



Drinking Water Quality Regulator for Scotland

Incident Assessment

Daer WTW
Treatment Failure
23 August 2010

DWQR Inspector:
Matthew Bower

Summary of Incident

On the night of 23 August the programmable logic controller (PLC) that managed chemical dosing at Daer failed. As this PLC also handled telemetry signals for most of the relevant monitoring instrumentation, no alarms were received by Scottish Water’s Intelligent Control Centre, and no operational staff were alerted until the lack of treatment triggered a low pH alarm some 3 hours later that had been routed via a different PLC. Scottish Water initially thought that the problem was a fuse in the PLC and once this was replaced it was possible to restart the treatment processes. Impact of the incident on final water quality was minimal.

The following night, the PLC failed again, with events following a similar pattern to the 23 August. Again, there was limited impact on final water quality. On this occasion, a Scottish Water electrician identified that the route cause of the problem was actually the power supply unit to the PLC. This was replaced and no further incidents have occurred.

DWQR Assessment of Cause of Incident

It is hard to see how this failure of the power supply unit could have been predicted, however it was unfortunate that the failure also affected the relevant alarms from the site, preventing a prompt response on both occasions. It is possible that a more robust alarm system and control centre response to unchanging telemetry values might have alerted staff to the problem more quickly.

DWQR Assessment of Actions Taken by Scottish Water

Scottish Water staff reacted promptly once alerted to both failures, although of course this was some time after the PLC itself had failed. Appropriate action was taken, with chemical dosing being restarted in manual operation mode and attempts being made to repair the PLC. It was established that the effect of the process failure on the quality of the water supplied to consumers was minimal, and chlorination was not interrupted. Some additional sampling was undertaken in response to the incident on both days, including for *Cryptosporidium*. Having said this, no samples were taken on the morning of 24 August in response to the second failure and no samples at all were taken for microbiology. This is surprising given the relevance of this parameter to public health. Notification of other stakeholders appears to have been satisfactory.

Scottish Water has identified a number of actions from this incident. DWQR accepts that these are appropriate and will be monitoring to ensure they are completed prior to signing off the incident:

Action Number	Action Description	Completion Date
1	Telemetry system at Daer WTW to be migrated from Water Management System	Complete



	to Open Enterprise	
2	Reduce the time delay on the treated water pH to improve response time to a lime dosing problem.	Complete
3	Reiterate Sampling requirements during an event / incident to all Treatment operators as part of Operator Awareness training.	Complete
4	Review and update the drinking water safety plan for Daer WTW as necessary in light of the incident root causes and conclusions.	Complete
5	Copy of the incident report to be circulated to all Water Operations Managers fro information.	Complete

DWQR has no additional recommendations following this incident.