

Assynt WTW Treatment Failures August and September 2010

DWQR Inspector:
John Littlejohn

Summary of Incident

On 16th August 2010, Assynt Water Treatment Works (WTW) shut down on a low coagulation pH alarm, causing a rapid loss of Clear Water Tank (CWT) - potable water storage. Manual changes had been made earlier in the afternoon to try to prevent a plant shutdown overnight due to a known hydraulic restriction within the lime dosing system.

The operator however was unaware that further software settings also required to be altered for the intervention to work. During the incident support for the local operatives was provided by specialist software engineers. Contingency measures were implemented across Assynt Water Operational Area (WOA) to try to safeguard customers' water supplies.

In addition to the pH alarm, there was found to be differential pressure between the WTW inlet control valve and the membrane (filtration stage) skid. This had occurred during the plant shutdown. The fact that this was not recognised meant that it was not possible to re-start the plant in a timely manner.

On the 17th August Scottish Water received two customer contacts from within the Assynt WOA relating to either low pressure or no water.

In a separate incident on 4th September 2010, a hose burst on the standby peristaltic final water lime dosing pump, the hose on the duty pump having burst 3 days previously. Whilst spares had already been ordered following the first hose failure, they had not arrived on site prior to the failure of the second. Consequently a temporary arrangement was undertaken using the standby coagulant lime dosing pump, with the normal final lime dosing pumps isolated. Strategic Service Reservoirs within the Assynt WOA were isolated to enable a slower loss of CWT storage, while the WTW was operated at a lower than normal throughput. The following day, a further plant shutdown occurred due to the temporary lime dosing pump not being able to maintain the required dose rate.

Given the low CWT levels at this time, discussions took place between Scottish Water's Public Health Team (PHT) and NHS Highland to consider alternative contingencies in the event of the plant being unable to be restarted. However by this time the cause of the plant failure had been understood and the works re-started. It was manned overnight and run at full capacity to recover CWT storage as quickly as possible.

During this second incident Scottish Water recorded a further 7 customer contacts of either no water or low pressure.

DWQR Assessment of Actions Taken by Scottish Water

DWQR audited Assynt WTW on 9th November 2010. As a result of this audit DWQR has made a number of recommendations to Scottish Water on improvements that could be made to minimise

the chance of a re-occurrence of the failures that caused the incidents. These recommendations are additional to any improvements Scottish Water have, or intend to, make as a result of their own investigation into the incidents. DWQR will monitor the implementation all improvements against an agreed timescale.