

## South Uist WTW Loss of Incoming Supply 17<sup>th</sup> March 2015

DWQR Inspector:  
Moira Malcolm

Event No. 6793

### Event Category: Serious

### Summary of Incident

On the morning of 17<sup>th</sup> March 2015 the Water Operations Team conducted planned swabbing of the raw water main between the source at Loch Iarras and the water treatment works (WTW) at Stoneybridge on South Uist.

The WTW stopped production whilst the swabbing operation was in progress, and stayed off once swabbing was complete to allow the raw water pressure to build up in the main. Attempts to restart the works failed when the raw water flow did not increase and the matter was escalated. It was suspected that airlocks had occurred in the raw water main, thus hindering the inlet flow. The raw water main was checked for airlocks and tankering arrangements were made to recharge the two clear water tank (CWT) compartments at Stoneybridge.

By 17:00 the CWT levels had dropped to 5% and 32% capacity and the Public Health Team were informed. The WTW was switched back on at 18:00 but the inlet flow was very low and due to customer demand the CWT levels had dropped further. Site operatives tried to remove the airlock by opening and closing the inlet and flushing the basket strainers however the assumed airlock remained. As an interim measure the booster pumps on the network were turned off and CWT compartment 1 was isolated to try and improve the flow. By 19:00 the CWT compartment levels were 5 and 6% respectively and the inlet flow was still low and fluctuating. Telemetry was not available for the downstream service reservoirs (SRs) as the outstation was not operational so it was not possible to tell the water level at these points. By 20:30 the low inlet flow was making the WTW coagulation process difficult to control with aluminium levels rising so the water was diverted to waste. Tankering arrived to recharge the CWT.

During the next couple of hours the inlet flow to the WTW continued to fluctuate, dropping to zero flow at 23:45. Further investigation by the operations team found an airlock close to the works and bled the air out which increased flow to 7.6l/s. The works was put back into supply at 02:50 on 18<sup>th</sup> March when it had been established that the aluminium levels were compliant and the flow consistently above 10l/s. Another airlock was discovered and bled manually. Over the next few hours the works continued to recover and tankering was continued until 19:00.

Reactive sampling was undertaken and found manganese levels in SRs and at customer's taps above the prescribed concentration or value (PCV). 40 customer contacts were received for no water or low pressure. No contacts were received for discolouration.

## DWQR Assessment of Cause of Incident

The cause of the incident was a combination of insufficient and deteriorated air valves on the raw water main. These caused airlocks on the raw water main during the planned swabbing activity which restricted inlet flow to the WTW when the main was recharged. The manganese PCV failures were caused by disturbance in the sediment from the tanks entering distribution.

## DWQR Assessment of Actions Taken by Scottish Water

Despite planned swabbing of the raw main being undertaken on previous occasions with no issues, it was a planned activity and therefore was foreseeable that the event could occur, especially as it was known that airlocks could be an issue at this site. When the problem arose, Scottish Water worked quickly to resolve the issue, and escalated the incident appropriately.

Several issues were noted:

1. Customers experienced disruption to their water for almost 24 hours during the incident.
2. The incident raises issues with the maintenance of air valves. This was not identified as a risk on the Drinking Water Safety Plan for the works, despite the raw water main needing regular swabbing due to the shallow nature of the source water.
3. Appropriate reactive sampling was undertaken to demonstrate the effect of the event on consumers.
4. Site operatives acted promptly to identify the treatment issues associated with the low inlet flow, thus preventing further issues with aluminium and poorly coagulated water entering supply and compounding the ongoing problems.

The event has been categorised as Serious. Scottish Water has identified a number of actions and DWQR accepts that these are appropriate. Additionally, DWQR has made one recommendation following this incident and will be monitoring to ensure both it and actions are completed prior to signing off the incident.

