

Glenconvinth WTW
Ammonium PCV Breach
30th March 2015

DWQR Inspector:
Moira Malcolm

Event No. 6821

Event Category: Significant

Summary of Incident

On 30th March 2015 the treatment works operator and process scientist at Glenconvinth WTW conducted some planned tests to investigate the overdosing of one of the ammonium dosing pumps. When they could not resolve the issue, they isolated the defective pump via the SCADA (onsite telemetry) system but did not take it offline manually. When water flow through the works increased, the dosing valve to this pump failed and ammonium from the isolated pump was siphoned into the system. There was no online monitoring linked to telemetry for ammonium to give an early warning alarm, so this continued for over 16 hours until the operator noticed the following morning. At this point the pump was physically removed and the operator escalated the situation as per Scottish Water's protocol. The excess ammonium in the water caused a PCV (prescribed concentration or value) breach of ammonium in the service reservoirs and at a consumers' tap. This lasted for the following three days as the slug of water flowed through the distribution network. No customer calls were received.

DWQR Assessment of Cause of Incident

The cause of the incident was a failure of the loading valve on the ammonium dosing pump which allowed ammonium to flow even when switched off. The lack of telemetry alarms for ammonium compounded the problem as no warnings could be raised, also there was no on site bench testing for total ammonium to manually identify issues.

DWQR Assessment of Actions Taken by Scottish Water

DWQR is of the opinion that when Scottish Water became aware of the problem they responded appropriately to the event and took the necessary steps to contain the situation.

This incident raises several issues:

1. Given that the failure of the loading valve occurred directly after the planned work to the overdosing pump, it is fair to assume that the two events are linked. However it is not known if the failure of the loading valve was as a direct result of the planned work undertaken to resolve the overdosing or was connected to the overdosing in a more complex manner.
2. It is surprising that consideration was not given to network flushing to remove the affected water from distribution more quickly.

3. Sampling was generally representative, however properties with a direct feed from the clear water tank would have been subject to the highest doses of ammonium and these were not sampled.
4. It is disappointing to note that no ammonium alarms had been connected to telemetry at this works prior to the incident, despite a similar incident occurring in 2012 (Event no 4747).

The event has been categorised as Significant. Scottish Water has identified a number of actions and DWQR accepts that these are appropriate. Additionally, DWQR has made one recommendation following this incident and will be monitoring to ensure both it and actions are completed prior to signing off the incident.

