

Kilmuir Water Treatment Works Compromised Raw Water Quality February 2012

DWQR Inspector:
Matt Bower

Summary of Incident

Work to construct a new treatment works at Kilmuir on Skye required the construction of a new access road. This was to be built across land near to some of the springs supplying raw water to the works. Soon after construction had commenced, deteriorating raw water quality was noted at the works, by way of increased turbidity. Although work on the road was quickly stopped, further water quality exceedences occurred over a number of days, including for turbidity, aluminium and iron. As the existing works had minimal treatment, any impact on raw water also affected the final water supplied to consumers. Elevated *Cryptosporidium* counts were also noted in the supply during April.

Modifications to the spring collection system were made and temporary filtration equipment was installed on site by mid-May. The scope of the project was reviewed and it was decided not to construct a treatment works at Kilmuir, and instead to supply it from an upgraded works nearby. In the interim, temporary treatment is in place.

DWQR Assessment of Cause of Incident

The hydrogeology of the spring system at Kilmuir was not entirely understood when construction commenced on site, and a number of assumptions were made. The investigation work that had taken place beforehand had not revealed any potential impacts on water quality or spring yield, however a full investigation was not done and no accurate drawings were available for the source.

DWQR is of the opinion that, although some efforts were made to evaluate the risk to the source from the proposed work, these were not adequate.

DWQR Assessment of Actions Taken by Scottish Water

Scottish Water and Scottish Water Solutions quickly realised that the construction of the road was impacting upon the quality of the source and put a stop to the work, although final water quality was not compliant for a period of five days. Appropriate sampling was undertaken and, eventually, temporary treatment was installed to protect consumers.

The alternative solution implemented for the site reduces the need to use the springs and ensures appropriate treatment is in place.

Scottish Water Solutions has identified three actions that are necessary in order to prevent the occurrence of a similar situation at other shallow groundwater sites. These include the requirement to consult with a hydrogeologist prior to the commencement of work within 50m of any spring or other shallow hydrogeological source. DWQR considers this to be appropriate and would expect a comprehensive awareness of the characteristics of the source and a full assessment of risk to be in place before any work can begin.

Action	Date
Project delivery procedures to be updated to reflect that all projects involving spring or shallow hydrogeological sources, or within a 50m radius of such a source, consult a hydrogeologist in the early design stage to review the potential risk.	31/3/13
Project delivery procedures to be updated to reflect a requirement for a HAZCON (Hazards in Construction) assessment to be carried out where construction works are within a 50m radius of an existing live asset.	31/3/13
Kilmuir report to be circulated to Senior Construction Managers in SWS to share lessons learnt.	28/2/13

