



Drinking Water Quality Regulator
for Scotland

Incident Summary

North Hoy RSZ Significant loss of control of the treatment process – THM failure October 2018

DWQR Inspector:
William Byers

Event No. 9781

Event Category: Significant

During a scheduled visit to the site on 7th October, a relief treatment operator noted low chlorine in the final water and increased the chlorine dosing set point. Attending again the following day, he noted a still low, final water chlorine and again raised the dosing set point. It was further raised during a visit on 9th October. A remote review of telemetry trends by the Process Scientist and Operations Team Leader on 9th October raised concerns over the disinfection process and this stimulated contact with the local treatment team. This resulted in an instruction to further increase the level of disinfection dose and manually dose the clear water storage tank (CWT) whilst an alternative, tankered water supply was arranged. The existing stored water was dumped from the CWT before refilling with the tanker water. Consideration of the causes of the high chlorine demand in the treated water gave rise to concerns around the integrity of the membrane filtration plant and the treatment process was closed off on 9th October, pending investigation. A new membrane treatment plant was in the process of being installed at this time and a decision was taken to maintain the tankered alternative supply until the new plant was commissioned on 18 December.

Sampling of the final water and the supply from consumer taps in the supply area was arranged and commenced on 9th October. All samples taken showed there to be no failures of microbiological standards and chlorine residuals within the supply distribution system returned to normal over the following few days. One sample however taken at a consumer tap on 11th October failed the standard for Total Trihalomethanes (THM) with a value 106.2 µg/l. The isolation of the treatment works from the CWT and the utilisation of a tankered, alternative water supply restored a wholesome supply for consumers. The resample taken at the same tap on 18th October, showed the water supply to be compliant with standards.

I am satisfied that the sudden increase in chlorine demand was caused by failure of the membrane plant allowing unfiltered water to pass through the treatment process.

The event has been categorised as significant. Scottish Water has identified seven actions which DWQR accepts are appropriate and will monitor to ensure they are completed prior to signing off the incident. DWQR made four additional recommendations.

