493

Event Category: Significant

Summary of Incident

This incident occurred when the pumps feeding the clear water tank shutdown following a power supply problem. A low chlorine alarm was generated and was dispatched to the operator, however it was discounted as the plant was shut down at the time.

Three hours later, the plant restarted but the chlorine pumps did not start. The consequent alarm was ignored by Scottish Water's intelligent control centre (ICC) in the mistaken belief that the cause was the same as previously and that the plant was not running. A further alarm was generated four hours later and this was passed out to the operator. He then responded and resolved the incident by restarting chlorination.

Chlorine concentrations had dipped to virtually zero by the time dosing was restarted. Inadequately disinfected water entered supply over a period of about eight hours.

DWQR Assessment of Cause of Incident

Scottish Water has investigated this incident and the root cause has been found to be a missing link between the PLC and the chlorine dosing system that should only enable the works to run with chlorine dosing. This situation has since been rectified.

A misplaced assumption within the ICC resulted in no call being passed out when a second, genuine, low chlorine alarm was generated. It is usual for chlorine concentrations to drop off when membrane plants come off line, but water is not usually in supply when they do so, causing the mistaken belief at the ICC that this was a "normal" occurrence which could be ignored.

DWQR Assessment of Actions Taken by Scottish Water

Once the issue was discovered and the operator called out, disinfection was quickly restored. A sample was collected from the clear water tank, the results of which were satisfactory. The final water was sampled, but was not possible to obtain a microbiological sample from the distribution system at the time due to the late hour and tiny size of the system. The chlorinated water was flushed through the system quickly and verified by checking residuals at the end hydrant. DWQR considers that it would have been prudent to collect a sample from a consumer's tap later in the day.



Scottish Water has investigated the issue at the works and ensured that it is no longer possible for the works to restart without chlorine dosing. This is welcomed, but it is also important that the ICC avoids making assumptions without first checking all available evidence – it should have been possible for them to see that water was flowing through the works at the time of the low chlorine alarm

The event has been categorised as Significant. Scottish Water has identified a number of actions. DWQR accepts that these are complete and that the incident can be signed off.

