



PRIVATE WATER SUPPLIES – CASE STUDY 2013/08

The public health value of keeping records of private supplies whether or not these are used for domestic purposes

This case study concerns a situation that arose in a rural supply area where the domestic water supplies are made up of a mixture of public and private supplies. A householder contacted the local water company when he suspected illness in the family was due to the water supply. The water company took samples straightaway from the property and one nearby. The next day the results of both samples showed the presence of *E.coli* (>100 per 100ml) and boil water advice was given by the water company while they investigated further. It was noted that the microbiological failures were associated with water of a distinctly different chemistry to the mains water supply; for example, low pH and high conductivity. This observation was strongly suggestive of a cross connection with another source of water in use on a local premises, so the company extended the boil water advice to all 47 properties located downstream of their local service reservoir. The area assessed at risk and safeguarded was defined by drawing on additional information such as satisfactory samples upstream of the service reservoir, knowledge of the network and sampler observations (water appeared discoloured).

The water company informed the local authority and PHE. There was just one private water supply on the local authority register and this was a single domestic dwelling for which there was no other information, as the owner had not requested monitoring and risk assessment. The water company carried out a fittings inspection at this premises and found no cross connection to the mains water supply.

Extensive sampling of consumers' taps in the area by the water company uncovered three other premises with a mains water supply and a private water supply (details not on the local authority register). Tap samples from two of these premises contained *E.coli*. Local authority site checks established that these private supplies fed animal troughs on the farms and were not used as part of a milking parlour or for any domestic purpose. Of these three supplies, the water company's inspector found one farm with an operational milking parlour, where mains water and a private supply were being blended in a storage tank. The fittings inspection showed that there were adequate air gaps to prevent back siphonage from the water storage tank and the animal water troughs.

During the event investigation, the local authority and water company met with the owner of the unoccupied farmhouse with a milking parlour. The farmhouse owner lived in an adjacent cottage that was connected to the mains supply. He had previously notified the local authority that the



farmhouse was unoccupied and the milking parlour not in use, but intended to connect the farmhouse and milking parlour to the mains. The consequence of this notification was that the local authority removed details of this private supply from its records.

As part of this joint investigation, the water company installed double check valves on the mains connection to each of the premises where another source of water was found. After dealing with these potential sources of contamination and mitigating the risk to the mains supply, the water company flushed and disinfected its network and increased the residual chlorine level at the upstream service reservoir.

Although the source of the contamination could not be definitively traced, water samples from the private supply serving the unoccupied farmhouse contained *E.coli* and the water chemistry was different to mains water. In all likelihood this event occurred when some type of temporary cross connection was made on this or another premises in the locality.

This case study illustrates the heightened risk to mains water supplies in rural areas where there is a mix of public and private supplies. It shows the public health value of local authorities recording the details of all sources of water used on premises in their area, whether or not these are single dwellings, and irrespective of whether they are used for domestic purposes. A local authority record is not intended to be solely about private supplies used for domestic purposes that require sampling and risk assessment. Keeping as full a record as practicable, covering all types of private supply, enables a rapid and effective multiagency response to a wide range of situations, not just suspected water supply contamination events, but also, for example, flooding events.

The Inspectorate recommends that local authorities develop links with property management and letting agents, estate agents and local solicitors advising them, by leaflet, about private supplies and encouraging them to provide information to help with the development of the private supply record.

