

Balmore WTW
Coagulation Failure
Event No. 5186
10 January 2013

DWQR Inspector:
William Byers

Summary of Incident

An out of hours alarm alerted staff to a problem at Balmore Water Treatment Works on 10 January 2013. The alarms for colour, turbidity and aluminium indicated a failure of the coagulation process and an operator was called out to the site. Changes to the process had been made the previous day when the raw water source for the works was changed from Loch Katrine to Loch Lomond to permit works to be carried out on the Loch Katrine aqueducts. At this time, the works was performing normally. A request had been made towards the end of the day on 10 January to increase the throughput of the station and adjustments were made to chemical dosing plant to reflect this and the assumed water quality following the changeover to Loch Lomond source. With the alarms being received, the senior operator recognised the deteriorating situation and the process changes made earlier in the day, were reversed. The filters were washed, and processes closely monitored to ensure control was restored. Water quality monitors showed that the level of Aluminium in the final water from the works breached the standards for a period of eight hours peaking at 343µg/l. Sampling at storage points and customer taps showed there to have been no breaches of standards within the supply zone.

DWQR Assessment of Cause of Incident

DWQR considers the cause of the incident to have been the cessation of lime dosing when the plant throughput was increased. This affected the pH of the water at the start of the treatment process causing coagulation to fail. The action to stop pre lime dosing was based on experiences at another treatment works supplied by Loch Lomond water and the decision was taken without regard for the actual quality of the water at the inlet to the works.

DWQR Assessment of Actions Taken by Scottish Water

DWQR is satisfied that Scottish Water responded promptly to the alarm situation and took the necessary steps to recover the treatment process. It is clear however, that assumptions of inlet raw water quality were made and steps to verify actual quality were not taken prior to switching off lime dosing plant. DWQR considers the guidance provided in the procedure for changing raw water sources to be inadequate in respect of the expected period of time where particular attention is required to monitor inlet water quality following the change.

Scottish Water identified two 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. Additionally, DWQR made two recommendations following this incident.