

# Incident Assessment

Ringford WTW  
Disinfection Failure  
8<sup>th</sup> December 2013

DWQR Inspector:  
Colette Robertson-Kellie

Event No. 5755

## Event Category: Significant

### Summary of Incident

On the 8<sup>th</sup> December 2013 at 0901, Scottish Water's Intelligent Control Centre (ICC) received a low chlorine alarm from Ringford WTW. The expected chlorine levels for the Ringford supply, which does not supply any properties directly but blends with water at Muirhead SR, had dropped from a normal average of 0.65mg/l to 0.20mg/l. At Muirhead SR, chlorine dropped from an average of 0.55mg/l to 0.27mg/l.

The alarm from Ringford WTW was not relayed to Operations for staff to take action, and the sodium hypochlorite tank was allowed to run dry due to a faulty low level float. The Operative for the site measured chlorine levels at the site as part of his routine duties at 0800 on the 9<sup>th</sup> December, and discovered that chlorine levels had dropped to 0.13mg/l. The Operative stopped the borehole pump and filled up the sodium hypochlorite tank, and the borehole pump was restarted at 0922. The chlorine levels returned to normal levels at 1245 at Ringford WTW on the 9<sup>th</sup> December.

There were no microbiological failures during this incident.

### DWQR Assessment of Cause of Incident

The cause of the incident was a faulty low level float on the sodium hypochlorite tank. The ICC duty staff did not follow their standard operating procedures which required them to relay the alarm immediately, and this failure meant that chlorine levels were unacceptably low for more than 27 hours after the initial chlorine alarm. The remaining residual chlorine was due to the presence of chlorine in the water that blends with Ringford at the service reservoir. Although chlorine residuals did not drop to zero, DWQR is of the opinion that the blending of an undisinfected water with one containing a chlorine residual is no substitute for a properly controlled disinfection process and should be not be considered to be a consistent safeguard that ensures all water supplied to consumers has been adequately disinfected.

### DWQR Assessment of Actions Taken by Scottish Water

Scottish Water carried out remedial measures at Ringford, which included removal and cleaning of the faulty low level float on the sodium hypochlorite tank, zeroing and calibrating the chlorine analyser and revision of alarm levels. A repair and reconfiguration of the works autosutdown system was also undertaken. There were no reported alarms from Muirhead SR to alert staff to dropping chlorine levels on that part of the supply.

The ICC staff who were on duty at the time of the incident received refresher training on the standard operating procedure for low chlorine.

The event has been categorised as significant.

DWQR has made one recommendation following this incident:

Recommendation Number	Recommendation	Completion Date
DWQR 1	A review of the chlorine alarms at Muirhead SR should be carried out to determine if they are appropriate.	

