SAS WATER | Legionella Control & Water Hygiene

A guide to
Water Sampling and Testing

Understanding the Risk

Water sampling and testing play a critical role in verifying that water systems remain safe, controlled, and compliant. While control measures such as temperature monitoring and flushing help reduce risk, sampling provides the evidence needed to confirm that those measures are working effectively.

Microbiological contamination, including Legionella and other bacteria, can develop even in systems that appear to be well managed. Without regular testing, these risks may go undetected until they pose a serious health concern. Sampling allows organisations to identify potential issues early and take corrective action before they escalate. Water testing is particularly important in higher-risk environments such as healthcare settings, care homes, leisure facilities, and large commercial buildings, where water systems are more complex and usage is varied.

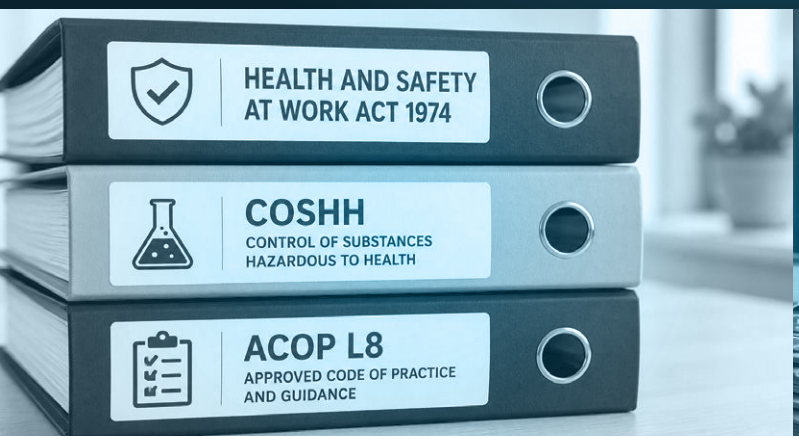
Sampling typically focuses on:

- **Legionella bacteria**
- **Total Viable Counts (TVCs)**
- **Pseudomonas and other waterborne organisms**
- **Chemical parameters where applicable**

Testing results provide a clear indication of system performance and whether control measures are effective. They also support ongoing monitoring, trend analysis, and compliance reporting.

Without a structured sampling programme, organisations cannot demonstrate that their water systems are being effectively managed. Water sampling and testing therefore act as a critical verification step within any water hygiene programme, ensuring risks remain controlled and compliant over time.

The Legal Framework
and Duty of Care



Water sampling and testing are not standalone requirements but form a key part of demonstrating compliance with UK health and safety legislation. They provide evidence that control measures identified within a Legionella risk assessment are effective and that water systems remain safe for use.

HEALTH SAFTEY AT WORK and COSHH

Under the Health and Safety at Work etc. Act 1974, organisations must ensure the safety of employees and others who may be affected by their operations, which in the context of water systems includes verifying that water quality does not pose a risk. This is reinforced by the Control of Substances Hazardous to Health Regulations (COSHH), which require organisations to prevent or control exposure to harmful substances such as Legionella bacteria, with water sampling and testing providing the validation that control measures identified within risk assessments are working effectively in practice.

ACOP L8 and HSG274

Guidance set out in ACOP L8 and HSG274 reinforces the importance of monitoring and verification. These documents make clear that control measures must not only be implemented but also checked regularly. Water sampling and testing provide this verification, ensuring that systems remain under control.

For organisations, this means sampling is not optional and forms part of a wider compliance framework, with responsibilities including:

- **Establishing a suitable sampling programme based on system risk**
- **Ensuring samples are taken from representative locations**
- **Using UKAS-accredited laboratories for accurate analysis**
- **Reviewing results and taking action where required**
- **Maintaining records to demonstrate compliance**

These responsibilities sit with the duty holder and must be supported by competent individuals or specialist providers. Sampling frequency and scope should be based on the findings of the risk assessment and the level of risk within the system.

In healthcare environments, additional requirements apply under HTM 04-01, which sets stricter expectations for water quality monitoring, including more frequent sampling and tighter control limits due to increased patient vulnerability.

The Sampling and Testing Process

Water sampling and testing follow a structured process designed to ensure accurate, representative, and reliable results. This process supports ongoing monitoring and provides the data required to assess system performance.

The core steps typically include:

01 Sampling Plan Development

Identification of suitable sampling points based on system design, risk areas, and usage patterns. This ensures samples are representative of the overall system.

02 Sample Collection

Water samples are taken from selected outlets or system points using controlled methods to avoid contamination. Sampling may include both routine and investigative testing.

03 Laboratory Analysis

Samples are analysed by UKAS-accredited laboratories to test for microbiological and chemical parameters. This may include Legionella, Total Viable Counts, and other relevant indicators.

04 Result Interpretation

Test results are reviewed by a competent analyst against recognised guidance limits to determine whether control measures are effective or if further action is required.

05 Reporting and Action

Results are documented, and where necessary, corrective actions are identified to address any issues. This may include system cleaning, disinfection, or adjustment of control measures, recommended by a qualified advisor.

Water sampling forms part of a wider monitoring strategy and should be carried out at a frequency defined by the risk assessment. It is not a replacement for routine control measures but a method of verifying their effectiveness. The process must be carried out by competent personnel and supported by accurate documentation. Reliable sampling ensures that organisations can respond quickly to any changes in water quality and maintain compliance with regulatory expectations.

The Sampling and Testing Process

Water sampling and testing should follow a structured schedule aligned with the level of risk within the water system. The frequency and scope of sampling are determined by the Legionella risk assessment and should reflect system complexity and usage.

A typical approach includes:

01 Initial Sampling Programme

Sampling is established based on risk assessment findings, identifying key locations and parameters to be tested.

02 Routine Monitoring

Regular sampling is carried out at defined intervals, which may include monthly, quarterly, or annual testing depending on risk level.

03 Trend Analysis and Review

Results are reviewed over time to identify patterns, ensuring control measures remain effective.

04 Trigger-Based Sampling

Additional sampling is carried out where required, such as:

- **Following system changes or modifications**
- **After cleaning or disinfection**
- **If monitoring indicates a loss of control**
- **In response to positive or abnormal results**

05 Ongoing Compliance

Sampling continues as part of a long-term water hygiene programme, ensuring systems remain safe and compliant.

Maintaining a consistent sampling timeline ensures that water quality is continuously verified, supporting proactive risk management and compliance.

Spa Pools & Hot Tubs
– Additional Risk Considerations

Water sampling and testing for spa pools and hot tubs require a far more intensive and controlled approach than standard water systems. Warm temperatures, constant agitation, and aerosol generation create ideal conditions for Legionella growth and transmission, significantly increasing the level of risk. As a result, testing is not a periodic activity but a critical part of ongoing system control.

Sampling plays a key role in verifying that disinfection, filtration, and overall system management are effective. In spa environments, water quality can change rapidly, meaning loss of control can occur in a short timeframe if not closely monitored. Regular sampling ensures that any developing risks are identified early and addressed before they escalate.

Guidance set out in HSG282 places strong emphasis on structured and risk-based sampling programmes. For Legionella specifically, microbiological sampling should be carried out at least quarterly as a minimum requirement. However, the exact frequency and extent of sampling must be determined by the site-specific risk assessment, taking into account factors such as usage levels, system design, and historical performance.

Sampling should be undertaken while the spa pool is in operation, ideally during periods of high usage or immediately afterwards. This ensures results accurately reflect real operating conditions and provide a true indication of risk. Samples must be taken from representative locations within the system, including areas where conditions may be more favourable for bacterial growth.

All Legionella analysis must be carried out by laboratories accredited by the United Kingdom Accreditation Service to recognised standards. This ensures that results are accurate, reliable, and suitable for demonstrating compliance.

Results must be carefully reviewed and recorded as part of the overall water management programme. Any detection of Legionella requires immediate investigation and corrective action, which may include system shutdown, cleaning and disinfection, or review of control measures.

Water Sampling with SAS Water Ltd.

Water sampling and testing are essential for verifying that your water systems are safe, controlled, and compliant. Without accurate testing, risks may go undetected, and control measures cannot be fully validated.

SAS Water Ltd

Provides professional water sampling and testing services, supported by UKAS-accredited laboratory analysis and expert guidance.

Our tailored programmes ensure your water systems are consistently monitored and fully compliant.

Contact us today

To discuss your requirements and ensure your water systems are effectively tested, monitored, and managed.

SAS WATER | Legionella Control & Water Hygiene

www.**saswater**.co.uk