Technical Inspection of South Moorhouse WTW

Date of Inspection	**17/06/2017**
DWQR Staff Present	Colette Robertson-Kellie, Bill Byers, Alison Seton
Scottish Water Staff Present	Les Stirling, John Gow, Frank Conway, James Simonnette, Amy Gove, Jade Bree, Kevin Callagher, David Hill, John Griffen (part)

Summary of Inspection

South Moorhouse WTW was selected for audit following three separate incidents (from events 8087, 8210, 8267). Final water quality was good at the time of the audit.

The Operator on site was very knowledgeable and had a good understanding of the running of the treatment works. Housekeeping was generally good. A new lime dosing plant had been installed in response to incidents relating to pH control. There were, however, large discrepancies between two of the pH monitors and a third monitor was not working.

There were a number of issues found with the chlorination. Chlorine dosing was reported by the Operator to be problematic when set to automatic dosing, and was said to be more effective when set to manual. There was a large discrepancy between the readings from the final chlorine monitors, and the third monitor was not operational. It was noted that one of the on-line chlorine monitors was adjusted by 0.5mg/l to match the reading from the bench chlorine instrument, an unacceptably high adjustment. The post chlorine contact tank chlorine monitor was not working. There were large discrepancies between on-line chlorine monitors and manual monitors; at the entrance to the CCT 1.63 mg/l was monitored on-line, and the manual reading was 0.91mg/l, and after the CCT, readings of 1.63mg/l and 0.91mg/l. Disinfection pH was not monitored.

The polyelectrolyte dose was not known. Alarm settings were not available at the works. Labelling of instrumentation was poor. A risk of confusion over naming convention for treated and final water was identified. The supernatant turbidity monitor for recycled water from sludge processing was not operational. Phosphate dosing was erratic; in one week the dose varied between 100ug/l and 500ug/l. It is noted that the optimum dose reported to DWQR in 2011 was 650ug/l. The spectrophotometer in the on-site laboratory was not being used to measure colour in manual samples as it was giving an error message, but no line for repair had been raised and the Nessleriser was not being used as an alternative. Instructions for the operation of the spectrophotometer were not available and there were no service records. The hand held pH monitor could not be calibrated by the Operator.

Works scheduling was generally well completed; there were a few gaps but clear explanations of omissions were given by Operators.