

Incident Assessment

Callanish DSR
Microbiology Failure
28th August 2015

DWQR Inspector:
Moira Malcolm

Event No. 7137

Event Category: Serious

Summary of Incident

On Friday 28th August 2015 Scottish Water's public health team (PHT) received notification that a routine scheduled sample taken from Callanish service reservoir (SR) on 26th August had detected coliforms and *E. coli*. Following discussion with health professionals a 'boil water' notice was placed on the area served by the SR. The SR was isolated and bypassed from distribution and bottled water was delivered to vulnerable consumers.

Specialist contractors were called out to evaluate the SR condition and discovered an earlier repair in 2013 was compromised, allowing the ingress of surface water. In addition, it was discovered that chlorine levels at West Lewis water treatment works (WTW) supplying the SR had dropped slightly over the summer months affecting chlorine residuals across the distribution network.

Over the next couple of days several bursts were reported downstream of the SR and repaired. These were attributed to the incorrect setup of the pressure reducing valve (PRV) used to bypass the SR. Once identified the PRV setup was corrected and no further bursts occurred.

Sample analysis was however delayed when samples transported as cargo from Stornoway via Glasgow Airport on Sunday 30th were not released because Glasgow Airport cargo staff do not work on Sundays so the samples could not be retrieved and taken to the Edinburgh lab for analysis until the Monday. This further sampling after the SR bypass gave no failures and the boil water notice was lifted on 1st September.

72 customer contacts were received during the period of the boil water notice, mostly for loss of water or further information; 3 were water quality complaints for milky/cloudy water and discolouration.

DWQR Assessment of Cause of Incident

The cause of the incident was the compromised structural integrity of the tank from a poor tank repair in 2013 which allowed ingress of ponding water on the surface of the tank. The less than optimal chlorine levels leaving the WTW did not significantly contribute to the failure, however the incident has highlighted the need for better control of chlorine residuals across the distribution system.

DWQR Assessment of Actions Taken by Scottish Water

Scottish Water took appropriate action to address and resolve the situation.

A number of issues are highlighted and are pertinent:

1. Adequate sampling was undertaken throughout the incident, however issues with transport at Glasgow Airport lead to delays in analysis and ultimately lifting the notice.

2. The reduced chlorine residuals within distribution were discovered during the investigation of the incident and highlight the need for better control of chlorine at the WTW and in distribution.
3. The incorrect pressure of the PRV resulted in bursts on the network and are likely to have caused the water quality consumer complaints received by Scottish Water during the incident. Better understanding is required of these valves by operatives to prevent compounding problems during incidents.
4. Some of the bottled water delivered to consumers was out of spec and contained black deposits. This out of spec water had previously been identified as an issue and removed from Scottish Water depots, however this did not occur in the Stornoway depot. Supplying poor quality water to consumers during an incident will increase the concern of consumers and erode consumer confidence.
5. The tank repair that caused the incident was poorly executed. This highlights the need for thorough inspection preceding post repair sign off.

The event has been categorised as Serious. 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.

