

Tullich Water Treatment Works, Oban Deteriorated Water Quality and Public Concern Dec 2012

DWQR Inspector:
Matt Bower

Summary of Incident

The ozone treatment process at Tullich WTW failed on 5 December, reducing the ability of the works to remove naturally occurring organic matter from the water and causing the water to be visibly coloured. Scottish Water increased chlorine residuals to compensate, and this, combined with the additional organic content of the water is likely to have increased trihalomethanes formation in the zone. A total of 53 consumers contacted Scottish Water to complain about the colour of the water and an article on the issue appeared in the Oban Times.

DWQR Assessment of Cause of Incident

The ozone gas generators at Tullich failed, meaning that no ozone could be produced. The malfunction has been attributed to a power surge. The removal of organic carbon at Tullich WTW is heavily dependent on the ozonation process at the site. When this failed, organics, and therefore colour, levels increased rapidly such that it was noticeable by consumers. Colour levels peaked at 27 mg/l Pt/Co (where the regulatory standard is 20). In response to the failed ozonation process, Scottish Water increased chlorine concentrations at the works to ensure microbiological quality remained good. This had the side effect of increasing the formation of trihalomethanes, a by-product that forms when chlorine reacts with organic matter in the water. Total THM in samples taken from the supply zone peaked at 220.6µg/l, more than double the regulatory standard.

DWQR Assessment of Actions Taken by Scottish Water

Scottish Water responded immediately to the failure of the ozone plant by increasing the chlorine dose and collecting samples from the distribution system. There were few other options open to the company, given the treatment processes present at this asset and the increased THM concentration was viewed as a necessary side-effect of protecting public health. Scottish Water swiftly arranged for the repair of the ozone generators, although this required assistance from several external companies. One ozone generator was operational two days later, and this had the effect of restoring water quality to compliance.

Scottish Water has identified that the treatment process at Tullich does not have the resilience to consistently deliver high quality water, and will be including the supply in its plans for capital investment during the next regulatory period. DWQR would support this and will aim to ensure that the appropriate solution is delivered as quickly as possible. Scottish Water intends to establish a service contract for the ozonation system. Disappointingly, this has been proposed previously (DWQR audit 2011) and Scottish Water must ensure that it now happens.

Scottish Water plans to build a new water treatment works for Oban within the current investment period.

Actions Identified by Scottish Water

Action Number	Action Description	Action Status
1	Establish a service agreement for the ozone generation equipment	Complete