

Incident Assessment

South Uist WTW
Coagulation Failure
25th – 29th June 2016

DWQR Inspector:
Moira Malcolm

Event No. 7745

Event Category: Significant

Summary of Incident

On 25th June 2016 the operator was called out to South Uist WTW to a plant shutdown due to high coagulation pH. During the morning no cause could be found for the failure, and turbidity and aluminium began increasing, so the event was escalated and the plant diverted to waste. Aluminium and soda dosing were reduced, inlet flow rate lowered and chlorine dosing increased to compensate for reduced coagulation efficiency. Water was returned into supply as clear water tank (CWT) levels were very low. The following day the process scientist checked the coagulant dosing chamber and noticed that the coagulant dosing line was not connected to the injection point, and therefore no coagulant was being dosed. The dosing line was reattached and dosing re-established. Water was first diverted to waste to allow plant to stabilise, and tankered water was brought in to maintain supply while the CWTs were emptied and the network scoured.

Chlorine residuals were maintained throughout the incident, however during the period before chlorine dosing was increased, contact time was lower than normal. A total of 21 customer contacts were received during the incident, nine of which were for water quality issues.

DWQR Assessment of Cause of Incident

The cause of the incident was the separation of the coagulant dosing line from the injection point. When this was re-attached the works reverted to normal. This incident occurred during a drought period when the levels of the source loch were extremely low, and it was wrongly assumed that the change in raw water quality was to blame. Draining the CWTs and scouring the network caused failures in distribution in colour and iron.

DWQR Assessment of Actions Taken by Scottish Water

When the fault in the dosing line was discovered, the works quickly returned to normal. However it is inexcusable that the basic step of checking the dosing lines was not immediately done following the original coagulation failure and plant shutdown. Jumping to the conclusion that the raw water quality was to blame prolonged the incident by 24 hours and caused further remedial action to be taken including tankering to maintain supply, which is an inherently risky procedure. The remedial action also caused failures at consumers' taps and consumer complaints. While no microbiological failures occurred, the compromised chlorine dosing led to inadequately disinfected water to enter the network.

The event has been categorised as Significant. Scottish Water has identified a number of actions and DWQR accepts that these are appropriate and will be monitoring to ensure they are completed prior to signing off the incident.

