Drinking Water Quality Regulator for Scotland

Incident Summary

Broadford WTW *Cryptosporidium* failure 14th August 2021

DWQR Inspector:
Moira Malcolm

Event No. 11950

Event Category: Significant

A scheduled sample taken on 5th August 2021 from Broadford WTW from the combined permeate (CP) sample point failed for 3 presumptive *E. coli* and 23 coliforms. Scientific Services reported this to the public health team (PHT) on Saturday 7th August via their out of specification reporting system, but did not also notify them by phone contrary to their procedure. On Monday 9th the PHT informed the process science of the failure to instigate a resample and *Cryptosporidium* sampling, but the extent of the failure was not mentioned. The second CP sample taken on the 9th also failed (for 2 coliforms) as did further CP samples taken on the 11th (3 coliforms) and 12th (2 coliforms). After the third failure the process scientist initiated a full site investigation with enhanced sampling, which identified vessel 4 of the membrane stack as being at fault. It was isolated and the plant was shut down to remove vessel 4 for detailed investigation which revealed a broken O-ring seal on the membrane cap adaptor. The seal was replaced, the vessel tested and returned to service.

Two *Cryptosporidium* failures were recorded: 5 oocysts on the 14th and 9 oocysts on the 15th. These were attributed to residual oocysts in the system following the O-ring seal failure, so the limestone contact tank was emptied, cleaned and the media replaced; and the clear water tank (CWT) cleaned to remove any oocysts still present downstream of the membrane stacks.

The root cause of the failure, as investigated by Scottish Water, was the broken seal on one of the membrane stacks which compromised it's integrity and allowed non-compliant water to flow forward and ultimately into supply. However poor communication and the delay in escalating the primary sample failure and insufficient information when calling out the second failure significantly contributed to the duration of the incident.

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 recommendations.