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Accreditation Requirements for Sampling and Testing in Accordance with the Drinking Water Testing Specification (DWTS)

Contents

Changes since last edition

Section 4.1 Amended
Section 5.5 New - reference to Drinking water regulation requirements
Section 5.6 New - reference to Drinking water regulation requirements
Section 7.1 and 7.2 Amended references
Section 8.1 Amended
Section 8.2 New
Section 9.2 Minor amendment; LAB 39 replaced by GEN 4
Section 10.1 LAB 3 replaced by GEN 1
Section 10.2 f) Amended, m) New
Section 10.3 Rewording: that all methods will have been included at least once in the four-year assessment cycle. Methods deemed by UKAS to be of higher risk, will be assessed or vertically audited more often.
Section 10.4 d) Samplers assessed over 5 years, g) New
Section 10.6 and 10.7 minor amendments
Section 12 references updated

1. Introduction

1.1 This publication has been prepared by UKAS in collaboration with the Regulators, i.e. the Drinking Water Inspectorate of England and Wales (DWI), the Drinking Water Quality Regulator for Scotland (DWQR), and the Drinking Water Inspectorate for Northern Ireland. It sets out how the requirements of ISO/IEC 17025 and the Agreement between the UK regulators and UKAS shall be interpreted when applied to organisations undertaking sampling and/or testing of drinking water.

1.2 The publications ISO/IEC 17025 and the agreement between UK regulators & UKAS remain the authoritative publications and in cases of dispute, and after consultation with the relevant Regulator, UKAS through the appropriate Assessment Manager will adjudicate on unresolved matters.

1.3 This document does not alter or remove the regulatory duties of any company, laboratory, organisation or Regulator nor the right to specify additional requirements under the terms of the agreement between UKAS and the Regulators.

1.4 The accreditation of sampling and analysis under the DWTS scheme will include all regulatory drinking water quality parameters undertaken, whether a listed parameter or not, if it is collected and analysed as part of the determination if water meets the relevant regulations.

1.5 The absence of an appropriate accreditation implies that a laboratory, and therefore the responsible person, does not comply with the minimum requirements of the Regulations.

1.6 The definitions of certain terms used in this publication are given in section 11.

2. Regulatory Requirements for Drinking Water Sampling and Testing

2.1 The current regulatory regimes in the UK meet the minimum requirements of EC Directive 98/83/EC. They require whoever is responsible under the respective regulations to meet specified requirements in respect of the collection, transport and analysis of samples of the water that is supplied. This includes a requirement to have the samples analysed by a laboratory which has a system of quality control that is subjected to checking from time to time. This checking is by a person who is approved by the Member States' competent authority for that purpose. In the UK this directive covers both public and private supplies.

2.2 In England and Wales the DWI advises the Secretary of State for the Environment and the National Assembly for Wales on their powers and actions relating to drinking water quality, and Inspectors are appointed to act on their behalf for England and Wales. In Scotland and in Northern Ireland a similar role is undertaken by Inspectors appointed to act as technical assessors within the appropriate body, the Drinking Water Quality Regulator for Scotland, and the Drinking Water Inspectorate for Northern Ireland.

2.3 This publication details or refers to the specific requirements for drinking water testing transport and sampling necessary to enable Regulators to use evidence from UKAS assessments as part of their assessment of drinking water sampling and/or testing organisations and compliance with the regulations. The assessment procedures are detailed in section 10 of this publication.

2.4 The requirements contained in this publication constitute the Drinking Water Testing Specification. Laboratories wishing to be accredited for the purposes of this specification shall authorise UKAS, in writing, to provide the appropriate regulator as soon as reasonably practicable with details of:

a) any application for such accreditation;

b) any changes to scope of accreditation;

c) a copy of any report made by the UKAS assessment team in relation to that application;

d) any decision or conclusion reached by UKAS in relation to that application;

e) any suspension, revocation or voluntary withdrawal of accreditation; and

f) any contravention of an accreditation to that specification and the steps taken to correct it.

2.5 UKAS shall not grant accreditation or agree to the retention of accreditation to the Drinking Water Testing Specification unless the requirements of that specification have been met in full.

3. Basic Requirements of DWTS

3.1 The procedures used by the laboratory shall comply with the relevant requirements of the Regulations, and should also follow the relevant Guidance Document. Reporting procedures shall be sufficiently detailed and timely to permit the appropriate body, the water undertaker, water provider, local authority, the regulator or any designated contractor to carry out the relevant actions described in the Regulations as soon as may be after the result of analysis is known to the laboratory.

3.2 A laboratory must be able to show that where it does not follow the Guidance Document, it still fully complies with the Regulations.

3.3 The laboratory shall retain records for a defined period of time of not less than six years. This period of time shall take into account the need of the customer (procurer of the analytical services) and the need to submit these records to the regulator, if requested.

4. Sampler and Analyst Training

4.1 Water sampling undertaken as part of this specification shall be carried out by suitably trained water quality samplers taking account of the requirements of the regulations and relevant guidance. This training shall be documented and reviewed as appropriate. This applies to all sampling activities undertaken to demonstrate compliance with the regulations, including those taken from new sources, in relation to customer complaints, and investigation of events.

4.2 Training of laboratory analysts and those who conduct on-site testing shall be consistent with the guidance issued by the Regulators in relation to competency. This training shall be documented and renewed as appropriate.

5. Field (Site) Testing and Sampling

5.1 All drinking water compliance testing undertaken away from the laboratory shall be accredited by UKAS. All those carrying out such field tests for chemical, physical or microbiological parameters shall comply with ISO/IEC 17025.

5.2 All sampling activities to establish drinking water compliance which are under the control of the laboratory or whomsoever is the responsible person or company shall be accredited by UKAS. All laboratories carrying out such sampling for chemical, physical or microbiological parameters shall comply with ISO/IEC 17025.

5.3 In addition to meeting the UKAS requirements for sampling accreditation, the sampling manual used by the laboratory shall include as requirements, those matters relating to the taking, transport and storage of samples described in the Regulations or the Guidance document.

5.4 The system of internal auditing shall include a witness audit of all samplers on at least an annual basis.

5.5 Samples are required to be ISO 5667:5 from treatment works and service reservoirs.

5.6 Microbiological samples are required to be taken in accordance with EN ISO 19458 using sampling purpose A in the distribution network and sampling purpose B at customer's taps.

6. Analysis of Chemical and Physical Parameters

6.1 Laboratories shall comply with the requirements of the Regulations when selecting analytical methods and should follow the guidance given in the Guidance Documents, regarding both the general and specific guidance of the selection of analytical methods. Other documents, such as the Eurachem Guide document "Guide to Quality in Analytical Chemistry", should also be consulted.

6.2 The calibration procedures and practise, and performance testing (validation) for each analytical system should be as recommended in the Guidance Documents and BS ISO 11352:2012.

6.3 Re-evaluation shall take the form required by, and be undertaken at the frequency and in the circumstances specified in the Guidance Document.

6.4 When a change of premises occurs the laboratory shall notify UKAS and the Regulator and, after discussion with the Regulator, UKAS may decide to suspend its accreditation. In such cases analytical methods which meet any of the criteria specified in the Guidance Document shall be revalidated, and UKAS shall conduct an assessment visit to the new premises, before accreditation is reinstated. However, UKAS may decide not to suspend the accreditation if the laboratory can

demonstrate through limited testing, immediately before and after the move, that method performance has not changed significantly. In such cases the analytical systems shall be revalidated within 3 months of relocation. UKAS will retain the right to conduct an assessment visit to the laboratory once the testing facility is re-established.

6.5 Analytical methods shall also be re-evaluated, and if necessary revalidated, whenever the results of internal AQC or external proficiency testing indicate that a statistically significant deterioration in performance has occurred which cannot be corrected, or that there is significant discontinuity in the routine AQC record, whether due to failure to perform routine AQC or disuse of the analytical system. Re-evaluation should also be considered whenever the routine AQC indicates a significant improvement in performance. Statistical significance shall be assessed at the 95% confidence level.

6.6 Analytical methods used infrequently should not require full revalidation provided a greater degree of internal AQC is adopted than the minimum given in the Guidance Document. This may involve the use of appropriate certified reference materials, duplicate testing, spike recovery tests, etc and the laboratory will need to demonstrate to UKAS that the means chosen are appropriate.

6.7 Analytical performance shall meet the requirements for each parameter given in the Regulations. For those parameters for which no performance requirements are given in the Regulations those given in the Guidance Document shall be met. The design of tests and calculation of performance characteristics should be in accordance with the Guidance Document and BS ISO 11352:2012 .

6.8 The requirements for internal AQC for chemical and physical parameters are given in the Guidance Document. For each AQC sample all relevant results shall be used to plot a control chart, for example a Shewhart chart, which is used to determine whether a method is in statistical control. The guidance of the construction and use of control charts and the actions to be taken and records to be made in respect of an out of control condition given in the Guidance Documents should be followed. The results obtained when a method is not in statistical control shall not be released unless the out of control condition can be shown not to affect the analysis of samples. Such conditions shall be documented. The definition of an out of control condition shall be consistent with the guidance given in the Guidance Document.

6.9 Documented appropriate procedures shall exist for regular and frequent examination and review of all charts, and include instructions for checking and investigating significant trends or changes in either random or systematic error, and for correct operation of the chart. There shall be appropriate rules for assessing revised control limits and these shall be consistent with the guidance given in the Guidance Document.

7. Analysis of Biological Parameters

7.1 All laboratories undertaking microbiological analysis should follow the guidance given by the European co-operation for Accreditation document *Eurachem Guide – Accreditation for Microbiological Laboratories (AML) 2013* (and any subsequent updates), except where alternative requirements are given in this publication. The descriptions of all biological parameters shall be as given in the Regulations.

7.2 All laboratories should follow the recommendations on internal AQC given in the Guidance Document and in AML. There should be quantitative quality control charts as described in *The Microbiology of Water and Associated Materials - Practices and Procedures for Laboratories*.

7.3 Revalidation should be considered when for example, the results of internal AQC or external proficiency testing indicate that a statistically significant deterioration in performance has occurred, or there has been a fundamental change made to the procedure;

7.4 When a change of premises occurs the laboratory shall notify in advance, UKAS and the Regulator, of its intent. UKAS will conduct an assessment of the new premises and this will include but not be limited to; revalidation of the methods, recalibration of critical equipment, and environmental monitoring of the new laboratory. Accreditation will not be transferred until UKAS is satisfied that the requirements of ISO/IEC 17025 and the Regulator have been met.

7.5 Laboratories carrying out sampling and/or analysis must be accredited to DWTS. The procedures used must be in line with Regulator's guidance. As with all requirements, laboratories should keep up to date with the Regulatory requirements in their part of the UK.

8. Interlaboratory Proficiency Testing

8.1 The laboratory shall participate in an external scheme for each parameter on the accreditation schedule for which an appropriate scheme is available. An appropriate scheme is one for example which is accredited to ISO/IEC 17043 and which distributes appropriate sample types and parameters. Other schemes will be considered by UKAS on a case by case basis. Documented procedures shall exist for the investigation and recording of all flagged results or "failures" notified by the organisers of the scheme. Where no suitable scheme exists for a parameter tested, the laboratory must follow guidance as documented in UKAS TPS 47.

8.2 The laboratory shall ensure that as wide a spread as possible of staff, who have been trained to carry out a method, take part in proficiency testing. For parameters such as chlorine where multiple results can be submitted, all staff shall take part at least once per year. Performance in proficiency testing shall be used as evidence of ongoing competency of the staff involved.

9. Schedule of Accreditation

9.1 A laboratory's schedule of accreditation shall include all drinking water compliance sampling and/or analysis that it carries out.

9.2 When a laboratory wishes to extend its schedule of accreditation in relation to the Drinking Water Testing Specification, it shall not undertake compliance sampling and/or testing related to that extension until it has been assessed by UKAS and formally granted, unless the laboratory holds accreditation for a flexible scope as per UKAS publication GEN 4. Some extensions to scope can be assessed by desktop review and accreditation extended quite quickly, for example where a new pesticide is to be added to an existing suite of pesticides. Another example is where a metal is to be added to an existing method. Where an analytical system has been changed to an instrument which relies on the same principle as before (for instance replacement of one ICP-MS with another) UKAS will normally conduct the assessment by desktop review. Each application will be considered on a case by case basis.

10. Assessment Procedures

10.1 The following are the minimum levels of assessment which will be undertaken for the purpose of the Drinking Water Testing Specification and these meet the requirements of ISO/IEC 17025 and the UKAS Agreement. Assessment shall follow the normal UKAS procedure as detailed in UKAS publication GEN 1 *General Principles for the Assessment of Conformity Assessment Bodies by the United Kingdom Accreditation Service*. It shall aim to establish the laboratory's compliance with all of the requirements of ISO/IEC 17025 and the UKAS Agreement (including those specified in this document). Other publications may also be relevant. Assessment shall also include at least the following points.

10.2 At Initial Assessments and Reassessments, the granting and renewal of accreditation will be afforded only to a laboratory which continually complies with the requirements of ISO/IEC 17025, the UKAS Agreement, other documents specified in this document, and any other relevant criteria of competence specified by UKAS. The assessment will include, but not be limited to;

a) assessment of the documented quality management system, to include all requirements of ISO/IEC 17025. The laboratory's internal audit programme shall address all elements of the management system and in particular shall include an annual audit of all method performance data, including whether it continues to comply with the requirements for each parameter given in the Regulations and/or Guidance Document. There shall also be an annual audit of all parameters to include whether each is analysed in-house under the DWTS accreditation, or whether subcontracted to an appropriate laboratory. These two audits may be combined into one.

b) assessment of documented procedures for all drinking water compliance sampling and/or field-testing activities;

c) assessment of performance data for all drinking water compliance field tests and laboratory methods;

d) assessment of AQC, performance checks, reporting arrangements, reporting of contraventions of the PCV and the arrangements for reporting results;

e) assessment of the sampler, field analyst, and laboratory analyst training programmes and all sampler, field analyst, and laboratory analyst training records to include an assessment of competency;

f) assessment of the competence of at least one sampler and one field analyst (one person if jobs combined). The number of people assessed will be such that a representative selection of such staff are included, particularly if such staff are based in separate depots. UKAS will aim to assess all depots at least once every 5 years as a minimum.

g) assessment of the adequacy of staffing and supervisory arrangements;

h) assessment of a selection of compliance sampling and field-testing occasions and locations to include sample transportation, and including properties, water treatment works, and service reservoirs. This shall include a check that the documented procedures are fully implemented;

i) a selection of the analytical methods used for drinking water compliance analysis shall be assessed. For each method, such assessment will include some or all of the following as deemed necessary by the assessment team. NB some information will be requested in advance of the visit, and some will be requested to be made available during the visit.

   i. the written method
   ii. witness of the implementation of the method (in full or in part)
   iii. the suitability of equipment and procedures

iv. AQC and other performance records, e.g. interlaboratory/proficiency testing schemes including follow up investigations and actions
v. performance characteristics including raw data and calculation of characteristics
vi. recording of observations and results
vii. reporting procedures and practice
viii. staffing and supervisory arrangements, to include an assessment of competency
ix. any other issues

j) vertical audit of at least one drinking water compliance sampling and field-testing occasion, to cover sampling, field testing, sample transport, laboratory analysis, and reporting. In laboratories with a large scope of accreditation including microbiology and a wide range of chemical testing, there will be as many as three such vertical audits. Where possible at least one breach of the PCV should be vertically audited. Samples to be vertically audited shall normally be chosen at or shortly before the assessment visit, and the data will then be reviewed at the visit. UKAS will provide a checklist of the documentation required. UKAS may however, with the agreement of the laboratory, elect to choose samples up to 1 month in advance of the visit and review the documentation remotely prior to the visit. In such cases the laboratory will be expected to despatch the data within 3 working days of the sample numbers being chosen. The assessment efforts for office time and site time will reflect whether or not vertical auditing is conducted at the laboratory.
k) assessment of the retention of records;
l) the guidance by DWI on the WSR sec16(2)(d)(i) on competence status and CPD for analysts, quality management and technical management;
m) performance in proficiency testing and interlaboratory comparisons for those methods not assessed or vertically audited at that visit;
n) any other aspect UKAS considers necessary.

10.3 Taken together the analytical methods assessed and vertically audited at Initial Assessments shall comprise all of the parameters analysed and shall include a witness assessment of all major analytical systems. At Reassessments the analytical methods assessed and vertically audited will be chosen such that all methods have been included at least once in the four-year assessment cycle. Methods deemed by UKAS to be of higher risk, will be assessed or vertically audited more often.

10.4 At Surveillance visits, the maintenance of accreditation will only be afforded to a laboratory which continually complies with the requirements of ISO/IEC 17025, the UKAS Agreement, other documents specified in this document, and any other relevant criteria of competence specified by UKAS. The assessment will include, but not be limited to;

a) assessment of the requirements of ISO/IEC 17025 including as a minimum; management review, internal auditing, customer complaints and control of non-conforming work. Other requirements will be assessed if deemed necessary. The laboratory's internal audit programme shall include an annual audit of all method performance data, including whether it continues to comply with the requirements for each parameter given in the Regulations and/or Guidance Document. There shall also be an annual audit of all parameters to include whether each is analysed in-house under the DWTS accreditation, or whether subcontracted to an appropriate laboratory. These two audits may be combined into one.
b) assessment of a selection of compliance sampling and field-testing occasions and locations to include sample transportation, and including properties, water treatment works, and service reservoirs. This shall include a check that the documented procedures are fully implemented;

c) assessment of changes to manuals, procedures, analytical methods (including any resultant performance testing and characteristics), and reporting arrangements since the last visit;

d) assessment of the competence of at least one sampler and one field analyst (one person if jobs combined) The number of people assessed will be such that a representative selection of such staff have been included, particularly if such staff are based in separate depots. UKAS will aim to assess all sampling depots least once every 5 years.

e) a selection of the analytical methods used for drinking water compliance analysis, shall be assessed. For each method, such assessment will include some or all of the following as deemed necessary by the assessment team. NB some information will be requested in advance of the visit, and some will be requested to be made available during the visit.

   i. the written method
   ii. witness of the implementation of the method (in full or in part)
   iii. the suitability of equipment and procedures
   iv. AQC and other performance records, e.g. interlaboratory/proficiency testing schemes including follow up investigations and actions
   v. performance characteristics including raw data and calculation of characteristics
   vi. recording of observations and results
   vii. reporting procedures and practice
   viii. staffing and supervisory arrangements, to include an assessment of competency
   ix. any other issues

f) vertical audit of at least one drinking water compliance sampling and field-testing occasion, to cover sampling, field testing, sample transport, laboratory analysis, and reporting. In laboratories with a large scope of accreditation including microbiology and a wide range of chemical testing there will be as many as three such vertical audits. Where possible at least one breach of the PCV should be vertically audited. Samples to be vertically audited shall normally be chosen at or shortly before the assessment visit, and the data will then be reviewed at the visit. UKAS will provide a checklist of the documentation required. UKAS may however, with the agreement of the laboratory, elect to choose samples up to 1 month in advance of the visit and review the documentation remotely prior to the visit. In such cases the laboratory will be expected to despatch the data within 3 working days of the sample numbers being chosen. The assessment efforts for office time and site time will reflect whether or not vertical auditing is conducted at the laboratory.

g) performance in proficiency testing and interlaboratory comparisons for those methods not assessed or vertically audited at that visit.

h) any other aspect UKAS considers necessary.

10.5 Taken together the analytical methods assessed and vertically audited at each Surveillance visit, shall be a representative selection of the parameters analysed and shall include at least one third of the major analytical systems.

10.6 Over a full four-year assessment cycle, comprising three Surveillance visits and one Reassessment visit, all analytical methods shall be assessed at least once. Problem methods, such as when the laboratory has a poorer record of performance in proficiency testing, or where there has been significant non-conformities raised, shall be assessed more than once in the assessment cycle.

10.7 Microbiology methods for coliforms and *E. coli* shall be assessed and/or vertically audited every year. All microbiology methods shall be assessed at least twice in the 4-year cycle.

11. Definitions

Vertical Audit

The examination of a complete record of documents and computer records from the decision to take the sample, to the production of the final analysis report. This includes equipment and method performance records, all associated training records, all authorisations of amendments, deletions, and other actions, and all reports relating to the sample and its analysis.

Batch of Analyses

a) For field tests, a group of measurements or observations of standards, samples and/or control samples which have been performed on the same day by the same analysts using the same reagents, equipment and calibration method.

b) For laboratory tests, a group of measurements or observations of standards, samples and/or AQC samples which have been performed together in respect of all procedures, either simultaneously or sequentially, by the same analysts using the same reagents, equipment and calibration method.

AQC Sample

Any material which is subjected to the whole analytical procedure at the same time as the real samples, for the sole purpose of subjecting the batch of analyses to analytical quality control.

Field Test

The determination of a parameter or constituent of a parameter, at the time and place of sampling.

Laboratory

An organisation carrying out sampling and/or analysis of drinking water samples for the purposes of those Regulations mentioned in this publication, whether the analysis is carried out in a laboratory or at the time and place of sampling.

Out of Control

An analytical method exhibiting inadequate statistical control.

Guidance Documents

Any documents published by or referred to by a Regulator which expands and supplements the Regulations.

Parameter

A property, element, organism, or substance listed in the Regulations, the determination of which is necessary for the purpose of drinking water compliance monitoring.

Prescribed Concentration or Value

The maximum or minimum concentration or value specified in relation to any parameter in the Regulations, as measured by reference to the unit of measurement so specified.

Proficiency Testing (PT)

Comparative testing of samples, involving a group of laboratories or analysts performing the same analyses on the same samples.

Schedule of Accreditation

The schedule of all sampling activities, field tests, and laboratory analysis for which the laboratory is accredited.

Shewhart Chart

A chart on which the quality characteristic of interest is plotted against time, first described by Shewhart in 1931. Lines known as action lines are drawn on the chart at three standard deviations above and below the mean value, and lines known as warning lines are drawn on the chart at two standard deviations above and below the mean value. More recently these charts and their use have been described in a British Standard, BS 7785:1984, ISO 8258:1991.

Statistical Control

The variation of an observed value measured under conditions of routine analysis is acceptable within pre-defined limits of standard deviation for that value. After plotting the analytical results on a control chart, statistical control is demonstrated when any single result falls within the action lines, and of any two successive results, not more than one falls outside the warning lines, and not more than eight successive results fall on one side of the mean line.

12. References

European Directive

EC Directive 98/83/EC on the Quality of Water Intended for Human Consumption

National Regulations - England

The Water Supply (Water Quality) Regulations 2016 (SI 614)

The Water Supply (Water Quality) (Amendment) Regulations 2018 (SI 706)

The Private Water Supplies (England) Regulations 2016 (SI 618)

The Private Water Supplies (England) (Amendment) Regulations 2018 (SI 707)

National Regulations - Wales

The Water Supply (Water Quality) Regulations 2018 (SI 647 (W. 121))

The Private Water Supplies (Wales) Regulations 2017 (SI 1041 (W. 270))

National Regulations - Scotland

The Public Water Supplies (Scotland) Regulations 2014 (SSI 2014/364) as amended

The Private Water Supplies (Scotland) Regulations 2006 (SSI 2006/209) as amended

The Water Intended for Human Consumption (Private Supplies) (Scotland) Regulations 2017 (SSI 2017/282) as amended

National Regulations - Northern Ireland

The Private Water Supplies Regulations (Northern Ireland) 2017 (SR No. 211)

The Water Supply (Water Quality) Regulations (Northern Ireland) 2017 (SR No. 212)

UKAS Publications

General Principles for the Assessment of Conformity Assessment Bodies by the United Kingdom Accreditation Service, GEN 1

UKAS Policy and General Guidance on the Implementation and Management of Flexible Scopes of Accreditation, GEN 4

UKAS Policy on Participation in Proficiency Testing Schemes, TPS 47

UKAS Policy on Selection and Use of Reference Materials, TPS 57

Other Publications

General Requirements for the Competence of Testing and Calibration Laboratories. ISO/IEC 17025:2017

Guide to Quality in Analytical Chemistry, CITAC Eurachem Guide 2016

Eurachem Guide - Accreditation for Microbiological Laboratories

The Microbiology of Drinking Water 2010, Standing Committee of Analysts and any subsequent version

BS 7785:1994, ISO 8258:1991 Shewhart Control Charts

Guidance on The Water Supply (Water Quality) Regulations 2000 (England) as amended incorporating the The Water Supply (Water Quality) Regulations 2000 (Amendment) Regulations 2007, and the The Water Supply (Water Quality) Regulations 2001 (Wales) incorporating the The Water Supply (Water Quality) Regulations 2001 (Amendment) Regulations 2007

Guidance on the implementation of The Public Water Supplies (Scotland) Regulations 2014 (as amended)

Guidance on The Water Intended for Human Consumption (Private Supplies) (Scotland) Regulations 2017

Guidelines for Calibration in Laboratories, DWI 70/2/107

Guidance on Sampling of Drinking Water from Treatment Works and Piped Distribution Systems. BS EN ISO 5667-5:2006

Guidance on the Preservation and Handling of Water Samples. BS EN ISO 5667-3:2012

DWI Information letter 08/2007 Guidance on interpretation of Regulation 16(2)(d)(i) of the Water Supply (Water Quality) Regulations 2000 (2001 in Wales) and any subsequent versions (www.dwi.gov.uk)

DWQR Information Letter 05/2007 and any subsequent versions (www.dwqr.scot)

DWQR Information Letter 02/2015 and any subsequent versions (www.dwqr.scot)