

Ringford WTW
Disinfection Failure
3 April 2015

DWQR Inspector:
Colette Robertson-Kellie

Event No. 6824

Event Category: Significant

Summary of Incident

On the 3rd April 2015 at 10:30, the disinfection system at Ringford WTW failed. This was caused by a blown fuse on the chlorine controller, which led to the sodium hypochlorite dosing pumps failing. Since the chlorine controller also generated the chlorine telemetry alarms, no alarm was generated to the Intelligent Control Centre (ICC), and the disinfection failure was not detected until the works operative attended the site at 13:50 for a routine visit. All of the supply from Ringford WTW mixes with treated water from Glengap WTW at Muirhead Service Reservoir, no consumers are supplied directly from Ringford WTW, and Scottish Water estimated that in a worst case scenario, this undisinfected water from Ringford WTW would contribute around 8% of the water at Muirhead SR. Sampling from Muirhead SR and distribution along with trends from on-line chlorine monitors showed that the chlorine residual from Muirhead SR was only slightly reduced by the disinfection failure.

DWQR Assessment of Cause of Incident

The cause of the incident was a blown fuse on the chlorine controller.

DWQR Assessment of Actions Taken by Scottish Water

Since the blown fuse affected the generation of an alarm to the ICC, there was a delay of over three hours before Scottish Water responded to the disinfection failure and shut down the treatment works. Ringford WTW does not supply any properties directly, and the chlorine levels at Muirhead SR were not unduly affected by this incident. Samples were taken on the 3rd and 4th from the treatment works, from a property in the water supply zone and also from the service reservoir at the end of the water supply zone. All chlorine and microbiology tests results were acceptable. However, this was the second disinfection failure in sixteen months at Ringford WTW, and DWQR has concerns that the mixing and contact time of the water which was not disinfected with the chlorinated water at Muirhead SR may be insufficient for adequate disinfection prior to the first property supplied from Muirhead SR. Scottish Water has, however, subsequently rewired the system so that an alarm can be generated from either the chlorine controller or from the chlorine sensors, and importantly, a low chlorine shutdown system will be installed at Ringford WTW by the end of August 2015.

The event has been categorised as Significant. Scottish Water has identified a number of actions and DWQR accepts that these are appropriate and will be monitoring to ensure they are completed prior to signing off the incident.