

Incident Summary

Darvel DSR Microbiological Contamination September - November 2022

DWQR Inspector:
Colette Robertson-Kellie

Event No. 13011

Event Category: Serious

A scheduled regulatory sample from Darvel SR on the 15th September 2022 failed the Coliform bacteria standard with 3 CFU/100ml, and the resample taken on the 17th September also failed, with 2 CFU/100ml. A sample taken from a downstream property complied with microbiological standards. A contractor was engaged to clean and inspect the tank, but taking the tank out of service presented a significant risk to the resilience of the supply; there was no bypass for the tank, the pumps supplying Darvel SR worked solely based on the level of water in the tank, and the supply area could not be rezoned since Darvel SR is the last tank on that branch of the network.

The regulatory sample from the 20th September also failed the Coliform bacteria standard; again the resample failed and the distribution sample passed.

Twice weekly dip sampling of the tank started on the 22nd September, and the initial dip sample complied with standards, as did a sample taken from the downstream distribution system. However, two samples taken from the outlet of the tank on the 22nd September failed the Coliform bacteria standard. The local Network Service Operator (NSO) and the Process Scientist carried out a 'high level preliminary investigation' at the tank that same day but found 'no obvious signs of ingress'.

Scottish Water replaced the sample line from the tank on the 28th September; samples taken from the new sample line and a dip sample tap both passed microbiological tests. The following morning, a scheduled regulatory sample failure from the tank outlet occurred,

which triggered twice weekly sampling in the downstream distribution system. A sample taken on the 1st October contained Coliform bacteria. On the 5th October, Scottish Water had a 'brief discussion' with the local Health Board and local authority at a scheduled liaison meeting and advised that the sample failures were likely caused by issues with the sample tap. On that same day two samples were taken; these also failed the Coliform bacteria standard. On the 6th October the sample line, sample tap and kiosk were replaced; samples taken on the 6th and 7th October from these new sample lines again failed the Coliform bacteria standard.

Samples from the 10th October then failed the Coliform bacteria standard, as well as from the 11th and 12th October. On the 13th October the sample line and tap were disconnected, and were relocated with a new sample tap kiosk by the 25th October – no samples were taken from the tank during this time, but samples taken from the network during this period complied with standards.



Attempts were made to bypass the tank on the 17th October, but maintaining supply to the area could not be maintained when flows were low. On the 18th October, as a temporary preventative measure against potential ingress, a tarpaulin was fitted to the roof of the tank and the tank was drained down. The pumps were set to a fixed flow which was higher than normal flow, and the tank outlet valve was closed (the tank inlet was left open to avoid over pressurisation of the main). The scour valve for the tank was left open so that water pumped to the tank would not go into supply, but instead would be dechlorinated and sent to a local watercourse. On the 19th October the tank was cleaned and inspected by a contractor; the contractor reported that without a tarpaulin on the roof of the tank, it would have failed its flood test and that there was 'visible significant (dripping or worse) ingress in multiple locations'. A post clean dip sample failed the Coliform bacteria standard from the 20th October when the tank was out of service. The tank was returned to service on the 24th October, but on the 27th October a network sample failed and resamples from the 29th and 31st October also failed. On the 2nd November a regulatory sample from the outlet of the tank, which had been taken the day before, was reported to have failed the standard for E. coli and the tank was removed from service the following day. NHS Ayrshire and Arran Health Protection Team was informed, and the tank remains out of service at this time.

In total there were 23 microbiological failures during this incident.

The cause of the incident was ingress of surface water into a treated water storage tank.

The event has been categorised as serious. 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 two additional recommendations.

