



## PRIVATE WATER SUPPLIES – CASE STUDY 2013/17

### **Illness reported by a visitor to a holiday cottage where the multi-barrier approach to water treatment had not been followed**

This case study involves a private supply to two cottages, one of which is let out as a holiday cottage. Spring water collects into a holding tank on the hillside and then passes through a coarse filter (approximately 50 microns) and feeds by gravity through plastic pipework to both houses. At the holiday cottage the water is filtered again through a 50 micron filter before being disinfected with ultraviolet (UV) light before it is drawn from kitchen and bathroom taps. There is a completely separate untreated rainwater supply for toilet flushing at the holiday cottage. The two coarse filters on the spring supply are changed weekly and the lamp on the UV unit is changed annually.

After returning home to Scotland from a week's stay in September in a holiday cottage in Wales, a lady contacted the Inspectorate to report her concerns about the water supply at the cottage. She had fallen ill with a stomach upset on the third day of her stay. Her partner who had chosen only to drink bottled water during the stay was not ill. Suspecting the water supply, she and her partner had investigated its origins by climbing up the hillside where they had observed the water flowing down overgrown land prior to being collected in the holding tank. They were concerned that there appeared to be no protection against faecal contamination from wildlife or grazing animals. Back home the lady discussed her concern for others staying in the holiday cottage with a friend who worked for a water company. It was only through this link that the lady was able to identify a route by which she could raise her concerns. Following this contact the Inspectorate notified the local authority of her complaint and asked that it be investigated.

The local authority had a record of the supply, but it was registered as a single domestic dwelling not as a shared domestic supply to two properties (Regulation 10) or a holiday let (Regulation 9). This meant that the local authority had not carried out a risk assessment, although samples had been taken in 2012 and again in 2013 on the request of the owner. It transpired that shortly before the Inspectorate referred the complaint to the local authority, the owner had informed the local authority that he was letting the property out to visitors. Based on this information, the local authority reclassified the supply as Regulation 9 and this meant that a risk assessment would have been carried out in the fullness of time.

Following the complaint, the local authority visited the site in November 2013 to carry out a risk assessment and to discuss matters with the owner. At that time, the owner of the land on which the source was located was not available so the source could not be assessed. Ever since that time, the weather conditions have been such that access to the source has not been practicable. At the time of the visit, the local authority was able to confirm that treatment was in place and



appeared to be working, although they did make recommendations about the need for keeping records of maintenance. The owner reported a concern that there may have been some vandalism of the upper part of the supply; however, even under normal operating conditions the Inspectorate is of the opinion that the coarse filters would not have been sufficient to adequately prepare the water for disinfection. Spring sources are prone to rapid water quality changes and any suspended or dissolved matter can mask contaminants from exposure to UV light, as well as fouling the lamp, leading to a failure of inactivation of pathogens like *Cryptosporidium*.

*Local authorities are advised to ensure that UV disinfection units installed on private supplies with a surface water source are protected by first passing through a series of two filters, for example a 10 micron filter followed by a 1 micron filter. A single coarse filter (50 micron) will be ineffective and a single 1 micron filter is likely to quickly become blocked and malfunction. This advice follows the well established 'multi-barrier' principle advocated by WHO.*

