Technical Inspection of Scottish Water's Water Treatment Works

Blairlinnans WTW, West Region

24th January 2017

DWQR Staff Present   Colette Robertson-Kellie, Matthew Bower

Scottish Water Staff Present   Pat McLafferty, Ian Lobban, Graeme Connor, Les Stirling, Kevin Callaghan, Stacey Mellon, Fiona McCreadie, James Simonnette

Summary of Inspection

Overall Summary

Blairlinnans WTW was selected for audit as there had been three low level unexplained Cryptosporidium detections in January 2016. These detections were unusual for this works, which generally produces high quality drinking water. Root cause analysis of the Cryptosporidium detections did not identify leakage into the CWT as a risk to water quality, despite contractors' reports highlighting this as an issue. There have, however, been no further Cryptosporidium detections since January 2016.

General housekeeping and cleanliness of the site were exceptional, and the operators of the site who were involved in the audit were clearly very knowledgeable and dilligent.

Water quality trends on SCADA revealed a number of issues with turbidity monitors. Several monitors gave sporadic spikes of very short duration, and these spikes need to be investigated and resolved. Additionally, one turbidity monitor showed an unusual trend. Both of these issues appear to be due to problems with the monitors rather than water quality, and need to be investigated and resolved. A pH monitor which records the pH of the supply prior to coagulation was reporting clearly incorrect information, and trends from SCADA showed that this was an issue that had been ongoing for some time. While it is accepted that this monitor does not control the coagulation pH, and there is another monitor which measures the pH of this stream, it may cause confusion and should be attended to.

A filter backwash was observed, and while the air scour appeared to be satisfactory, the surface flushing of the filter was very uneven, with one of the filters running clear to waste at the end of the backwash, but the other end of the filter retaining turbid water at the end of the backwash cycle. While there does not appear to be an issue with high turbidity when the filter is returned to service, possibly due to the first flush through filters being sent to waste, the backwash of all of the filters should be observed and relevant issues resolved as appropriate.

Completion and documentation of task scheduling was excellent, and filter media depth was being regularly recorded in the filter log book. The sludge plant was operating effectively, and the quality of recycled water was good and well within satisfactory turbidity limits.

The sludge plant was exceptionally clean and ordered. The Asset Planner was unable to attend the audit but satisfactory feedback on queries on the DWSP were sent by email. It is due to be updated in April 2017 as part of its routine review.

Lead test rig data suggested that orthophosphoric acid dosing was erratic, and that plumbosolvency control was not being well managed since around May 2016.