

## Glenlatterach WTW Loss of Raw Water Main 03 May 2010

DWQR Inspector:  
William Byers

### Summary of Incident

On the evening of 3<sup>rd</sup> May, the standby treatment operator was called to site to investigate a pH alarm. On arrival he found that no raw water was entering the works. Checks within the treatment works found inlet controls appeared to be operating normally and investigations concentrated on the raw water supply route. The operators discovered early next morning that a landslide had carried away approximately 30m of the 15" diameter raw water main.

The raw water main between the reservoir and the works is laid along the side of a deep wooded gorge and due to the difficult topography, it was too dangerous to attempt an immediate online repair and it was decided to install a temporary pipe. This involved establishing temporary pumps at the reservoir and laying some 1.5km of pipeline which was achieved by 6<sup>th</sup> May. The temporary nature of restoring the raw water supply to the works however meant only a reduced level of flow was achievable and complete automatic control of processes within the works was not possible. The reliability and variability of flow and the need to manage process manually lead to aluminium and ammonium failures at the works.

As the landslide was within a Site of Special Scientific Interest (SSSI) and within an unstable area, there were a number of restrictions and H&S issues that had to be addressed before any permanent repair work could proceed. Once all interested parties had agreed that work could commence on site, the contractor completed the work within three weeks allowing normal water flows and automatic control to be restored to the works by 6<sup>th</sup> August.

### DWQR Assessment of Cause of Incident

The loss of the raw water supply route due to a landslide was clearly an event which could not have been predicted. The necessity of operating the works with a significantly reduced inlet flow via the temporary pumping and pipeline arrangements meant however that the site required a significant level of manual intervention to maintain water quality. Both the high aluminium and high ammonium failures occurred within the initial period and once the reliable operation was established there were no further failures.

### DWQR Assessment of Actions Taken by Scottish Water

Scottish Water reacted promptly to the alarm from site and carried out appropriate investigation and response through the developing situation. Rezoning of supplies from neighbouring systems and a regime of tankering water to the storage tanks at Glenlatterach ensured the effects on consumers were minimised. When the treatment works was operating with the temporary arrangement, there was an inability to automatically control the alteration of chemical dosing to follow changes in raw water flow when either of the pumps failed. A number of difficulties were also encountered with

control of process which stemmed from air in the raw water and whilst it is understood that the type of temporary pipeline utilised presents this difficulty, perhaps measures to vent the air en-route would have allowed Scottish Water to gain more control earlier. This problem was compounded due to the extended outage while permanent repairs to the raw water pipeline were designed and constructed. Whilst it is disappointing that this took a lengthy period to agree design and construction methods with stakeholders, Scottish Water and its contractors worked quickly on site to make the repair including utilisation of a helicopter to transport the huge quantity of hardcore required to stabilise the area.

Scottish Water has identified actions from this incident. DWQR accepts that these are appropriate and will be monitoring to ensure they are completed prior to signing off the incident:

| Action Number | Action Description  | Completion Date |
|---------------|---|-----------------|
| 1             | Review need for automatic dosing control system for low flows into the WTW and consider if it requires to be altered. | Completed       |
| 2             | Water Operations Manager to Circulate the Final Report to all other Water Operations Managers                         | Completed       |

Additionally, DWQR has made recommendations following this incident:

| Recommendation Number | Recommendation   | Completion Date |
|-----------------------|--|-----------------|
| DWQR 1                | Ensure risk of landslip is included in the forthcoming drinking water safety plan for Glenlatterach.     | March 2011      |
| DWQR 2                | Transfer experience of the incident to other vulnerable sites with mains routed through steep gradients. | Completed       |