



PRIVATE WATER SUPPLIES – CASE STUDY 2013/06

Case of *E.coli* 0157 associated with a private supply to a rented property

This case study involves a private supply to two domestic premises; one owner-occupied, the other rented out. In November 2013, the local authority was notified by Public Health England (PHE) that the tenant had been hospitalised due to a confirmed infection with *E.coli* 0157. Other sources of *E.coli* 0157 infection having been ruled out, the water supply was considered the most probable route of transmission.

The source of the water supply was a well sunk into a minor aquifer, deemed vulnerable to pollution by the EA due to the nature of the overlying soil and flow characteristics of the aquifer itself. However, the well was located in a field used for grazing cattle. The wellhead works were raised above ground level and protected with a suitable inspection cover. Water from the well is fed into two black plastic tanks located inside a secure outbuilding.

Water from the tanks is passed under pressure through pH correction media and is then disinfected with UV. The treated water is then distributed to each of the properties.

In June, some time before the tenant fell ill, the local authority had carried out a risk assessment, which identified the need for stock proof fencing around the well and an appropriate maintenance schedule for the treatment system. Monitoring carried out at the time showed the pH level was below the drinking water standard (6.0) and the supply also failed the standard for manganese at a level of 86µg/l. To remedy this, the owner arranged for the pH media to be replaced and set up a maintenance schedule. The local authority had a policy of not taking formal action to secure private supply improvements with action being left to the discretion of the supply owner.

Figure 15: Black plastic storage tanks



When the local authority and PHE visited the site in response to the tenant contracting an *E.coli* 0157 infection, it was evident that the stock proof fencing had only just been erected. Additionally, it was found that the UV disinfection system lacked a pre-filter and the water exhibited a turbidity value of 8.5NTU (compared to the standard of 1NTU for water prior to disinfection). *E.coli* 0157 was detected in a sample of the raw water together with other faecal indicators. The local authority formalised advice to boil water in a Regulation 18 Notice and required the water supply system to be cleaned and disinfected, and a filter to be installed before the UV unit.

The local authority returned to the site a month later to verify that the remedial works had been carried out. Although samples on this occasion were satisfactory for turbidity and faecal indicators, there were still elevated levels of manganese and also aluminium, and the pH levels were not stable. On this occasion the local authority advised the owner of the supply to install iron and manganese removal treatment, and to fit a pH monitor that could be used to regularly check and adjust the treatment.

Figure 16: New 5 micron cartridge filter prior to UV disinfection



The case study highlights why the Inspectorate recommends that local authorities should be reviewing and updating local policies governing how they discharge their private supply duties. In this instance, although deficiencies in the supply were identified during the original risk assessment, because the local authority obtained a satisfactory sample at the time, only informal advice was given. It remains a common misperception that a risk assessment cannot or should not be acted upon if a sample taken at the time is satisfactory. Some local policies take a generic approach, assigning small supplies to a lower risk than large supplies; however, this too is misguided. The approach to enforcement should have regard to the risks inherent in the behaviour known to be associated with the persons responsible for different types of private supply. Non-compliant behaviour is far more frequent among owners of small domestic supplies and this group are also more likely to take a DIY approach to maintenance of the water supply when they lack appropriate knowledge.

This case study also emphasises the importance of classifying tenanted properties as Regulation 9, thereby subjecting them to more robust scrutiny. Tenants are a transient population who are more at risk than owner-occupiers. In this case, the person who fell ill was an otherwise healthy adult, which reaffirms that poorly managed private supplies are a risk to wider public health, not just an issue for especially vulnerable individuals.

The Inspectorate recommends that those few local authorities that have adopted a policy of not classifying rented properties as Regulation 9 take special note of this case study and reconsider, especially in light of their responsibilities under the housing law and a landlord's duty to provide a wholesome supply of water. It should be noted also that, in this case, neither the landlord nor the local authority has a robust due diligence defence against a claim from damages made by the injured party.