

# Incident Summary

## Rhenigidale WTW Trihalomethane (THM) failure January 2019

DWQR Inspector:  
Moira Malcolm

Event No. 9977

### Event Category: Significant

In December 2018 it was agreed at the North Treatment Control meeting to clean Rhenigidale clear water tank (CWT) as there were issues maintaining a stable final pH and it was thought that this might be caused by limestone being carried forward from the limestone contact tank. The tank was taken offline for cleaning and a temporary tank installed to maintain supply. Once cleaned the tank resumed duty. Six days later on 18 December the operator was called out to a plant shutdown from low chlorine. Air bubbles in the probe were removed and pipework altered to prevent recurrence. Over the following 33 days there were multiple callouts and plant shutdowns due to low chlorine. The chlorine dose was increased and shock dosing of the CWT was undertaken to maintain the residual at the target level of 0.5mg/l. Process science investigated membrane integrity but could find no issues that would explain for the low chlorine, concluding that this was a feature of the CWT – possibly due to the biofilm re-establishing inside the cleaned CWT.

On 21 January a trihalomethane (THM) failure of 145µg/l was reported, which prompted escalation and further investigation and it was agreed the following day to take the CWT out of service. A temporary tank was installed, but it was noted that the isolated CWT was still filling with water. It was discovered that the combined overflow and scour from the CWT shared the same outlet pipe as the reject water from the WTW. The vermin-proof screen in the end of the combined pipe was blocked and this allowed the reject water to back up in the pipework and enter the CWT via the common outflow. The temporary tank was kept on line until the pipework was separated and the CWT recleaned.

The cleaning of the CWT may have contributed to the blockage of the pipe. The extra chlorine added to compensate for the low final chlorine levels when combined with organic compounds in the CWT from the reject water and debris in the blocked pipe caused the THM failure.

The event has been categorised as Significant. Scottish Water has identified four 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.

