

# Incident Summary

Penwhirn WTW  
Process failure  
17 December 2017

DWQR Inspector:  
Matthew Bower

Event No. 9028

## Event Category: Serious

Early in the morning of 17 December, Scottish Water's Intelligent Control Centre (ICC) alerted operational staff to the fact that telemetry contact had been lost with Penwhirn WTW in Dumfries and Galloway. Attendance on site was delayed as the standby operator had been called out to an alarm at another water treatment works. When the operator arrived on site, over five hours later, it was found that the works was without power and the treatment process had shut down. The operator did, however, notice some water passing through the works without being treated. Issues with the PLC unit which controls the treatment were discovered, which prevented a rapid re-starting of the treatment process. In the end, the works started up and was run to waste at 23:30 that evening and fully restarted with water into supply at 02:20 on 18 December. Upon re-starting, the water was initially fully compliant with the regulations, but quality deteriorated and one and a half hours later, colour was 32 Hazen; 12 units over the regulatory standard and clearly noticeable to consumers. The water quality returned to compliance some 5 hours later. Twelve complaints were received by consumers that Scottish Water attribute to the discoloured water.

Scottish Water attributes the root cause of the incident to the failure of the battery operated UPS system to properly shutdown the treatment works when the power failed. Although there was a standby generator which should have taken over from the mains supply (and is tested regularly), on this occasion the fault with the PLC prevented this from happening. The battery in the UPS system only had sufficient charge to partially close the inlet valve to the works, enabling some untreated water to continue to flow. Scottish Water estimate this to have been a very small amount, although there is nothing other than visual evidence to confirm this.

Upon restart, the water flowing through the treatment process was of poor quality due to the disruption to the process that took a little while to settle down. This was initially noticed by consumers, although the situation improved once the process stabilised.

The event has been categorised as Serious. Scottish Water has identified nine actions which DWQR accepts are appropriate and will monitor to ensure they are completed prior to signing off the incident. DWQR made no additional recommendations.

