Drinking Water Quality Regulator for Scotland

Incident Assessment

Peninver WTW
Disinfection Failure
11 September 2011

DWQR Inspector:
Matthew Bower

Summary of Incident

This incident occurred following routine maintenance of chlorine monitors at the site on 8 September. Having replaced various items on the instrument probes, the monitors were "put on hold" by maintenance staff which means they were not measuring but were reporting a fixed value back via telemetry. As the fixed reading on the monitor was higher than the setpoint value to which the chlorine dose was being controlled, the processor was continually reducing the amount of chlorine dosed until, by the time the issue was spotted by staff on 12 September, chlorine concentrations in final water were negligible. Some samples were taken later on 12 September, once the problem had been rectified, and these show normal levels of chlorine. One sample contained a presumptive *Enterococcus* that did not confirm on further testing.

DWQR Assessment of Cause of Incident

The cause of this incident was the assumption by maintenance staff that operational staff would reinstate the monitors to normal operation the following day, however no communication to this effect appears to have taken place. Chlorine concentrations progressively dropped away over the period until by 11 September they were effectively zero leaving the works. Stored treated water on site did contain some chlorine, however it is reasonable to conclude that disinfection was seriously compromised over a number of days, in breach of Regulation 25 of the Water Supply (Water Quality)(Scotland) Regulations 2001.

The root cause of this incident was the highly questionable practice concerning the maintenance of chlorine instrumentation. DWQR does not consider it appropriate to leave a treatment works without effective chlorine monitoring overnight following maintenance. The extension of this period to a number of days was not intended, but unfortunately an almost inevitable outcome from this action.

DWQR Assessment of Actions Taken by Scottish Water

Once the issue was discovered, Scottish Water responded promptly and appropriately to restore chlorine and ensure disinfected water was pulled through the system. It is not acceptable that no samples were taken at the time the issue was detected and before the clear water tank was dosed with additional chlorine. This has prevented a complete assessment of the quality of water supplied to consumers and any potential risk to public health during the incident and is in breach of in breach of Regulation 17 of the Water Supply (Water Quality)(Scotland) Regulations 2001. Similar failings have been identified by DWQR on numerous other occasions and this deficiency within operational practice must be addressed by Scottish Water.

Peninver Water Treatment Works has now been replaced by a supply from the existing Campbeltown WTW, but the issues raised by this incident are relevant to operational practices across Scotland.

Scottish Water has identified an action from this incident.

Action Number	Action Description	Completion Date

1	Electrical and Maintenance staff to be briefed on the learning outcomes from this event and the importance of communication	Complete

DWQR has made two further recommendations following this incident:

Recommendation Number	Recommendation	Completion Date
DWQR 1	Scottish Water should review staff practice across Scotland with respect to putting chlorine monitors “on hold” following calibrations and leaving site without restoring them to full service, reporting this to DWQR along with measures taken or proposed to ensure control and monitoring of chlorination is not disrupted.	Complete
DWQR 2	Scottish Water should ensure that sufficient samples are taken during a water quality incident, as well as after it has been resolved, to enable any risk to public health to be properly evaluated.	Ongoing