Incident Assessment

Kinlochbervie WTW, Sutherland Disinfection Failure July 2011

DWQR Inspector:
Matthew Bower

Details of Incident

On the evening of 30 July 2011, an airlock in a chlorine dosing pump interrupted the disinfection process at this treatment works. The plant should have shut down automatically, but this failed to happen and the problem was not detected until a low final water chlorine alarm was received the following day at 13:00. By the time a Scottish Water operator attended site, the final chlorine concentration was 0.12mg/l. Microbiological samples were taken, but all samples passed.

DWQR Assessment of Cause of Incident

The cause of this incident was an airlocked dosing pump. Under normal circumstances, the treatment works would have safeguards in place to ensure the works shut down automatically until such time as the problem could be fixed. On this occasion, the shutdown did not work because of a fault with the process logic controller (PLC) at the plant.

DWQR Assessment of Actions Taken by Scottish Water

Actions to Protect Consumers
Undisinfected water did enter the clear water tank but mixed with chlorinated water already present, so at no time was there a complete absence of chlorine in water supplied to consumers. The treatment process is a membrane, which treats water to a very high standard, however Scottish Water staff could have acted to further protect public health by adding additional chlorine into the clear water tank when the issue was discovered.

Once the problem was discovered the operator quickly transferred the chlorine dosing to the standby dosing pump. It is unclear why this did not happen automatically as would usually be the case.

Actions to Confirm the Quality of Water Supplied
Scottish Water took a number of microbiological samples from the treatment works, service reservoir and at a consumer's tap. DWQR considers this adequate. None of the samples contained any bacteria.

Actions to Prevent a Recurrence
Scottish Water investigated the issue and identified a problem with the PLC that controls the automatic shutdown. This has now been resolved.