



PRIVATE WATER SUPPLIES – CASE STUDY (2011/04)

Use of Environment Agency data to inform audit monitoring

This small borehole supply is located in grazing land for dairy cattle and serves two domestic dwellings and a milking parlour. The supply is disinfected with chlorine before distribution to all the properties on the site. The supply has a record of satisfactory microbiological results, although historically only a limited chemical analysis was carried out on samples.

As part of a desk-top risk assessment prior to visiting the site, the local authority sought advice from the local water companies to identify which parameters occurred on local water supplies. Approximately 20 parameters were identified and tested for during the initial samples taken under the new regulations in November 2010. Boron was not one of these, however, as part of the analysis for lead and arsenic the laboratory also obtained a result for boron. As the concentration obtained was 3.0mg/l compared to the standard of 1.0mg/l, the laboratory reported the result to the local authority along with the other parameter results.

Boron compounds are used in the manufacture of glass, soaps and detergents. Boron occurs in many edible plants and can be found naturally in groundwater but its presence in surface water is most likely to be as a consequence of the discharge into water courses of treated industrial or sewage effluents. The WHO guideline value for boron in drinking water reflects the fact that exposure is mainly from food. To establish the likely origin of the boron the local authority undertook further sampling from the supply and also obtained raw water data collected for environmental monitoring purposes from the borehole by the Environment Agency. These results verified that the levels in the borehole were typically around 3.0mg/l.

The Health Protection Agency advised that at the concentrations measured there was no reason to expect adverse health effects in adults and children, but recommended that infant exposure should be reduced. The local authority established that there were no infants resident at any of the properties and therefore advised users of the supply that long-term improvements would be required to meet the boron standard for the whole supply, including the milking parlour. The users were given 12 months to investigate treatment methods including blending options, and after this period and depending on the information available, the local authority will consider the need for more formal enforcement action.



Following this case the local authority reviewed boron data for groundwater in their area and they concluded from this risk assessment that the parameter should be tested for in all supplies in the area. Since then a further five private water supplies have been found to contain boron at levels above the standard.

This case illustrates the importance of taking steps to access data held by the Environment Agency to inform the process of risk assessing private water supplies and identifying audit parameters.

