# Incident Assessment

## Camps WTW South Lanarkshire Process Failure December 2011

DWQR Inspector:
Matthew Bower

## Details of Incident

Camps Water Treatment Works (WTW) supplies water throughout much of South Lanarkshire. On 13 Dec the flow through the plant reduced due to a power issue. Chemical dosing should have reduced to match the water flow, however a software fault resulted in the aluminium sulphate dose actually increasing. The chlorination system was also not operating correctly, and chlorine concentrations dropped below normal levels. No alarms were received by Scottish Water's control centre, and the operator arrived on site the next morning to find Aluminium concentrations in water leaving the works to be well in excess of the regulatory standard.

## DWQR Assessment of Cause of Incident

The incident was caused initially by a fault in the software of the programmable logic controller that caused the aluminium dose to increase in response to reduced water flow rather than decrease as it should have done. The exact reason for this is being investigated by Scottish Water.

The incident was made significantly more serious by the lack of any water quality alarms that would have alerted operators to the problem at the time it occurred. The fault was due to work on upgrading the telemetry system at the site. Although not immediately apparent, it was discovered following extensive investigation that one aspect of the work had prevented alarms from the site from being relayed to Scottish Water's control centre whilst giving the appearance to staff running routine communications checks that there was no problem. This delayed the discovery of the problem by nearly 12 hours until the operator arrived on site the next morning.

## DWQR Assessment of Actions Taken by Scottish Water

**Actions to Protect Consumers**

Although operational staff worked quickly to restore quality on discovery of the problem and added additional chlorine to enhance the microbiological safety of the supply, the public health team at Scottish Water were not notified until 13:10 on 14 December, five and a half hours after the incident was discovered and 17 hours after it began. Scottish Water attribute this delay to a poor telephone signal, but accepts that escalation procedures were not followed. No communication with Lanarkshire NHS Board took place until 16 December when an event notification was emailed. NHS Lanarkshire have indicated that they would have expected to have been notified much earlier in order to facilitate a timely consideration of the impact of the elevated aluminium levels on public health. DWQR agrees that the notification and liaison processes during this incident have fallen far short of expectations – the lack of availability of a mobile telephone signal is not an acceptable excuse. Scottish Water has identified an action to review and issue revised event escalation processes and these need to bring about an improved response.

**Actions to Confirm the Quality of Water Supplied**

One sample for aluminium was taken from the treatment works on 14 December, and another the following day. The former showed aluminium at 563µg/l leaving the works at 13:30 on 14th. Two aluminium samples

were collected from consumers' taps on 14 December, with a further one on 15 December. All show very low aluminium concentrations . Microbiological quality also appears to have been satisfactory.

DWQR considers sampling during this incident to have been woefully inadequate and would have expected a greater number of samples to have been taken, both to establish the quality of water supplied to consumers during the incident and to demonstrate compliance once it was over. For example, sampling at storage points might have been helpful in providing this evidence.

**Actions to Restore Water Quality**

The Scottish Water operator on site appears to have acted promptly in restoring chemical dosing at the works and adding additional chlorine. The treatment process and quality of water both returned to normal fairly rapidly once the problem was discovered and rectified.

Scottish Water has committed to undertake 6 actions in response to this incident. DWQR will be tracking progress on delivery of these, especially the action to review the event escalation process. In addition, DWQR has made one additional recommendation:

| Recommendation Number | Recommendation |
|---|---|
| DWQR 1 | Review procedures for sampling during and after water quality incidents to ensure that account is taken of likely water travel time through the system and adequate data on water quality are obtained. |

DWQR would like to thank NHS Lanarkshire for their helpful comments received during the investigation of this incident.