

informed decisions on the control measures needed. This may be achieved by running the tests in parallel with traditional culture-based methods, such as dip slides, for a period.

Monitoring for legionella

1.125 Routine monitoring, specifically for the presence of legionella, should be undertaken at least quarterly. Table 1.10 gives guidance on the interpretation of legionella results and recommended actions.

1.126 More frequent sampling may be necessary for other reasons, such as:

- to help identify possible sources of the bacteria during outbreaks of legionnaires' disease;
- when commissioning a system and establishing a new or modified treatment programme – for which sampling should initially be carried out weekly and the frequency reviewed when it can be shown that the system is under control;
- if a legionella-positive sample is found, more frequent samples may be required as part of the review of the system risk assessment, to help establish the source of the contamination and when the system is back under control (see Table 1.10);
- the risk assessment indicates more frequent sampling is required, eg close vicinity of susceptible populations.

1.127 The sampling method should be in accordance with BS 7592:2008 *Sampling for Legionella bacteria in water systems. Code of practice*¹³ and the biocide neutralised where possible. Neutralisation can be difficult when non-oxidising biocides are in use. It is important that samples reach the laboratory without delay, and that laboratory staff are informed of whether neutralisation has been possible or active biocide is likely to remain in the sample. As non-oxidising biocides are applied in shot dosages, where possible, the water sample should be taken immediately before an application of biocide to minimise the impact of the biocide on the test result.

1.128 Samples should be taken from the circulating water system near to and downstream of the heat source. They should be tested by a laboratory accredited through UKAS to EN ISO 17025:2005 *General requirements for the competence of testing and calibration laboratories*.¹⁴ Testing for legionella by culture should be done in accordance with BS 6068-4.12:1998/ISO 11731:1998 *Water quality. Microbiological methods. Detection and enumeration of Legionella*.¹⁵ The laboratory should also apply a minimum theoretical mathematical detection limit which is usually that of less than, or equal to, 100 legionella per litre of sample for culture-based methods.

1.129 Legionella are commonly found in almost all natural water sources, albeit in low numbers, so sampling of water systems and services may often yield positive results and the interpretation of the results of any case of sampling should be carried out by experienced microbiologists. Failure to detect legionella should not lead to relaxation of control measures and monitoring. Neither should monitoring for the presence of legionella in a cooling system be used as a substitute in any way for vigilance with control strategies and those measures identified in the risk assessment.