

Glendevon WTW Coagulation Failures 25 February 2020

DWQR Inspector:
Bill Byers

Event No. 10904

Event Category: Significant

The standby operator was called out to the works at 17:48 on 25 February due to increasing filtered water turbidity and proceeded to make incremental changes to the level of aluminium sulphate dose to the raw water to improve coagulation. After reporting the situation to the standby Team Leader, samples were taken and monitoring continued. With aluminium and turbidity trends continuing to rise, the standby alum pump was switched on to assist dosing. Again incremental increases were made to alum dosing and reductions were made to sulphuric acid dosing as the coagulation pH was dropping. With no improvement to the situation, process science support was sought. Subsequent bench tests of raw water quality showed no material difference from normal. Reference to process trends indicated another cause and the polymer dosing arrangement was examined. This found a blockage in the dosing line and thereafter, with the blockage cleared, the alum and acid dosing was gradually returned to normal as control to coagulation was restored. Over the course of the event, which lasted for some nine hours, the level of aluminium in the produced water peaked at 2.7mg/l with turbidity reaching 2NTU. Formal samples of the final water taken during and in the days after the event showed two failures of the aluminium standard and one turbidity failure. There were no failures of water quality standards in consumer tap samples.

Whilst the root cause of this incident was a blockage in the polymer dosing line causing the loss of control to the coagulation process, there was a significant contribution to the duration and severity of the event made by the failure of staff to investigate the prevailing raw water conditions. There was a presumption made that deployment of the actions used to address a previous coagulation failure and water quality incident would resolve this situation and these resulted in the overdosing of aluminium to the water and consequential reduction in coagulation pH.

The event has been categorised as Significant. Scottish Water has identified one action which DWQR accepts is appropriate and will monitor to ensure it is completed prior to signing off the incident. DWQR made one additional recommendation.

