Scheme Description

Water & Environmantal Chemistry (AQUACHECK) Proficiency Testing Scheme

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RECORD OF ISSUE STATUS AND MODIFICATIONS

Issue	Issue Date	Details	Authorised by
35	Sept 2023	Changed SDPA for Sample 26 Added Sample 4A, 68-69 Updated Sample 39, to include anisole related compounds. Reduced volume for pH and conductivity in group 2 samples and added a description of the type of water. Samples 35 and 38 marked as 'Accredited within the boundaries of LGC's flexible scope of UKAS accreditation'.	S. Xystouris R. Sharma N. Mason
36	Jan 2023	Updated the sample size provided to customers for Sample 16.	R. Sharma
37	March 2024	Updated sample 67 and added the 20 PFAS analytes, together with the CAS numbers.	S. Xystouris R. Sharma
38	April 2024	Concentration ranges added to all samples.	R. Sharma
39	June 2024	Updated the pH samples description for Sample 2. Sample 68 matrix supplied with spike changed to potable. Sample 14 - Antimony and Sample 17B - Fluoride added. New samples added are 70-75 Removed Sample 55 Removed HMX, PETN from Sample 65 Sample 9 – pesticides reviewed and updated Sample 21 – spike 2 removed Changed the type of water for 3B & C Amended SDPA for all the analytes for Sample 42	S. Xystouris R. Sharma
40	January 2025	Table added under Sample 70, removed Appendix A. Added 6:2 FTAB in Sample 73. Updated the name for Sample 17B.	S. Xystouris R. Sharma
41	August 2025	Split Sample 70 PFAS compounds into spike 1 and 2. Updated the description for Sample 13. Concentration range amended for Sample 31. Sample 33, 35 and 38 added to fixed scope of accreditation. Sample 69 matrix supplied with spike updated. Sample 57 changed sample description and specified matrix. Concentration ranges for Samples 1HP/SP, 2HP/SP, 13, 14 and 16 reviewed. Azithromycin added as an additional analyte in 57. New samples added are Sample 76-78. Appendix I (main and alternative units) and Appendix II (definitions of the types of matrices) added at the end of the document. Bisphenol A removed from Sample 34D. New analytes added to Sample 60. Updated the statistics for Sample 67 and 70. Updated AV assessment for Samples 1A, 2H, 2S, 2HP, 2SP, 3, 3A, 10, 11 & 35. Description for sample 13 updated.	S. Xystouris R. Sharma A Collins
42	Sept 2025	Sample 70 now supplied as 3 spikes and in 1ml vials.	R.Sharma

Notes: Where this document has been translated, the English version shall remain the definitive version

SCHEME INFORMATION

Scheme Aims and Organisation

The primary aim of the Water & Environmental Chemistry Proficiency Testing Scheme (Aquacheck) is to enable laboratories performing the analysis of organic and inorganic chemicals in clean and wastewaters, sludges and soils to monitor their performance and compare it with that of their peers. Aquacheck also aims to provide information to participants on technical issues and methodologies relating to testing of such samples.

The AQUACHECK scheme year operates from January to December. Further information about AQUACHECK, including test material availability, round despatch dates and reporting deadlines, are available on the current AQUACHECK application form and on the website www.lgcstandards.com.

The Aquacheck scheme operates an advisory group made up of participants, industry experts and regulatory organisations. A list of advisory group members is available from LGC Standards on request. The advisory group meets twice a year and is concerned with all aspects of scheme development, operation and participant performance.

Test Materials

Details of test materials available in AQUACHECK are given in the 'Samples Available' section. The test parameters are continually reviewed to ensure they meet the needs of current laboratory testing and regulatory requirements.

Test material batches are tested for homogeneity for at least one test parameter where it is deemed appropriate, to ensure the samples are fit for their intended use. Details of homogeneity tests performed, results and assessment are provided in the AQUACHECK PT Scheme Reports.

Some aspects of the scheme, such as test material production, homogeneity testing and stability assessment, can from time to time be subcontracted. When subcontracting occurs, it is placed with a competent subcontractor and LGC is responsible for this work. The planning of the scheme, the evaluation of performance and the authorisation of the final report will never be subcontracted.

Due to the dangerous goods regulations specified by our standard couriers, certain organic samples are unable to be shipped in the format described (1 x 10ml spiking solution) to certain countries. However, they can be shipped in the format of 5 x 1ml spiking solutions, which should provide sufficient material to complete the analysis.

Statistical Analysis

Information on the statistics used in AQUACHECK can be found in the General Protocol and in the Scheme Report. Methods for determining assigned values and the values for SDPA used for individual samples are given in the 'Samples Available' section.

Methods

Methods are listed PORTAL. Please select the most appropriate method from the list. If none of the methods are appropriate, then please report your method as 'Other' and record a brief description in the Comments Section in PORTAL.

Results and Reports

AQUACHECK PT results are returned through our electronic reporting software, PORTAL, full instructions for which are provided by email.

AQUACHECK PT reports will be available on the website within 4 working days of round closure. Participants will be emailed a link to the report when it is available.

DESCRIPTION OF ABBREVIATIONS USED

Assigned Value (AV)

The assigned value may be derived in the following ways:

- From the robust mean (median) of participant results (RMean). This is the median of participant results after the removal of test results that are inappropriate for statistical evaluation, e.g. miscalculations, transpositions and other gross errors. Generally, the assigned value will be set using results from all methods, unless the measurement is considered method-dependant, in which case the assigned value will be set by method and indicated in the report tables. For some analytes, where there is a recognised reference method for that type of measurement, this may be used as the assigned value for a particular analyte i.e. it would be applied to results obtained by any method.

  Traceability: Assigned values which are derived from the participant results, or a sub-set of the results are not traceable to an international measurement standard. The uncertainty of assigned values derived in this way is estimated from the participant results, according to ISO 13528.

- From a formulation value (Form). This denotes the use of an assigned value derived from sample preparation details, where known and exact quantities of analyte have been used to prepare the sample.

  Traceability: Assigned values calculated from the formulation of the test sample are traceable, via an unbroken metrological traceability chain, to an international measurement standard. The measurement uncertainty of the assigned value is calculated using the contributions from each calibration in the traceability chain.

- From a qualitative formulation (Qual Form). This applies to qualitative tests where the assigned value is simply based on the presence/absence of the analyte in the test material.

  Traceability: Assigned values calculated from the qualitative formulation of the test sample are traceable to a certified reference standard or a microbiological reference strain.

- From expert labs (Expert). The assigned value for the analyte is provided by an 'expert' laboratory.

  Traceability: Assigned values provided by an 'expert' laboratory may be traceable to an international measurement standard, according to the laboratory and the method used. The uncertainty of measurement for an assigned value produced in this way will be provided by the laboratory undertaking the analysis. Details of traceability and the associated uncertainty will be provided in the report for the scheme/round.

Range
This indicates the concentration range at which the analyte may be present in the test material. For some analytes, only the maximum is quoted. In these cases, the minimum will be 20% of the maximum value.

In order to replicate the variety of samples routinely received by participant laboratories, samples may be occasionally provided where the concentration of one the analytes is outside of the specified range.

SDPA
The SDPA represents the 'standard deviation for proficiency assessment' which is used to assess participant performance for the measurement of each analyte. This may be a fixed value (as stated), a percentage (%) of the assigned value or based on the robust standard deviation of the participant measurement results, either across all methods or by method depending on whether the measurement made is method dependent (see assigned value).

Two values may be included in the tables for the SDPA; a percentage value and a fixed value; given in brackets. Where the percentage SDPA would be less than the fixed value, the fixed value will be used in calculation of participants' performance scores. The fixed values shown are in the units in which the analytes should be reported.

Units
This indicates the units used for the assessment of data and in which participants should report their results. For some analytes in some schemes participants may have a choice of which units to report their results, however, the units stipulated in this scheme description are the default units to which any results reported using allowable alternative results will be converted to.

DP
This indicates the number of decimal places to which participants should report their measurement results.

SAMPLES AVAILABLE

Sample PT-AQ-01H **Major Inorganic Components in hard, surface water**

Supplied as: 2 x 1L hard, surface water
1 x 30mL Kjeldahl nitrogen spiking solution
1 x 30mL total phosphorus spiking solution

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Calcium	RMean	50-130	7.5 (1)	mgCa/L	2
Magnesium	RMean	2-40	7.5 (0.25)	mgMg/L	2
Total Hardness	RMean	50-200	10 (5)	mgCa/L	1
Alkalinity	RMean	150-300	10 (15)	mgHCO_3/L	1
Potassium	RMean	1-10	7.5 (0.2)	mgK/L	3
Sodium	RMean	5-80	7.5 (0. 5)	mgNa/L	2
Chloride	RMean	10-150	7.5 (2)	mgCl/L	2
Sulfate	RMean	10-150	7.5 (1)	mgSO_4/L	2
Fluoride	RMean	350-1800	7.5 (75)	µgF/L	0
Conductivity (20°C)	RMean	300-1000	7.5	µS/cm	1
Kjeldahl Nitrogen	Formulation	1-5	10 (0.1)	mgN/L	2
Total Phosphorus	RMean	0.5-2.5	10 (0.025)	mgP/L	2
Barium	RMean	20-180	10 (4)	µgBa/L	1

This sample uses natural water samples and the values given above are indicative, based on the range of waters used in the past.

Sample PT-AQ-01S **Major Inorganic Components in soft, surface water**

Supplied as: 2 x 1L soft, surface water
1 x 30mL Kjeldahl nitrogen spiking solution
1 x 30mL total phosphorus spiking solution

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Calcium	RMean	5-60	7.5 (1)	mgCa/L	2
Magnesium	RMean	0.5-20	7.5 (0.25)	mgMg/L	2
Total Hardness	RMean	5-90	10 (1.2)	mgCa/L	1
Alkalinity	RMean	10-150	10 (1.5)	mgHCO3/L	1
Potassium	RMean	0.3-4	7.5 (0.2)	mgK/L	3
Sodium	RMean	2-20	7.5 (0.5)	mgNa/L	2
Chloride	RMean	5-40	7.5 (1)	mgCl/L	2
Sulfate	RMean	0-60	7.5 (1)	mgSO4/L	2
Fluoride	RMean	350-1800	7.5 (75)	µgF/L	0

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Conductivity (20°C)	RMean	50-250	7.5 (5)	µS/cm	1
Kjeldahl Nitrogen	Formulation	1-5	10 (0.1)	mgN/L	2
Total Phosphorus	RMean	0.5-2.5	10 (0.025)	mgP/L	2
Barium	RMean	10-130	10 (4)	µgBa/L	1

This sample uses natural water samples and the values given above are indicative, based on the range of waters used in the past.

Sample PT-AQ-1HP **Major Inorganic Components in hard, potable (treated) water**

Supplied as:
2 x 1L hard, potable (treated) water
1 x 30mL Kjeldahl nitrogen spiking solution
1 x 30mL total phosphorus spiking solution

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Calcium	RMean	50-100	7.5 (1)	mgCa/L	2
Magnesium	RMean	5-25	7.5 (0.25)	mgMg/L	2
Total Hardness	RMean	50-150	10 (5)	mgCa/L	1
Alkalinity	RMean	100-300	10 (15)	mgHCO3/L	1
Potassium	RMean	1-10	7.5 (0.2)	mgK/L	3
Sodium	RMean	5-50	7.5 (0. 5)	mgNa/L	2
Chloride	RMean	10-75	7.5 (2)	mgCl/L	2
Sulfate	RMean	10-100	7.5 (1)	mgSO4/L	2
Fluoride	RMean	100-1500	7.5 (75)	µgF/L	0
Conductivity (20oC)	RMean	250-1000	7.5	µS/cm	1
Kjeldahl Nitrogen	Formulation	1-5	10 (0.1)	mgN/L	2
Total Phosphorus	RMean	0.5-3.5	10 (0.025)	mgP/L	2
Barium	RMean	50-150	10 (4)	µgBa/L	1

This sample uses natural water samples and the values given above are indicative, based on the range of waters used in the past.

Sample PT-AQ-1SP **Major Inorganic Components in soft, potable (treated) water**

Supplied as:
2 x 1L soft, potable (treated) water
1 x 30mL Kjeldahl nitrogen spiking solution
1 x 30mL total phosphorus spiking solution

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Calcium	RMean	5-50	7.5 (1)	mgCa/L	2
Magnesium	RMean	0.5-15	7.5 (0.25)	mgMg/L	2
Total Hardness	RMean	5-50	10 (1.2)	mgCa/L	1

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Alkalinity	RMean	10-90	10 (1.5)	mgHCO3/L	1
Potassium	RMean	0.3-5	7.5 (0.2)	mgK/L	3
Sodium	RMean	1-20	7.5 (0.5)	mgNa/L	2
Chloride	RMean	5-25	7.5 (1)	mgCl/L	2
Sulfate	RMean	1-50	7.5 (1)	mgSO4/L	2
Fluoride	RMean	100-500	7.5 (75)	µgF/L	0
Conductivity (20ºC)	RMean	50-150	7.5 (5)	µS/cm	1
Kjeldahl Nitrogen	Formulation	1-5	10 (0.1)	mgN/L	2
Total Phosphorus	RMean	0.5-3.5	10 (0.025)	mgP/L	2
Barium	RMean	5-50	10 (4)	µgBa/L	1

This sample uses natural water samples and the values given above are indicative, based on the range of waters used in the past.

Sample PT-AQ-01A **Major Ions in Higher Salinity Water**

Supplied as: 1 x 1L spiked matrix water sample
1 x 30mL TOC spiking solution
1 x 500mL pH sample

Analyte	AV	Range (Max)	SDPA % (fixed)	Units	DP
Sodium	RMean	50-300	7.5 (0.5)	mgNa/L	0
Magnesium	Formulation	10-60	7.5 (0.25)	mgMg/L	1
Chloride	RMean	60-300	7.5 (1)	mgCl/L	0
Sulfate	RMean	60-350	7.5 (1)	mgSO4/L	0
pH at 20-25ºC	RMean	4-10	(0.1)	-	2
Conductivity (20ºC)	RMean	1000-3000	7.5	µS/cm	0
Total Organic Carbon (TOC)	RMean	1-15	10 (0.25)	mgC/L	2
Total Dissolved Solids	RMean	500-2000	7.5 (10)	mg/L	0

Sample PT-AQ-02H **Nutrients and Others in hard, surface water.**

Supplied as:
1 x 1L hard, surface water
7 x 30mL spiking solutions for nitrite, ammonia, soluble reactive phosphorus, colour, permanganate index, total cyanide and free cyanide)
1 x 500mL buffered deionised water for pH/conductivity

Analyte	AV	Range (Max)	SDPA % (fixed)	Units	DP
Total Oxidised Nitrogen (TON)	RMean	2-60	10 (0.1)	mgNO3/L	2
Silicate	RMean	2-10	7.5 (0.1)	mgSiO2/L	2
Nitrite	Formulation	0.05-0.35	7.5 (0.005)	mgNO2/L	3
Ammonia	RMean	0.1-1	10 (0.025)	mgNH4 /L	3
Soluble Reactive Phosphorus (PO_4)	RMean	500-2500	7.5 (10)	µgP/L	0
pH at 20-25ºC	RMean	4-10	(0.1)	-	2
Conductivity (20ºC)	RMean	400-1000	7.5	µS/cm	0
Colour	RMean	5-25	10 (1)	Hazen	2
Colour ISO 7887-C	RMean	5-25	Robust SD	mg/L Pt	2
Permanganate Index (PI)	Formulation	1-6	10 (0.25)	mgO2/L	2
Total Cyanide	Formulation	10-55	10 (2.5)	µgCN/L	1
Free Cyanide	Formulation	10-55	10 (2.5)	µgCN/L	1
Nitrate	RMean	2.5-75	7.5 (0.1)	mgNO3/L	2
Total Dissolved Solids	RMean	200-750	10 (10)	mg/L	1

This sample uses natural water samples and the values given above are indicative, based on the range of waters used in the past.

Sample PT-AQ-02S **Nutrients and Others in soft, surface water**

Supplied as:
1 x 1L soft, surface water
8 x 30mL spiking solutions for nitrite, nitrate, ammonia, soluble reactive phosphorus, colour, permanganate index, total cyanide and free cyanide)
1 x 500mL buffered deionised water for pH/conductivity

Analyte	AV	Range (Max)	SDPA % (fixed)	Units	DP
Total Oxidised Nitrogen (TON)	RMean	0.2-10	10 (0.1)	mgNO3/L	2
Silicate	RMean	0.5-10	7.5 (0.1)	mgSiO2/L	2
Nitrite	Formulation	0.05-0.35	7.5 (0.005)	mgNO2/L	3
Ammonia	RMean	0.1-0.6	10 (0.025)	mgNH4 /L	3
Soluble Reactive Phosphorus	RMean	500-2500	7.5 (50)	µgP/L	0
pH at 20-25ºC	RMean	4-10	(0.1)	-	2
Conductivity (20ºC)	RMean	400-1000	7.5	µS/cm	0

Analyte	AV	Range (Max)	SDPA % (fixed)	Units	DP
Colour	RMean	5-25	10 (1)	Hazen	2
Colour ISO 7887-C	RMean	5-25	Robust SD	mg/L Pt	2
Permanganate Index (PI)	Formulation	1-6	10 (0.25)	mgO2/L	2
Total Cyanide	Formulation	10-60	10 (2.5)	µgCN/L	1
Free Cyanide	Formulation	10-60	10 (2.5)	µgCN/L	1
Nitrate	RMean	1-25	7.5 (0.1)	mgNO3/L	2
Total Dissolved Solids	RMean	25-200	10 (10)	mg/L	1

This sample uses natural water samples and the values given above are indicative, based on the range of waters used in the past.

Sample PT-AQ-2HP **Nutrients and Others in hard, potable (treated) water**

Supplied as:
1 x 1L hard, potable (treated) water
7 x 30mL spiking solutions for nitrite, ammonia, soluble reactive phosphorus, colour, permanganate index, total cyanide and free cyanide)
1 x 500mL buffered deionised water for pH/conductivity

Analyte	AV	Range (Max)	SDPA % (fixed)	Units	DP
Total Oxidised Nitrogen (TON)	RMean	5-50	10 (0.1)	mgNO3/L	2
Silicate	RMean	2-10	7.5 (0.1)	mgSiO2/L	2
Nitrite	Formulation	0.05-0.35	7.5 (0.005)	mgNO2/L	3
Ammonia	RMean	0.1-0.5	10 (0.025)	mgNH4 /L	3
Soluble Reactive Phosphorus (PO_4)	RMean	1000-2500	7.5 (10)	µgP/L	0
pH at 20-25ºC	RMean	4-10	(0.1)	-	2
Conductivity (20ºC)	RMean	400-1000	7.5	µS/cm	0
Colour	RMean	5-25	10 (1)	Hazen	2
Colour ISO 7887-C	RMean	5-25	Robust SD	mg/L Pt	2
Permanganate Index (PI)	Formulation	1-6	10 (0.25)	mgO2/L	2
Total Cyanide	Formulation	10-60	10 (2.5)	µgCN/L	1
Free Cyanide	Formulation	10-60	10 (2.5)	µgCN/L	1
Nitrate	RMean	5-50	7.5 (0.1)	mgNO3/L	2
Total Dissolved Solids	RMean	200-500	10 (10)	mg/L	1

This sample uses natural water samples and the values given above are indicative, based on the range of waters used in the past.

Sample PT-AQ-2SP **Nutrients and Others in soft, potable (treated) water**
Supplied as: 1 x 1L soft, potable (treated) water
8 x 30mL spiking solutions for nitrite, nitrate, ammonia, soluble reactive phosphorus, colour, permanganate index, total cyanide and free cyanide)
1 x 500mL buffered deionised water for pH/conductivity

Analyte	AV	Range (Max)	SDPA % (fixed)	Units	DP
Total Oxidised Nitrogen (TON)	RMean	0.2-10	10 (0.1)	mgNO3/L	2
Silicate	RMean	1-10	7.5 (0.1)	mgSiO2/L	2
Nitrite	Formulation	0.05-0.35	7.5 (0.005)	mgNO2/L	3
Ammonia	RMean	0.1-0.5	10 (0.025)	mgNH4 /L	3
Soluble Reactive Phosphorus (PO_4)	RMean	1000-2500	7.5 (50)	µgP/L	0
pH at 20-25°C	RMean	4-10	(0.1)	-	2
Conductivity (20°C)	RMean	100-750	7.5	µS/cm	0
Colour	RMean	5-25	10 (1)	Hazen	2
Colour ISO 7887-C	RMean	5-25	Robust SD	mg/LPt	2
Permanganate Index (PI)	Formulation	1-6	10 (0.25)	mgO2/L	2
Total Cyanide	Formulation	10-60	10 (2.5)	µgCN/L	1
Free Cyanide	Formulation	10-60	10 (2.5)	µgCN/L	1
Nitrate	RMean	1-30	7.5 (0.1)	mgNO3/L	2
Total Dissolved Solids	RMean	25-100	10 (10)	mg/L	1

This sample uses natural water samples and the values given above are indicative, based on the range of waters used in the past.

Sample PT-AQ-02A **pH in Poorly Buffered Waters**
Supplied as: 2 x 500mL poorly buffered deionised water for pH samples

Analyte	AV	Range	SDPA % (fixed)	Units	DP
pH at 20-25°C – Low	RMean	3-6	(0.1)	-	2
pH at 20-25°C – High	RMean	6-9	(0.1)	-	2

Sample PT-AQ-03 **Non-Specific Analytes (at typical potable/surface water levels)**
Supplied as: 7 x 30mL spiking solutions for BOD, COD, suspended solids, MBAS, non-ionic surfactants, turbidity and DOC

Analyte	AV	Range	SDPA % (fixed)	Units	DP
BOD (5 day)	RMean	1-6	10 (0.3)	mgO2/L	2
COD	Formulation	50-250	7.5 (5)	mgO2/L	1
Suspended solids	RMean	5-30	10 (1)	mg/L	2
Methylene Blue Active Substances (MBAS)	Formulation	45-240	10 (10)	µgLS/L	1
Non-Ionic Surfactants	Formulation	0.1-1	10	mg/L	2
Dissolved Organic Carbon	Formulation	1-5	10 (0.1)	mgC/L	2
Turbidity	RMean	1-8	7.5 (0.2)	NTU	2

Sample PT-AQ-03A **Inorganic Disinfection By-products (at typical potable levels)**
Supplied as: 4 x 30mL spiking solutions for bromide, bromate, chlorite and chlorate (high and low level spiking solutions)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Bromide	RMean	20-100	10 (2.5)	µgBr/L	1
Bromate	Formulation	2-12	10 (0.5)	µgBrO3/L	2
Chlorate (low level)	RMean	20-100	10 (2.5)	µgClO3/L	1
Chlorite (low level)	RMean	20-100	10 (1.5)	µgClO2/L	1
Chlorate (high level)	RMean	140-700	7.5	µgClO3/L	0
Chlorite (high level)	RMean	140-700	7.5	µgClO2/L	0

Sample PT-AQ-03B **Free Chlorine (at typical potable levels)**
Supplied as: 1 x 500mL ultrapure water sample
1 x 10mL free chlorine spiking solution and 1 x 30mL plastic bottle (to be used for mixing solutions)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Free Chlorine	Formulation	0.1-0.5	10 (0.03)	mgCl2/L	3

Sample PT-AQ-03C **Total Chlorine (at typical potable levels)**
Supplied as: 1 x 500mL ultrapure water sample
1 x 10mL total chlorine spiking solution and 1 x 30mL plastic bottle (to be used for mixing solutions)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Total Chlorine	RMean	0.1-0.5	10 (0.03)	mgCl2/L	3

Sample PT-AQ-04 **Metals in Surface Water (Preserved in 0.5% Nitric Acid)**
Supplied as: 1 x 500mL metals sample containing all analytes except silver
1 x 30mL silver spiking solution

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Iron	RMean	45-350	7.5 (10)	µg/L	1
Manganese	RMean	12-60	7.5 (2)	µg/L	1
Copper	RMean	100-500	7.5 (5)	µg/L	0
Aluminium	RMean	45-300	7.5 (10)	µg/L	1
Zinc	RMean	100-500	7.5 (5)	µg/L	0
Silver	RMean	2.4-12	7.5 (0.4)	µg/L	2
Barium	RMean	100-600	7.5 (10)	µg/L	0
Boron	RMean	240-1200	7.5 (25)	µg/L	0
Strontium	RMean	100-1000	7.5 (10)	µg/L	0
Lithium	RMean	10-50	7.5 (2)	µg/L	1

This sample uses natural water samples and the values given above are indicative, based on the range of waters used in the past.

Sample PT-AQ-04A** **Dissolved Metals in Surface Water (Preserved in 0.5% Nitric Acid)**
Supplied as: 1 x 500mL metals sample

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Iron	RMean	200-1000	7.5 (10)	µg/L	1
Manganese	RMean	20-100	7.5 (2)	µg/L	1
Copper	RMean	10-75	7.5 (5)	µg/L	0
Aluminium	RMean	20-100	7.5 (10)	µg/L	1
Zinc	RMean	8-150	7.5 (5)	µg/L	0
Barium	RMean	2-10	7.5 (10)	µg/L	0
Boron	RMean	100-500	7.5 (25)	µg/L	0
Strontium	RMean	100-500	7.5 (10)	µg/L	0
Lithium	RMean	100-600	7.5 (2)	µg/L	1

This sample uses natural water samples and the values given above are indicative.

**Test material currently not included in LGC Standards' UKAS Scope of Accreditation

Sample PT-AQ-04G **Metals in Groundwater (Preserved in 0.5% Nitric Acid)**
Supplied as: 1 x 500mL metals sample containing all analytes except silver
1 x 30mL silver spiking solution

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Iron	RMean	200-1000	7.5 (10)	µg/L	0
Manganese	RMean	20-100	7.5 (2.5)	µg/L	1
Copper	RMean	10-75	7.5 (1)	µg/L	1
Aluminium	RMean	20-100	10 (5)	µg/L	1
Zinc	RMean	8-150	10 (1)	µg/L	1
Silver	RMean	2-10	10 (0.4)	µg/L	2
Barium	RMean	100-500	7.5 (10)	µg/L	0
Boron	RMean	100-500	7.5 (10)	µg/L	0
Strontium	RMean	100-600	7.5 (10)	µg/L	0
Lithium	RMean	10-50	7.5 (2)	µg/L	1

This sample uses natural water samples and the values given above are indicative, based on the range of waters used in the past.

Sample PT-AQ-05 **Toxic Metals in Surface Water (Preserved in 0.5% Nitric Acid)**
Supplied as: 1 x 500mL metals sample containing all analytes except mercury and tin
2 x 30mL spiking solutions for mercury (Preserved in 0.2% HCl acid) and tin

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Cadmium	RMean	1.2-6	7.5 (0.2)	µg/L	2
Lead	RMean	5-25	7.5 (0.5)	µg/L	1
Nickel	RMean	4.8-24	7.5 (0.8)	µg/L	1
Selenium	RMean	2.4-12	10 (0.5)	µg/L	2
Arsenic	RMean	2.4-12	10 (0.4)	µg/L	2
Antimony	RMean	1.2-6	10 (0.25)	µg/L	2
Mercury	RMean	0.24-1.2	10 (0.05)	µg/L	3
Cobalt	RMean	5-25	7.5 (1)	µg/L	1
Vanadium	RMean	5-25	7.5 (1)	µg/L	1
Chromium	RMean	12-60	7.5 (2)	µg/L	1
Molybdenum	RMean	5-25	7.5 (1)	µg/L	1
Tin	RMean	20-100	10 (1)	µg/L	1
Beryllium	RMean	1-5	7.5 (0.2)	µg/L	2
Titanium*	RMean	5-100	7.5	µg/L	1

This sample uses natural water samples and the values given above are indicative, based on the range of waters used in the past.

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Sample PT-AQ-05A **Metals for Hydride Generation (at typical potable levels, preserved in 0.5% Hydrochloric Acid)**

Supplied as: 1 x 500mL metals sample containing all analytes

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Arsenic	Formulation	2.4-12	10 (0.5)	µg/L	2
Selenium	Formulation	2.4-12	10 (0.4)	µg/L	2
Antimony	Formulation	1.2-6	10 (0.25)	µg/L	2
Tin	Formulation	20-100	10 (1)	µg/L	1

Sample PT-AQ-05B **EQS Metals (at typical potable levels, preserved in 0.5% Nitric Acid)**

Supplied as: 1 x 500mL metals sample containing all analytes except mercury
1 x 30mL mercury spiking solution (Preserved in 0.2% HCl acid)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Cadmium	Formulation	0.2-1	10 (0.03)	µg/L	3
Copper	Formulation	1.5-7.5	10 (0.05)	µg/L	2
Total Chromium	Formulation	0.5-2.5	10 (0.1)	µg/L	2
Lead	Formulation	0.5-2.5	10 (0.1)	µg/L	2
Nickel	Formulation	2.5-12.5	10 (0.5)	µg/L	2
Zinc	Formulation	5-25	10 (0.5)	µg/L	2
Vanadium	Formulation	2-10	10 (0.25)	µg/L	2
Mercury	Formulation	0.02-0.5	10 (0.04)	µg/L	3

Sample PT-AQ-05C **Chromium (VI) at typical potable levels**

Supplied as: 1 x 30mL spiking solution

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Chromium (VI)	Formulation	4-20 (occasionally up to 200µg/L)	10 (0.5)	µg/L	2

Sample PT-AQ-05G **Toxic Metals in Groundwater (Preserved in 0.5% Nitric Acid)**
Supplied as: 1 x 500mL metals sample containing all analytes except mercury and tin
1 x 30mL mercury spiking solution (Preserved in 0.2% HCl acid)
1 x 30mL tin spiking solution

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Cadmium	RMean	1-5	7.5	µg/L	2
Lead	RMean	10-50	7.5	µg/L	1
Nickel	RMean	4-20	10	µg/L	1
Selenium	RMean	1-5	10 (0.3)	µg/L	2
Arsenic	RMean	2-10	7.5	µg/L	2
Antimony	RMean	1-5	10 (0.25)	µg/L	2
Mercury	RMean	0.2-1	10	µg/L	2
Cobalt	RMean	2-10	7.5	µg/L	2
Vanadium	RMean	2-10	7.5 (0.4)	µg/L	2
Chromium	RMean	5-25	7.5	µg/L	2
Molybdenum	RMean	5-25	7.5	µg/L	1
Tin	RMean	4-20	10 (0.8)	µg/L	1
Beryllium*	RMean	2-10	7.5	µg/L	2
Titanium*	RMean	1-80	7.5	µg/L	1
Lanthanum*	RMean	1-40	7.5	µg/L	1

This sample uses natural water samples and the values given above are indicative, based on the range of waters used in the past.

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Sample PT-AQ-06A **Haloforms and Chlorinated Solvents in Groundwater**
Supplied as: 2 x 1L groundwater sample
1 x 10mL spiking solution

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Chloroform	Formulation	24-120	10 (2.5)	µg/L	1
Bromodichloromethane	Formulation	24-120	10 (2.5)	µg/L	1
Dibromochloromethane	Formulation	24-120	10 (2.5)	µg/L	1
Bromoform	Formulation	24-120	10 (2.5)	µg/L	1
Trichloroethene	Formulation	2.4-12	10 (0.5)	µg/L	2
Tetrachloroethene	Formulation	2.4-12	10 (0.5)	µg/L	2
Carbon Tetrachloride	Formulation	0.72-3.6	10 (0.15)	µg/L	2
1,2-Dichloroethane	Formulation	0.72-3.6	10 (0.15)	µg/L	2

Sample PT-AQ-06B **Phenols in Groundwater**
Supplied as: 2 x 1L groundwater sample
1 x 10mL spiking solution

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Phenol	Formulation	120-600	10 (25)	ng/L	0
2-Chlorophenol	Formulation	120-600	10 (25)	ng/L	0
4-Chlorophenol	Formulation	120-600	10 (25)	ng/L	0
4-Chloro-3-methylphenol*	Formulation	120-600	10 (25)	ng/L	0
3-Bromophenol*	Formulation	120-600	10 (25)	ng/L	0
2,4-Dichlorophenol	Formulation	120-600	10 (25)	ng/L	0
2,6-Dichlorophenol*	Formulation	120-600	10 (25)	ng/L	0
2,4,5-Trichlorophenol*	Formulation	120-600	10 (25)	ng/L	0
2,4,6-Trichlorophenol	Formulation	120-600	10 (25)	ng/L	0
Pentachlorophenol	Formulation	120-600	10 (25)	ng/L	0
2,4-Dimethylphenol*	Formulation	120-600	10 (25)	ng/L	0
2,5-Dimethylphenol*	Formulation	120-600	10 (25)	ng/L	0
3,5-Dimethylphenol*	Formulation	120-600	10 (25)	ng/L	0
2-Methylphenol (o-cresol)*	Formulation	120-600	10 (25)	ng/L	0
3-Methylphenol (m-cresol)*	Formulation	120-600	10 (25)	ng/L	0
4-Methylphenol (p-cresol)*	Formulation	120-600	10 (25)	ng/L	0
Nonylphenol*	Formulation	120-600	10 (25)	ng/L	0
Total monosubsititued methylphenols	Formulation	360-1800	10 (75)	ng/L	0
2,4-Dichlorophenol/2,6-Dichlorophenol* (sum)	Formulation	240-1200	10 (50)	ng/L	0

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Sample PT-AQ-06C **Benzene, Toluene and Xylenes in Groundwater**
Supplied as: 2 x 1L groundwater sample
1 x 10mL spiking solution

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Benzene	Formulation	0.24-1.2	10 (0.05)	µg/L	3
Toluene	Formulation	0.6-3	10 (0.05)	µg/L	2
Ethylbenzene	Formulation	0.6-3	10 (0.05)	µg/L	2
Styrene	Formulation	0.6-3	10 (0.05)	µg/L	2
o-Xylene	Formulation	0.6-3	10 (0.05)	µg/L	2
m-Xylene	Formulation	0.6-3	10 (0.05)	µg/L	2
p-Xylene	Formulation	0.6-3	10 (0.05)	µg/L	2
Total Xylene	Formulation	1.8-9	10 (0.15)	µg/L	2

Analyte	AV	Range	SDPA % (fixed)	Units	DP
m-+ p-Xylene	Formulation	1.2-6	10 (0.1)	µg/L	2
1,2,4-Trimethylbenzene*	Formulation	2-10	10 (0.15)	µg/L	2
MTBE (methyl tert-butyl ether)	Formulation	2-10	10 (0.15)	µg/L	2

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Sample PT-AQ-07A **Organochlorine Pesticides in Groundwater**
Supplied as: 2 x 1L groundwater sample
2 x 10mL spiking solution

Spiking solution 7A(1)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Endrin	Formulation	24-120	10 (5)	ng/L	1
Dieldrin	Formulation	10-50	10 (1.5)	ng/L	1
Aldrin	Formulation	10-50	10 (1.5)	ng/L	1
p,p'-DDT	Formulation	24-120	10 (5)	ng/L	1
o,p-DDT	Formulation	24-120	10 (5)	ng/L	1
p,p'-DDE	Formulation	24-120	10 (5)	ng/L	1
o,p'-DDE*	Formulation	24-120	10 (5)	ng/L	1
p,p'-DDD	Formulation	24-120	10 (5)	ng/L	1
o,p'-DDD (TDE)*	Formulation	24-120	10 (5)	ng/L	1
Alpha Hexachlorocyclohexane	Formulation	24-120	10 (5)	ng/L	1
Beta Hexachlorocyclohexane	Formulation	24-120	10 (5)	ng/L	1
Delta Hexachlorocyclohexane	Formulation	24-120	10 (5)	ng/L	1
Lindane (Gamma HCH)	Formulation	24-120	10 (5)	ng/L	1
Trifluralin	Formulation	24-120	10 (5)	ng/L	1
Alpha Endosulfan	Formulation	24-120	10 (5)	ng/L	1
Beta Endosulfan	Formulation	24-120	10 (5)	ng/L	1
Hexachlorobenzene	Formulation	24-120	10 (5)	ng/L	1
Heptachlor	Formulation	10-50	10 (1.5)	ng/L	1
Heptachlor Epoxide	Formulation	10-50	10 (1.5)	ng/L	1
Pentachlorobenzene	Formulation	24-120	10 (5)	ng/L	1
Pendimethalin*	Formulation	24-120	10 (5)	ng/L	1

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Spiking solution 7A(2)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Endosulfan Sulfate*	Formulation	24-120	10 (5)	ng/L	1
Endrin Aldehyde*	Formulation	24-120	10 (5)	ng/L	1
Cis-Chlordane*	Formulation	24-120	10 (5)	ng/L	1
Trans-Chlordane*	Formulation	24-120	10 (5)	ng/L	1
Methoxychlor*	Formulation	24-120	10 (5)	ng/L	1

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Sample PT-AQ-07B **Chlorinated Solvents in Groundwater**
Supplied as: 2 x 1L groundwater sample
1 x 10mL spiking solution

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Hexachlorobutadiene	Formulation	24-120	10 (6)	ng/L	1
Carbon Tetrachloride	Formulation	80-400	10 (25)	ng/L	0
Tetrachloroethene	Formulation	80-400	10 (25)	ng/L	0
1,2,4-Trichlorobenzene	Formulation	24-120	10 (6)	ng/L	1
Trichloroethene	Formulation	80-400	10 (25)	ng/L	0
1,1,1-Trichloroethane	Formulation	80-400	10 (25)	ng/L	0
1,3,5-Trichlorobenzene	Formulation	24-120	10 (6)	ng/L	1
1,2,3-Trichlorobenzene	Formulation	24-120	10 (6)	ng/L	1
1,2-Dichloroethane	Formulation	80-400	10 (25)	ng/L	0
Chloroform	Formulation	80-400	10 (25)	ng/L	0

Sample PT-AQ-07C **Polycyclic Aromatic Hydrocarbons (2 Spikes) in Groundwater**
Supplied as: 2 x 1L groundwater sample
2 x 10mL spiking solutions

Spiking solution 7C(1)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Fluoranthene	Formulation	10-50	10 (2)	ng/L	1
Benzo(b)fluoranthene	Formulation	5-25	10 (2)	ng/L	2
Benzo(k)fluoranthene	Formulation	5-25	10 (2)	ng/L	2
Benz(a)pyrene	Formulation	2.4-12	10 (0.5)	ng/L	2
Benzo(ghi)perylene	Formulation	5-25	10 (2)	ng/L	2
Indeno(1,2,3-cd)pyrene	Formulation	5-25	10 (2)	ng/L	2

Spiking solution 7C(2)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Acenaphthene	Formulation	5-25	10 (2)	ng/L	2
Acenaphthylene	Formulation	5-25	10 (2)	ng/L	2
Anthracene	Formulation	5-25	10 (2)	ng/L	2
Benz(a)anthracene	Formulation	5-25	10 (2)	ng/L	2
Chrysene	Formulation	5-25	10 (2)	ng/L	2
Dibenz(ah)anthracene	Formulation	5-25	10 (2)	ng/L	2
Fluorene	Formulation	5-25	10 (2)	ng/L	2
Naphthalene	Formulation	5-25	10 (2)	ng/L	2
Perylene	Formulation	5-25	10 (2)	ng/L	2
Phenanthrene	Formulation	5-25	10 (2)	ng/L	2
Pyrene	Formulation	5-25	10 (2)	ng/L	2

Sample PT-AQ-07D **Polychlorinated Biphenyls in Groundwater**
Supplied as: 2 x 1L groundwater sample
1 x 10mL spiking solution

Analyte	AV	Range	SDPA % (fixed)	Units	DP
PCB (28)	Formulation	20-100	10 (1)	ng/L	1
PCB (52)	Formulation	20-100	10 (1)	ng/L	1
PCB (101)	Formulation	20-100	10 (1)	ng/L	1
PCB (118)	Formulation	20-100	10 (1)	ng/L	1
PCB (138)	Formulation	20-100	10 (1)	ng/L	1
PCB (149)*	Formulation	20-100	10 (1)	ng/L	1
PCB (153)	Formulation	20-100	10 (1)	ng/L	1
PCB (170)*	Formulation	20-100	10 (1)	ng/L	1
PCB (180)	Formulation	20-100	10 (1)	ng/L	1

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Sample PT-AQ-08 **Acid Herbicides in Groundwater**
Supplied as: 2 x 1L groundwater sample
3 x 10mL spiking solutions

Spiking solution 8(1)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
2,4,5-T*	Formulation	24-120	10 (5)	ng/L	1
2,4,5-TP (Fenoprop)*	Formulation	24-120	10 (5)	ng/L	1
2,4-D	Formulation	24-120	10 (5)	ng/L	1
2,4-DB	Formulation	24-120	10 (5)	ng/L	1
Dicamba	Formulation	24-120	10 (5)	ng/L	1
2,3,6-TBA*	Formulation	24-120	10 (5)	ng/L	1
Picloram*	Formulation	24-120	10 (5)	ng/L	1
Clopyralid*	Formulation	24-120	10 (5)	ng/L	1
Fluroxypyr*	Formulation	24-120	10 (5)	ng/L	1
Benazolin*	Formulation	24-120	10 (5)	ng/L	1
Mecoprop	Formulation	24-120	10 (5)	ng/L	1
Dichlorprop	Formulation	24-120	10 (5)	ng/L	1
Quinmerac*	Formulation	24-120	10 (5)	ng/L	1
MCPA	Formulation	24-120	10 (5)	ng/L	1
MCPB	Formulation	24-120	10 (5)	ng/L	1
Triclopyr	Formulation	24-120	10 (5)	ng/L	1

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Spiking solution 8(2)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Bentazone	Formulation	24-120	10 (5)	ng/L	1
Bromoxynil	Formulation	24-120	10 (5)	ng/L	1
Dichlobenil*	Formulation	24-120	10 (5)	ng/L	1
Ioxynil	Formulation	24-120	10 (5)	ng/L	1
Metaldehyde	Formulation	24-120	10 (5)	ng/L	1
Alachlor*	Formulation	24-120	10 (5)	ng/L	1
Metazachlor*	Formulation	24-120	10 (5)	ng/L	1
Propachlor*	Formulation	24-120	10 (5)	ng/L	1
S-Metolachlor*	Formulation	24-120	10 (5)	ng/L	1

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Spiking solution 8(2)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Flufenacet*	Formulation	24-120	10 (5)	ng/L	1
Propyzamide	Formulation	24-120	10 (5)	ng/L	1
Asulam*	Formulation	24-120	10 (5)	ng/L	1
Chloridazon*	Formulation	24-120	10 (5)	ng/L	1
Napropamide*	Formulation	24-120	10 (5)	ng/L	1

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Spiking solution 8(3)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Glyphosate	Formulation	24-120	10 (5)	ng/L	1
AMPA	Formulation	24-120	10 (5)	ng/L	1

Sample PT-AQ-08B **Triazines and Urea Herbicides in Groundwater**
Supplied as: 2 x 1L groundwater sample
2 x 10mL spiking solutions

Spiking solution 8B(1)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Isoproturon	Formulation	24-120	10 (5)	ng/L	1
Diuron	Formulation	24-120	10 (5)	ng/L	1
Linuron	Formulation	24-120	10 (5)	ng/L	1
Chlortoluron	Formulation	24-120	10 (5)	ng/L	1
Monuron	Formulation	24-120	10 (5)	ng/L	1
Chloroxuron*	Formulation	24-120	10 (5)	ng/L	1
Metoxuron*	Formulation	24-120	10 (5)	ng/L	1
Monolinuron *	Formulation	24-120	10 (5)	ng/L	1
Methabenzthiazuron*	Formulation	24-120	10 (5)	ng/L	1
Iodosulfuron methyl*	Formulation	24-120	10 (5)	ng/L	1
Mesosulfuron methyl*	Formulation	24-120	10 (5)	ng/L	1
Metsulfuron methyl*	Formulation	24-120	10 (5)	ng/L	1
Thifensulfuron methyl*	Formulation	24-120	10 (5)	ng/L	1
Tribenuron methyl*	Formulation	24-120	10 (5)	ng/L	1
Diflufenican*	Formulation	24-120	10 (5)	ng/L	1
Bromacil*	Formulation	24-120	10 (5)	ng/L	1

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Spiking solution 8B(2)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Simazine	Formulation	24-120	10 (5)	ng/L	1
Atrazine	Formulation	24-120	10 (5)	ng/L	1
Propazine	Formulation	24-120	10 (5)	ng/L	1
Cyanazine*	Formulation	24-120	10 (5)	ng/L	1
Trietazine*	Formulation	24-120	10 (5)	ng/L	1
Prometryn*	Formulation	24-120	10 (5)	ng/L	1
Terbutryn*	Formulation	24-120	10 (5)	ng/L	1
Ametryn*	Formulation	24-120	10 (5)	ng/L	1
Desethylatrazine*	Formulation	24-120	10 (5)	ng/L	1
Desisopropylatrazine*	Formulation	24-120	10 (5)	ng/L	1
Terbuthylazine*	Formulation	24-120	10 (5)	ng/L	1
Cyromazine*	Formulation	24-120	10 (5)	ng/L	1
Carbetamide*	Formulation	24-120	10 (5)	ng/L	1
Pirimicarb*	Formulation	24-120	10 (5)	ng/L	1
Carbofuran*	Formulation	24-120	10 (5)	ng/L	1
Methiocarb*	Formulation	24-120	10 (5)	ng/L	1
Prosulfocarb*	Formulation	24-120	10 (5)	ng/L	1
Metamitron*	Formulation	24-120	10 (5)	ng/L	1
Metribuzin*	Formulation	24-120	10 (5)	ng/L	1
Florasulam*	Formulation	24-120	10 (5)	ng/L	1

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Sample PT-AQ-09 **Organophosphorus Pesticides in Groundwater**
Supplied as: 2 x 1L groundwater sample
2 x 10mL spiking solution

Spiking solution 9(1)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Azinphos-methyl	Formulation	24-120	10 (5)	ng/L	1
Azinphos-ethyl	Formulation	24-120	10 (5)	ng/L	1
Dichlorvos	Formulation	24-120	10 (5)	ng/L	1
Fenitrothion	Formulation	24-120	10 (5)	ng/L	1
Malathion	Formulation	24-120	10 (5)	ng/L	1
Mevinphos	Formulation	24-120	10 (5)	ng/L	1
Chlorfenvinphos	Formulation	24-120	10 (5)	ng/L	1

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Diazinon	Formulation	24-120	10 (5)	ng/L	1
Fenthion	Formulation	24-120	10 (5)	ng/L	1
Parathion-ethyl	Formulation	24-120	10 (5)	ng/L	1
Parathion-methyl	Formulation	24-120	10 (5)	ng/L	1
Chlorpyrifos	Formulation	24-120	10 (5)	ng/L	1
Cypermethrin	Formulation	24-120	10 (5)	ng/L	1
Propetamphos*	Formulation	24-120	10 (5)	ng/L	1
Dimethoate*	Formulation	24-120	10 (5)	ng/L	1
Ethion*	Formulation	24-120	10 (5)	ng/L	1

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Spiking solution 9(2)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Carbophenothion*	Formulation	24-120	10 (5)	ng/L	1
Disulfoton*	Formulation	24-120	10 (5)	ng/L	1
Ethoprophos*	Formulation	24-120	10 (5)	ng/L	1
Fenchlorphos*	Formulation	24-120	10 (5)	ng/L	1
Fonofos*	Formulation	24-120	10 (5)	ng/L	1
Phorate*	Formulation	24-120	10 (5)	ng/L	1
Tetrachlorvinphos*	Formulation	24-120	10 (5)	ng/L	1

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Sample PT-AQ-10 **Nutrients and other analytes at typical wastewater levels**
Supplied as: 6 x 30mL all spiking solutions prepared in de-ionised water

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Total Oxidised Nitrogen (TON)	RMean	2-10	10 (0.25)	mgN/L	2
Nitrate	RMean	1.5-7.5	7.5 (0.25)	mgN/L	2
Nitrite	Formulation	0.5-2.5	7.5 (0.05)	mgN/L	2
Ammonia	RMean	4-20	7.5 (0.25)	mgN/L	2
Total Silicate	Formulation	5-25	7.5 (0.25)	mgSiO2/L	1
Soluble Reactive Phosphorus (PO_4)	RMean	2-10	7.5 (0.25)	mgP/L	2
Chloride	RMean	100-500	7.5 (10)	mgCl/L	0
Total Cyanide	Formulation	0.5-2.5	10 (0.05)	mgCN/L	2

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Kjeldahl Nitrogen	RMean	5-25	10 (0.25)	mgN/L	1
Free Cyanide	Formulation	0.5-2.5	10 (0.05)	mgCN/L	2
Total Nitrogen	Formulation	11-55	10 (0.5)	mgN/L	1
Total Phosphorus	Formulation	4-20	7.5 (0.05)	mgP/L	1

Sample PT-AQ-11 **Non-Specific Analytes at typical wastewater levels**

Supplied as: 6 x 30mL all spiking solutions prepared in de-ionised or ultrapure water
1 x 125mL sample prepared in ultrapure water for turbidity analysis

Analyte	AV	Range	SDPA % (fixed)	Units	DP
BOD (5 day)	RMean	40-200	10 (4)	mgO2/L	1
COD	Formulation	50-250	7.5 (5)	mgO2/L	1
Suspended Solids	RMean	10-50	10 (1)	mg/L	1
Methylene Blue Active Substances (MBAS)	RMean	15-75	10 (1)	mgLS/L	1
Dissolved/Total Organic Carbon	Formulation	50-250	7.5 (5)	mgC/L	1
Turbidity	RMean	10-50	10	NTU	1
Non-Ionic Surfactants	RMean	10-50	10	mg/L	2

Sample PT-AQ-12 **Metals at typical wastewater levels (Preserved in 0.5% Nitric Acid)**

Supplied as: 1 x 250mL concentrated synthetic effluent sample
1 x 125mL metals sample prepared in deionised water, containing all analytes except mercury
1 x 30mL mercury spike solution prepared in deionised water (Preserved in 0.2% HCl acid)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Antimony*	Formulation	1-5	10 (0.2)	µg/L	2
Arsenic	Formulation	10-50	10 (2)	µg/L	1
Aluminium	Formulation	0.5-2.5	7.5 (0.05)	mg/L	2
Chromium	Formulation	0.05-0.25	7.5 (0.01)	mg/L	3
Beryllium*	Formulation	0.5-2.5	7.5 (0.05)	mg/L	2
Iron	Formulation	1-5	7.5 (0.1)	mg/L	2
Manganese	Formulation	0.5-2.5	7.5 (0.05)	mg/L	2
Cadmium	Formulation	10-50	7.5 (1)	µg/L	1

*analytes marked with an asterisk are not included in the LGC's UKAS scope of accreditation

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Copper	Formulation	0.05-0.25	7.5 (0.01)	mg/L	3
Lead	Formulation	0.05-0.25	7.5 (0.01)	mg/L	3
Nickel	Formulation	0.2-1	7.5 (0.02)	mg/L	3
Zinc	Formulation	1-5	7.5 (0.1)	mg/L	2
Mercury	Formulation	2-10	10 (0.5)	µg/L	1
Selenium	Formulation	10-50	10 (2.5)	µg/L	1
Molybdenum	Formulation	0.2-1	7.5 (0.02)	mg/L	3
Tellurium*	Formulation	2-5	10 (0.05)	µg/L	2
Uranium*	Formulation	0.2-1	10 (0.05)	µg/L	3
Titanium*	Formulation	1-5	7.5 (0.1)	mg/L	2

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Sample PT-AQ-12C **Chromium (VI) at typical wastewater levels**
Supplied as: 1 x 500mL synthetic wastewater sample
1 x 30mL chromium (VI) spiking solution prepared in deionised water

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Chromium (VI)	Formulation	40-200	10 (5)	µg/L	1

Sample PT-AQ-13 **Simulated sewage sludge (animal or human, manure or compost) Inorganics and Specific Elements**
Supplied as: 1 x 20g simulated sewage sludge sample

Analyte	AV	Likely Range	SDPA % (fixed)	Units	DP
Arsenic	RMean	0.5-15	10 (0.25)	mg/kg	2
Cadmium	RMean	0.1-5	10 (0.1)	mg/kg	2
Chromium	RMean	5-150	10 (5)	mg/kg	1
Copper	RMean	10-450	10 (10)	mg/kg	0
Lead	RMean	5-150	10 (5)	mg/kg	1
Mercury	RMean	0.05-5	10 (0.05)	mg/kg	2
Molybdenum	RMean	1-10	10 (0.5)	mg/kg	2
Nickel	RMean	5-100	10 (2)	mg/kg	1
Vanadium	RMean	1-50	10 (1)	mg/kg	2
Zinc	RMean	100-1500	10 (20)	mg/kg	0
Selenium	RMean	0.1-5	10 (0.15)	mg/kg	2
Total Boron	RMean	10-50	10 (1)	mg/kg	1

Analyte	AV	Likely Range	SDPA % (fixed)	Units	DP
Selenium	RMean	0.1-5	10 (0.15)	mg/kg	2
Total Boron	RMean	10-50	10 (1)	mg/kg	1
Fluoride	RMean	10-250	10 (12.5)	mg/kg	0
Total Carbon*	RMean	10-50	Robust SD	% C	2
Total Nitrogen	RMean	1-5	10 (0.25)	% N	2
Total Phosphorus	RMean	0.1-5	10 (0.05)	% P	2
Total Potassium	RMean	0.05-5	10 (0.05)	% K	3
Total Sulphur*	RMean	0.1-5	Robust SD	% S	2
Cobalt	RMean	1-15	10 (0.5)	mg/kg	1
Iron	RMean	2000-100000	10	mg/kg	0
Manganese	RMean	100-1000	10	mg/kg	0

*analytes marked with an asterisk are not included in the LGC's UKAS scope of accreditation

Sample 13 uses simulated samples from different sources. The figures given above provide an indication of the concentrations that may be supplied; these values are accumulated from a range of recent samples provided within the Aquacheck scheme.

Sample PT-AQ-14 **Agricultural Soil Inorganics and Specific Elements**
Supplied as: 1 x 100g soil sample

Analyte	AV	Likely Range	SDPA % (fixed)	Units	DP
Arsenic	RMean	1-50	10 (0.5)	mg/kg	2
Antimony	RMean	0.05-20	10	mg/kg	3
Cadmium	RMean	0.05-20	10 (0.05)	mg/kg	3
Chromium	RMean	5-150	10 (5)	mg/kg	1
Copper	RMean	5-100	10 (1.5)	mg/kg	2
Lead	RMean	5-750	10 (2)	mg/kg	1
Mercury	RMean	0.01-5	10 (0.025)	mg/kg	3
Molybdenum	RMean	0.1-5	10 (0.1)	mg/kg	3
Nickel	RMean	1-50	10 (1.5)	mg/kg	2
Vanadium	RMean	5-50	10 (2.5)	mg/kg	1
Zinc	RMean	10-750	10 (5)	mg/kg	1
Selenium	RMean	0.1-5	10 (0.1)	mg/kg	3
Total Boron	RMean	2-50	10	mg/kg	2
Water Extractable Boron	RMean	0.1-10	10 (1)	mg/kg	2
Fluoride	RMean	5-100	15	mg/kg	1

Analyte	AV	Likely Range	SDPA % (fixed)	Units	DP
Total Nitrogen	RMean	500-5000	10	mg/kg	0
Total Phosphorus	RMean	200-2000	10 (10)	mg/kg	0
Total Potassium	RMean	100-8000	10	mg/kg	0
Cobalt	RMean	0.5-20	10 (0.5)	mg/kg	2
Iron	RMean	1000-30000	10	mg/kg	0
Manganese	RMean	50-750	10	mg/kg	0
Total Solids	RMean	85-100	(0.5)	%	1
Loss On Ignition	RMean	1-20	10	%	2
pH at 20-25°C	RMean	4-10	(0.2)	-	2
Extractable Phosphorus	RMean	10-200	10 (5)	mg/kg	1
Extraction of Potassium	RMean	100-2500	10 (5)	mg/kg	1
Extraction of Magnesium	RMean	10-250	10 (5)	mg/kg	1
Extraction of Sodium	RMean	10-50	10 (5)	mg/kg	1
Organic Carbon Content	RMean	0.5-10	20 (0.5)	%	2
Conductivity	RMean	50-1500	10 (2.5)	uS/cm	0
Carbonate Content	RMean	4000-100000	10 (3)	mg/kg	2

Sample 14 uses natural soil samples which are from different sources and of different soil types. The figures given above provide an indication of the concentrations that may be supplied; these values are accumulated from a range of recent samples provided within the Aquacheck scheme.

Sample PT-AQ-15 **Settleable Solids at typical wastewater levels**
Supplied as: 1 x 1L sample prepared in de-ionised water

Analyte	AV	Range	SDPA %	Units	DP
Settleable Solids	RMean	20-100	20	mL/L	2

Sample PT-AQ-16 **Compositional Analysis of Sewage Sludge**
Supplied as: 1 x 70g real sewage sludge sample

Analyte	AV	Likely Range	SDPA % (fixed)	Units	DP
Total Solids (105±5°C)	RMean	10-50	5 (0.5)	%	2
Loss On Ignition (500±5°C)	RMean	50-75	5 (0.5)	%	2
pH at 20-25°C	RMean	4-10	(0.2)	-	2
Calcium	RMean	15000-50000	10 (250)	mg/kg dried weight	0

Analyte	AV	Likely Range	SDPA % (fixed)	Units	DP
Magnesium	RMean	2500-7500	10 (7.5)	mg/kg dried weight	0
Ammoniacal Nitrogen*	RMean	2000-15000	Robust SD	mg/kg dried weight	0

*analytes marked with an asterisk are not included in the LGC's UKAS scope of accreditation

Sample 16 uses natural sludge samples from different sources. The range figures given above provide an indication of the concentrations that may be supplied; they are values from a range of recent samples provided within the Aquacheck scheme.

Sample PT-AQ-17A **Major Wastewater Analytes**
Supplied as: 1 x 1L sample prepared in de-ionised water

Analyte	AV	Range	SDPA % (fixed)	Units	DP
pH at 20-25°C	RMean	3-10	(0.1)	-	2
Settled Chemical Oxygen Demand (COD)	RMean	200-1000	10 (10)	mgO2/L	0
Total COD	Formulation	400-2100	7.5 (10)	mgO2/L	0
Suspended Solids	RMean	200-1000	7.5 (10)	mg/L	0
Conductivity (20°C)	RMean	0.5-40	7.5	mS/cm	2
Total Dissolved Solids	RMean	0.3-30	7.5 (0.05)	g/L	2
Non Filterable COD	RMean	200-1000	10 (10)	mgO2/L	0
Salinity	RMean	0.5-20	Robust SD	g/kg	2

Sample PT-AQ-17B **Total Phenol, Cyanide, Sulfate and Fluoride at typical wastewater levels**
Supplied as: 2 x 125mL phenol and sulfate sample, prepared in synthetic effluent
1 x 125mL cyanide sample, prepared in de-ionised water

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Total Phenol	Formulation	10-50	10 (0.05)	mg/L	1
Total Cyanide	Formulation	5-25	10 (0.05)	mgCN/L	2
Sulfate	Formulation	200-1000	7.5 (25)	mgSO4/L	0
Fluoride	Formulation	0.5-50	10	mgF/L	2

Sample PT-AQ-17C **Metals at typical wastewater levels (Preserved in 0.5% Nitric Acid)**

Supplied as: 1 x 250mL metals sample prepared in synthetic effluent, containing all analytes except mercury, tin and silver
3 x 30mL mercury (Preserved in 0.2% HCl acid), tin and silver spiking solution; prepared in de-ionised water

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Aluminium	Formulation	2-10	7.5 (0.025)	mg/L	2
Antimony	Formulation	0.1-0.5	10 (0.025)	mg/L	3
Arsenic	Formulation	0.1-0.5	10 (0.025)	mg/L	3
Barium	Formulation	2-10	7.5 (0.025)	mg/L	2
Boron	Formulation	10-50	7.5 (0.5)	mg/L	1
Beryllium*	Formulation	1-10	7.5 (0.025)	mg/L	2
Cadmium	Formulation	50-250	7.5 (0.25)	µg/L	0
Chromium	Formulation	1-5	7.5 (0.0125)	mg/L	2
Cobalt	Formulation	1-5	7.5 (0.0125)	mg/L	2
Copper	Formulation	1-5	7.5 (0.0125)	mg/L	2
Iron	Formulation	2-10	7.5 (0.025)	mg/L	2
Lead	Formulation	1-5	7.5 (0.0125)	mg/L	2
Manganese	Formulation	1-5	7.5 (0.0125)	mg/L	2
Molybdenum	Formulation	1-5	7.5 (0.0125)	mg/L	2
Mercury	Formulation	2-10	10 (0.5)	µg/L	1
Nickel	Formulation	1-5	7.5 (0.0125)	mg/L	2
Selenium	Formulation	10-50	10 (2.5)	µg/L	1
Silver	Formulation	0.1-0.5	7.5 (0.005)	mg/L	3
Tin	Formulation	0.1-0.5	10 (0.025)	mg/L	3
Vanadium	Formulation	1-5	7.5 (0.0125)	mg/L	2
Zinc	Formulation	1-5	7.5 (0.0125)	mg/L	2
Titanium*	Formulation	1-5	7.5 (0.0125)	mg/L	2

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Sample PT-AQ-17D **Ammonia, Phosphate and Nitrogen at typical wastewater levels**
Supplied as: 3 x 125mL all spiking solutions prepared in de-ionised water

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Ammonia	Formulation	5-25	7.5 (0.25)	mgN/L	1
Soluble Reactive Phosphorus (PO_4)	Formulation	25-125	7.5 (2.5)	mgP/L	1
Total Phosphorus	Formulation	25-125	7.5 (2.5)	mgP/L	1
Total Nitrogen	Formulation	25-125	10 (2.5)	mgN/L	1

Sample PT-AQ-18A **Haloforms and Chlorinated Solvents in Wastewater**
Supplied as: 1 x 500mL concentrated synthetic effluent sample
1 x 10mL spiking solution

Analyte	AV	Range	SDPA %	Units	DP
Chloroform	Formulation	240-1200	10	µg/L	0
Bromodichloromethane	Formulation	240-1200	10	µg/L	0
Dibromochloromethane	Formulation	240-1200	10	µg/L	0
Bromoform	Formulation	240-1200	10	µg/L	0
Trichloroethene	Formulation	24-120	15	µg/L	1
Tetrachloroethene	Formulation	24-120	15	µg/L	1
Carbon Tetrachloride	Formulation	7.2-36	15	µg/L	1
1,2-Dichloroethane	Formulation	7.2-36	15	µg/L	1

Sample PT-AQ-18B **Phenols in Wastewater**
Supplied as: 1 x 500mL concentrated synthetic effluent sample
1 x 10mL spiking solution

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Phenol	Formulation	1200-6000	10 (50)	ng/L	0
2-Chlorophenol	Formulation	1200-6000	10 (50)	ng/L	0
4-Chlorophenol	Formulation	1200-6000	10 (50)	ng/L	0
4-Chloro-3-methylphenol*	Formulation	1200-6000	10 (50)	ng/L	0
3-Bromophenol*	Formulation	1200-6000	10 (50)	ng/L	0
2,4-Dichlorophenol	Formulation	1200-6000	10 (50)	ng/L	0
2,6-Dichlorophenol*	Formulation	1200-6000	10 (50)	ng/L	0
2,4,5-Trichlorophenol*	Formulation	1200-6000	10 (50)	ng/L	0
2,4,6-Trichlorophenol	Formulation	1200-6000	10 (50)	ng/L	0

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Analyte	AV	Range	SDPA % (fixed)	Units	DP
Pentachlorophenol	Formulation	1200-6000	10 (50)	ng/L	0
2,4-Dimethylphenol*	Formulation	1200-6000	10 (50)	ng/L	0
2,5-Dimethylphenol*	Formulation	1200-6000	10 (50)	ng/L	0
3,5-Dimethylphenol*	Formulation	1200-6000	10 (50)	ng/L	0
2-Methylphenol (o-cresol)*	Formulation	1200-6000	10 (50)	ng/L	0
3-Methylphenol (m-cresol)*	Formulation	1200-6000	10 (50)	ng/L	0
4-Methylphenol (p-cresol)*	Formulation	1200-6000	10 (50)	ng/L	0
Nonylphenol*	Formulation	1200-6000	10 (50)	ng/L	0
Total Monosubstituted Methylphenols*	Formulation	3600-18000	10 (150)	ng/L	0
2,4-Dichlorophenol/2,6-Dichlorophenol* (sum)	Formulation	2400-12000	10 (100)	ng/L	0

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Sample PT-AQ-18C **Benzene, Toluene and Xylenes in Wastewater**
Supplied as: 1 x 500mL concentrated synthetic effluent sample
1 x 10mL spiking solution

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Benzene	Formulation	4.8-24	10 (1)	µg/L	2
Toluene	Formulation	12-60	10 (3)	µg/L	1
Ethylbenzene	Formulation	12-60	10 (3)	µg/L	1
Styrene	Formulation	12-60	10 (3)	µg/L	1
o-Xylene	Formulation	12-60	10 (3)	µg/L	1
m-Xylene	Formulation	12-60	10 (3)	µg/L	1
p-Xylene	Formulation	12-60	10 (3)	µg/L	1
Total Xylene	Formulation	36-180	10 (9)	µg/L	1
m-+ p-Xylene	Formulation	24-120	10 (6)	µg/L	1

Sample PT-AQ-19A **Organochlorine Pesticides in Wastewater**
Supplied as: 1 x 500mL concentrated synthetic effluent sample
2 x 10mL spiking solution

Spiking solution 19A(1)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Endrin	Formulation	240-1200	10 (50)	ng/L	0
Dieldrin	Formulation	100-500	10 (25)	ng/L	0
Aldrin	Formulation	100-500	10 (25)	ng/L	0
p,p'-DDT	Formulation	240-1200	10 (50)	ng/L	0
o,p-DDT	Formulation	240-1200	10 (50)	ng/L	0
p,p'-DDE	Formulation	240-1200	10 (50)	ng/L	0
o,p'-DDE*	Formulation	240-1200	10 (50)	ng/L	0
p,p'-DDD	Formulation	240-1200	10 (50)	ng/L	0
o,p'-DDD (TDE)*	Formulation	240-1200	10 (50)	ng/L	0
Alpha Hexachlorocyclohexane	Formulation	240-1200	10 (50)	ng/L	0
Beta Hexachlorocyclohexane (HCH)	Formulation	240-1200	10 (50)	ng/L	0
Delta Hexachlorocyclohexane (HCH)	Formulation	240-1200	10 (50)	ng/L	0
Lindane (Gamma HCH)	Formulation	240-1200	10 (50)	ng/L	0
Trifluralin	Formulation	240-1200	10 (50)	ng/L	0
Alpha Endosufan	Formulation	240-1200	10 (50)	ng/L	0
Beta Endosulfan	Formulation	240-1200	10 (50)	ng/L	0
Hexachlorobenzene	Formulation	240-1200	10 (50)	ng/L	0
Heptachlor	Formulation	100-500	10 (25)	ng/L	0
Heptachlor Epoxide	Formulation	100-500	10 (25)	ng/L	0
Pentachlorobenzene	Formulation	240-1200	10 (50)	ng/L	0
Pendimethalin*	Formulation	240-1200	10 (50)	ng/L	0

*analytes marked with an asterisk are not included in the LGC's UKAS scope of accreditation

Spiking solution 19A(2)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Endosulfan Sulfate*	Formulation	240-1200	10 (50)	ng/L	0
Endrin Aldehyde*	Formulation	240-1200	10 (50)	ng/L	0
Cis-chlordane*	Formulation	240-1200	10 (50)	ng/L	0
Trans-chlordane*	Formulation	240-1200	10 (50)	ng/L	0
Methoxychlor*	Formulation	240-1200	10 (50)	ng/L	0

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Sample PT-AQ-19B **Chlorinated Solvents in Wastewater**
Supplied as: 1 x 500mL concentrated synthetic effluent sample
1 x 10mL spiking solution

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Hexachlorobutadiene	Formulation	240-1200	10 (60)	ng/L	0
Carbon Tetrachloride	Formulation	800-4000	10 (200)	ng/L	0
Tetrachloroethene	Formulation	800-4000	10 (200)	ng/L	0
1,2,4-Trichlorobenzene	Formulation	240-1200	10 (60)	ng/L	0
Trichloroethene	Formulation	800-4000	10 (200)	ng/L	0
1,1,1-Trichloroethane	Formulation	800-4000	10 (200)	ng/L	0
1,3,5-Trichlorobenzene	Formulation	240-1200	10 (60)	ng/L	0
1,2,3-Trichlorobenzene	Formulation	240-1200	10 (60)	ng/L	0
1,2-Dichloroethane	Formulation	800-4000	10 (200)	ng/L	0
Chloroform	Formulation	800-4000	10 (200)	ng/L	0

Sample PT-AQ-19C **Polycyclic Aromatic Hydrocarbons (2 Spikes) in Wastewater**
Supplied as: 1 x 500mL concentrated synthetic effluent sample
2 x 10mL spiking solutions

Spiking solution 19C(1)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Fluoranthene	Formulation	100-500	10 (25)	ng/L	0
Benzo(b)fluoranthene	Formulation	50-250	10 (12)	ng/L	0
Benzo(k)fluoranthene	Formulation	50-250	10 (12)	ng/L	0
Benz(a)pyrene	Formulation	24-120	10 (6)	ng/L	1
Benzo(ghi)perylene	Formulation	50-250	10 (12)	ng/L	0
Indeno(1,2,3-cd)pyrene	Formulation	50-250	10 (12)	ng/L	0

Spiking solution 19C(2)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Acenaphthene	Formulation	50-250	10 (12)	ng/L	0
Acenaphthylene	Formulation	50-250	10 (12)	ng/L	0
Anthracene	Formulation	50-250	10 (12)	ng/L	0
Benz(a)anthracene	Formulation	50-250	10 (12)	ng/L	0
Chrysene	Formulation	50-250	10 (12)	ng/L	0
Dibenz(ah)anthracene	Formulation	50-250	10 (12)	ng/L	0
Fluorene	Formulation	50-250	10 (12)	ng/L	0
Naphthalene	Formulation	50-250	10 (12)	ng/L	0
Perylene	Formulation	50-250	10 (12)	ng/L	0
Phenanthrene	Formulation	50-250	10 (12)	ng/L	0
Pyrene	Formulation	50-250	10 (12)	ng/L	0

Sample PT-AQ-19D **Polychlorinated Biphenyls (PCBs) in Wastewater**
Supplied as: 1 x 500mL concentrated synthetic effluent sample
1 x 10mL spiking solution

Analyte	AV	Range	SDPA % (fixed)	Units	DP
PCB (28)	Formulation	200-1000	10 (10)	ng/L	0
PCB (52)	Formulation	200-1000	10 (10)	ng/L	0
PCB (101)	Formulation	200-1000	10 (10)	ng/L	0
PCB (118)	Formulation	200-1000	10 (10)	ng/L	0
PCB (138)	Formulation	200-1000	10 (10)	ng/L	0
PCB (149)*	Formulation	200-1000	10 (10)	ng/L	0
PCB (153)	Formulation	200-1000	10 (10)	ng/L	0
PCB (170)*	Formulation	200-1000	10 (10)	ng/L	0
PCB (180)	Formulation	200-1000	10 (10)	ng/L	0

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Sample PT-AQ-20 **Acid Herbicides in Wastewater**
Supplied as: 1 x 500mL concentrated synthetic effluent sample
3 x 10mL spiking solutions

Spiking solution 20(1)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
2,4,5-T*	Formulation	240-1200	10 (50)	ng/L	0
2,4,5-TP (Fenoprop)*	Formulation	240-1200	10 (50)	ng/L	0
2,4-D	Formulation	240-1200	10 (50)	ng/L	0
2,4-DB	Formulation	240-1200	10 (50)	ng/L	0
Dicamba	Formulation	240-1200	10 (50)	ng/L	0
2,3,6-TBA*	Formulation	240-1200	10 (50)	ng/L	0
Clopyralid*	Formulation	240-1200	10 (50)	ng/L	0
Fluroxypyr*	Formulation	240-1200	10 (50)	ng/L	0
Benazolin*	Formulation	240-1200	10 (50)	ng/L	0
Mecoprop	Formulation	240-1200	10 (50)	ng/L	0
Dichlorprop	Formulation	240-1200	10 (50)	ng/L	0
MCPA	Formulation	240-1200	10 (50)	ng/L	0
MCPB	Formulation	240-1200	10 (50)	ng/L	0
Triclopyr	Formulation	240-1200	10 (50)	ng/L	0

Spiking solution 20(2)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Bentazone	Formulation	240-1200	10 (50)	ng/L	0
Bromoxynil	Formulation	240-1200	10 (50)	ng/L	0
Dichlobenil*	Formulation	240-1200	10 (50)	ng/L	0
Ioxynil	Formulation	240-1200	10 (50)	ng/L	0
Metaldehyde	Formulation	240-1200	10 (50)	ng/L	0
Metazachlor*	Formulation	240-1200	10 (50)	ng/L	0
Propachlor*	Formulation	240-1200	10 (50)	ng/L	0
Propyzamide	Formulation	240-1200	10 (50)	ng/L	0

*analytes marked with an asterisk are not included in the LGC's UKAS scope of accreditation

Spiking solution 20(3)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Glyphosate	Formulation	240-1200	10 (50)	ng/L	0
AMPA	Formulation	240-1200	10 (50)	ng/L	0

Sample PT-AQ-20B **Triazines and Urea Herbicides in Wastewater**
Supplied as: 1 x 500mL concentrated synthetic effluent sample
2 x 10mL spiking solutions

Spiking solution 20B(1)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Isoproturon	Formulation	240-1200	10 (50)	ng/L	0
Diuron	Formulation	240-1200	10 (50)	ng/L	0
Linuron	Formulation	240-1200	10 (50)	ng/L	0
Chlortoluron	Formulation	240-1200	10 (50)	ng/L	0
Monuron	Formulation	240-1200	10 (50)	ng/L	0
Methabenzthiazuron*	Formulation	240-1200	10 (50)	ng/L	0
Diflufenican*	Formulation	240-1200	10 (50)	ng/L	0
Bromacil*	Formulation	240-1200	10 (50)	ng/L	0

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Spiking solution 20B(2)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Simazine	Formulation	240-1200	10 (50)	ng/L	0
Atrazine	Formulation	240-1200	10 (50)	ng/L	0
Propazine	Formulation	240-1200	10 (50)	ng/L	0
Cyanazine*	Formulation	240-1200	10 (50)	ng/L	0
Trietazine*	Formulation	240-1200	10 (50)	ng/L	0
Prometryn*	Formulation	240-1200	10 (50)	ng/L	0
Terbutryn*	Formulation	240-1200	10 (50)	ng/L	0
Ametryn*	Formulation	240-1200	10 (50)	ng/L	0
Carbetamide*	Formulation	240-1200	10 (50)	ng/L	0
Pirimicarb*	Formulation	240-1200	10 (50)	ng/L	0
Metamitron*	Formulation	240-1200	10 (50)	ng/L	0

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Sample PT-AQ-21 **Organophosphorus Pesticides in Wastewater**
Supplied as: 1 x 500mL concentrated synthetic effluent sample
1 x 10mL spiking solution

Spiking solution 21

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Azinphos-methyl	Formulation	240-1200	10 (50)	ng/L	0
Azinphos-ethyl	Formulation	240-1200	10 (50)	ng/L	0
Dichlorvos	Formulation	240-1200	10 (50)	ng/L	0
Fenitrothion	Formulation	240-1200	10 (50)	ng/L	0
Malathion	Formulation	240-1200	10 (50)	ng/L	0
Mevinphos	Formulation	240-1200	10 (50)	ng/L	0
Chlorfenvinphos	Formulation	240-1200	10 (50)	ng/L	0
Diazinon	Formulation	240-1200	10 (50)	ng/L	0
Fenthion	Formulation	240-1200	10 (50)	ng/L	0
Parathion-ethyl	Formulation	240-1200	10 (50)	ng/L	0
Parathion-methyl	Formulation	240-1200	10 (50)	ng/L	0
Chlorpyrifos	Formulation	240-1200	10 (50)	ng/L	0
Cypermethrin	Formulation	240-1200	10 (50)	ng/L	0
Propetamphos*	Formulation	240-1200	10 (50)	ng/L	0
Dimethoate*	Formulation	240-1200	10 (50)	ng/L	0
Ethion*	Formulation	240-1200	10 (50)	ng/L	0

*analytes marked with an asterisk are not included in the LGC's UKAS scope of accreditation

Sample PT-AQ-22 **Qualitative Organics by GC-MS at typical surface/potable levels**
Supplied as: 1 x 1mL sample containing ten organic compounds
1 x 1mL blank sample

Ten organic analytes are provided for qualitative identification. This sample is designed to test the ability of laboratories to identify organic compounds via GCMS analysis.

Participants are provided with a solution containing ten organic compounds. The test requires that participants identify the ten compounds present. Results returned will be identified as satisfactory or unsatisfactory. Participants are also provided with a solvent blank.

The choice of the ten organic compounds is designed to avoid the formation of reaction by-products.

Sample PT-AQ-22A **Qualitative Organics by Purge and Trap GC-MS at typical surface/potable levels**
Supplied as: 1 x 40mL sample containing six organic compounds
1 x 40mL blank sample

Six organic analytes are provided for qualitative identification. This sample is designed to test the ability of laboratories to identify organic compounds via purge and trap GCMS analysis.

Participants are provided with a solution containing six organic compounds. The test requires that participants identify the six compounds present. Results returned will be identified as satisfactory or unsatisfactory. Participants are also provided with a solvent blank.

The choice of the 6 organic compounds is designed to avoid the formation of reaction by-products.

Sample PT-AQ-23 **Mineral Oil in Water**
Supplied as: 1 x variable volume sample

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Volume of sample provided	Formulation	0.3-0.9	5	L	3
Hydrocarbons C10-C40 by GC Analysis	RMean	10-50	15 (1)	mg/L	1
Hydrocarbons C10-C40 by IR Analysis	RMean	10-50	15 (1)	mg/L	1
Hydrocarbons C10-C40 by Gravimetric Analysis	RMean	10-50	15 (1)	mg/L	1

A 50:50 mixture of Type A and Type B mineral oils will be used to prepare these samples. This is designed to match the needs of ISO 9377 with a carbon range of C10 to C40 inclusive.

Sample PT-AQ-24 **Oil and Grease in Water**
Supplied as: 1 x variable volume sample

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Volume of sample provided	Formulation	0.75-0.9	5	L	3
Total Oil and Grease	Formulation	40-200	15 (1)	mg/L	1

Sample PT-AQ-25 **Qualitative Determination (at typical surface/potable levels)**
Supplied as: 1 x 2L sample

The intent of this sample is to test the ability of laboratories to detect and identify an unknown contaminant in surface/potable waters. This sample is designed for laboratories which may be involved in investigating potentially contaminated potable or surface waters and tests both the extraction and identification stages of investigations.
Participants are provided with a two litre water sample and one or more 'indicators' of a potential problem, e.g. water is discoloured or has an oily sheen.

Participants are asked to identify the contaminating substance(s). Results returned will be identified as satisfactory or unsatisfactory.

Sample PT-AQ-26 **PFOS and PFOA (at typical surface/potable levels)**
Supplied as: 1 x 5mL spiking solution

Analyte	AV	Range	SDPA %	Units	DP
PFOS	Formulation	1-10	15	µg/L	2
PFOA	Formulation	2-20	15	µg/L	2

Sample PT-AQ-27 **AOX in Wastewater**
Supplied as: 1 x 10mL spiking solution
1 x 500mL synthetic effluent matrix

Analyte	AV	Range	SDPA %	Units	DP
AOX	Formulation	2-10	10	mgCl/L	2

Sample PT-AQ-28 **Formaldehyde (at typical surface/potable levels)**
Supplied as: 1 x 10mL spiking solution

Analyte	AV	Range	SDPA %	Units	DP
Formaldehyde	Formulation	0.01-1	10	mg/L	3

Sample PT-AQ-29 **High and Low COD**
Supplied as: 1 x 250mL spiking solution for high level COD
1 x 250mL spiking solution for low level COD

Analyte	AV	Range	SDPA %	Units	DP
COD – high	Formulation	500-10000	5	mgO_2/L	0
COD – low	Formulation	14-70	10	mgO_2/L	1

Sample PT-AQ-30 **Gross Alpha and Gross Beta (at typical surface/potable levels)**
Supplied as: 1 x 2L sample

Analyte	AV	Range	SDPA %	Units	DP
Gross Alpha as ^{239}Plutonium	RMean	0.05-0.15 (occasionally up to 0.5)	20	Bq/L	3
Gross Alpha as ^{241}Americium	RMean	0.05-0.15 (occasionally up to 0.5)	20	Bq/L	3
Gross Alpha as ^{230}Thorium	RMean	0.05-0.15 (occasionally up to 0.5)	20	Bq/L	3
Gross Beta as ^{40}Potassium	RMean	0.5-1.5 (occasionally up to 5)	20	Bq/L	3
Gross Beta as ^{137}Caesium	RMean	0.5-1.5 (occasionally up to 5)	20	Bq/L	3
Gross Beta as ^{90}Strontium	RMean	0.5-1.5 (occasionally up to 5)	20	Bq/L	3

Sample PT-AQ-31 **Aqueous Tritium (at typical surface/potable levels)**
Supplied as: 1 x 250mL sample

Analyte	AV	Range	SDPA %	Units	DP
Aqueous Tritium	Formulation	15-75 (occasionally up to 150)	10	Bq/L	2

Sample PT-AQ-32** **Sulfide in Wastewater**
Supplied as: 1 x 125mL sample

Analyte	AV	Range	SDPA %	Units	DP
Total sulfide	Formulation	4-20	15	mg/L	2

Sample PT-AQ-33 **Chlorophyll *a* (at typical surface/potable levels)**
Supplied as: 1 x 5mL vial of Algae extract

Analyte	AV	Range	SDPA	Units	DP
Chlorophyll *a*	RMean	1-300	RSD	mg/m3	2

Participants are provided with a material for testing chlorophyll, suitable methods to analyse this sample will be spectrometry and fluorometric. The final report will be assessing the methods individually.

Sample PT-AQ-34** **Water Framework Directive**

Sample A**
Supplied as: 1 x 500mL metals sample, 1 x 30mL mercury spiking solution

Analyte	AV	Range	SDPA %	Units	DP
Cadmium	RMean	0.05-0.25	10	µg/L	3
Lead	RMean	0.7-10	10	µg/L	2
Mercury	RMean	0.02-2	10	µg/L	3
Nickel	RMean	5-50	10	µg/L	2

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Sample B**
Supplied as: 1 x 10mL spiking solution
2 x 1L groundwater sample

Analyte	AV	Range	SDPA %	Units	DP
Atrazine	Formulation	0.15-0.75	25	µg/L	3
Diuron	Formulation	0.05-0.25	25	µg/L	3
Isoproturon	Formulation	0.08-0.4	25	µg/L	3
Simazine	Formulation	0.2-2	25	µg/L	3

Sample C**
Supplied as: 1 x 10mL spiking solution

Analyte	AV	Range	SDPA %	Units	DP
Alachlor	Formulation	0.04-0.4	25	µg/L	3
Chlorfenvinphos	Formulation	0.02-0.2	25	µg/L	3
Chlorpyrifos	Formulation	0.01-0.1	25	µg/L	3

Sample D**
Supplied as: 1 x 10mL spiking solution

Analyte	AV	Range	SDPA %	Units	DP
4-n Pentylphenol	Formulation	0.04-0.4	25	µg/L	3
4-n Hexylphenol	Formulation	0.04-0.4	25	µg/L	3
4-n Heptylphenol	Formulation	0.04-0.4	25	µg/L	3
4 tert-Octylphenol	Formulation	0.02-0.2	25	µg/L	3
4-n-Nonylphenol	Formulation	0.04-0.4	25	µg/L	3
Pentachlorophenol	Formulation	0.05-0.5	25	µg/L	3

Sample E**
Supplied as: 1 x 10mL spiking solution
2 x 1L groundwater sample

Analyte	AV	Range	SDPA %	Units	DP
Endosulphan	Formulation	0.003-0.03	25	µg/L	4
Hexachlorobenzene	Formulation	0.003-0.03	25	µg/L	4
Hexachlorocyclohexane	Formulation	0.003-0.03	25	µg/L	4
Pentachlorobenzene	Formulation	0.003-0.03	25	µg/L	4
Trifluralin	Formulation	0.01-0.1	25	µg/L	3
Hexachlorobutadiene	Formulation	0.02-0.2	25	µg/L	3

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Sample F**
Supplied as: 1 x 10mL spiking solution

Analyte	AV	Range	SDPA %	Units	DP
Benz(a)pyrene	Formulation	0.01-0.1	25	µg/L	3
Benzo(b)fluoranthene	Formulation	0.01-0.1	25	µg/L	3
Benzo(ghi)perylene	Formulation	0.001-0.01	25	µg/L	4
Benzo(k)fluoranthene	Formulation	0.01-0.1	25	µg/L	3
Indeno(123-cd)pyrene	Formulation	0.001-0.01	25	µg/L	4
Anthracene	Formulation	0.03-0.3	25	µg/L	3
Fluoranthene	Formulation	0.03-0.3	25	µg/L	3

Sample G**
Supplied as: 1 x 10mL spiking solution

Analyte	AV	Range	SDPA %	Units	DP
Tributyltin compounds	Formulation	2-10	25	ng/L	2

Sample H**
Supplied as: 1 x 10mL spiking solution

Analyte	AV	Range	SDPA %	Units	DP
1,2-Dichloroethane	Formulation	2-20	25	µg/L	2
Dichloromethane	Formulation	5-50	25	µg/L	2
Trichlorobenzenes	Formulation	0.1-1	25	µg/L	2
Trichloromethane	Formulation	0.5-5	25	µg/L	2

Sample I**
Supplied as: 1 x 10mL spiking solution

Analyte	AV	Range	SDPA %	Units	DP
2,4,4-Tribromodiphenylether (BDE 28)	Formulation	0.2-1	25	ng/L	3
2,2,4,4,5-Pentabromodiphenylether (BDE 99)	Formulation	0.2-1	25	ng/L	3
2,2,4,4,5,6-Hexabromodiphenylether (BDE 154)	Formulation	0.2-1	25	ng/L	3

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Sample J**

Supplied as: 1 x 10mL spiking solution for DEHP
1 x 10mL spiking solution for benzene and naphthalene
1 x 10ml blank DEHP sample in methanol

Analyte	AV	Range	SDPA %	Units	DP
DEHP	Formulation	0.3-3	25	µg/L	2
Benzene	Formulation	2-20	25	µg/L	2
Naphthalene	Formulation	0.5-5	25	µg/L	2

Sample PT-AQ-35 BOD/COD at high concentration

Supplied as: 2 x 30ml samples for the determination of COD and BOD

Analyte	AV	Range	SDPA %	Units	DP
COD	Formulation	200-500	5	mgO_2/L	1
BOD	RMean	150-300	10	mgO_2/L	1

Sample PT-AQ-36** Taste and odour

Supplied as: 1 x 500mL sample for determination of taste
1 x 1L sample for determination of odour

Analyte	AV	Range	SDPA	Units	DP
TFN	RMean	0-5	1.0000	-	1
TON	RMean	0-5	1.0000	-	1

Sample PT-AQ-37** Acrylamide

Supplied as: 1 x 10mL spiking solution

Analyte	AV	Range	SDPA %	Units	DP
Acrylamide	Formulation	0.05-0.5	10	µg/L	3

Sample PT-AQ-38 UV Absorbing Organic Constituents (254 nm)

Supplied as: 1 x 60ml spiking solution

Analyte	AV	Range	SDPA %	Units	DP
UV absorption	RMean	0.01-0.9	Robust SD	cm^{-1}	3

**Test materials currently not included in LGC Standards' UKAS Scope of Accreditation

Sample PT-AQ-39** **Geosmin, MIB and Anisole related compounds**
Supplied as: 1 x 1L sample containing all analytes

Analyte	AV	Range	SDPA %	Units	DP
Geosmin	Formulation	2-200	15	ng/L	2
Methyl Isoborneol	Formulation	2-200	15	ng/L	2
Anisole	Formulation	2-200	15	ng/L	2
TCA (2,4,6-Trichloroanisole)	Formulation	2-200	15	ng/L	2
TBA (2,4,6-Tribromoanisole)	Formulation	2-200	15	ng/L	2

Sample PT-AQ-40** **Fungicides**
Supplied as: 1 x 10mL spiking solution
1 x 500mL of groundwater sample

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Carbendazim	Formulation	24-120	10 (5)	ng/L	1
Chlorothalonil	Formulation	24-120	10 (5)	ng/L	1
Fenpropimorph	Formulation	24-120	10 (5)	ng/L	1
Flutriafol	Formulation	24-120	10 (5)	ng/L	1
Epoxyconazole	Formulation	24-120	10 (5)	ng/L	1
Flusilazole	Formulation	24-120	10 (5)	ng/L	1
Cyproconazole	Formulation	24-120	10 (5)	ng/L	1
Tebuconazole	Formulation	24-120	10 (5)	ng/L	1
Azoxystrobin	Formulation	24-120	10 (5)	ng/L	1
Boscalid	Formulation	24-120	10 (5)	ng/L	1
Kresoxym-methyl	Formulation	24-120	10 (5)	ng/L	1
Cyprodinil	Formulation	24-120	10 (5)	ng/L	1
Propiconazole	Formulation	24-120	10 (5)	ng/L	1
Prothioconazole	Formulation	24-120	10 (5)	ng/L	1

**Test materials currently not included in LGC Standards' UKAS Scope of Accreditation

Sample PT-AQ-41** **Microcystin**
Supplied as: 1 x 10mL spiking solution

Analyte	AV	Range	SDPA %	Units	DP
Microcystin-LR	Formulation	0.05-5	Robust SD	ug/L	2
Microcystin-YR	Formulation	0.05-5	Robust SD	ug/L	2
Microcystin-RR	Formulation	0.05-5	Robust SD	ug/L	2
Total Microcystin	Formulation	0.15-15	Robust SD	ug/L	2

Sample PT-AQ-42** **Plutonium and Uranium**
Supplied as: 1 x 250ml sample for determination of plutonium
1 x 250ml sample for determination of uranium

Analyte	AV	Range	SDPA %	Units	DP
^{239}Plutonium	Formulation	0.06-0.6	7.5	Bq/L	3
^{234}Uranium	Formulation	0.1-1	7.5	Bq/L	3
^{235}Uranium	Formulation	0.005-0.05	10	Bq/L	4
^{238}Uranium	Formulation	0.1-1	7.5	Bq/L	3
Total Uranium	Formulation	10-100	7.5	µg/L	2

Sample PT-AQ-43** **Triclosan**
Supplied as: 1 x 10mL spiking solution
2 x 1L groundwater sample

Analyte	AV	Range	SDPA %	Units	DP
Triclosan	Formulation	0.01-100	10	µg/L	2

Sample PT-AQ-44** **Haloacetic Acids**
Supplied as: 1 x 10ml spiking solution

Analyte	AV	Range	SDPA %	Units	DP
Monochloroacetic acid	Formulation	0.6-150	10	ug/L	2
Dichloroacetic acid	Formulation	0.6-150	10	ug/L	2
Trichloroacetic acid	Formulation	0.3-150	10	ug/L	2
Monobromoacetic acid	Formulation	0.5-150	10	ug/L	2
Dibromoacetic acid	Formulation	0.4-150	10	ug/L	2
Tribromoacetic acid	Formulation	1.1-150	10	ug/L	2
Bromochloroacetic acid	Formulation	0.4-150	10	ug/L	2
Bromodichloroacetic acid	Formulation	0.5-150	10	ug/L	2
Dibromochloroacetic acid	Formulation	0.8-150	10	ug/L	2
2,2-Dichloropropionic acid	Formulation	0.6-150	10	ug/L	2

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Sample PT-AQ-50 **Ecotoxicology**
Supplied as: 1 x 500mL sample

Analyte	AV	Range	SDPA %	Units	DP
Daphnia Magna 48hr EC50	RMean	0.5-5	30	% Dilution	3
Daphnia Magna 24hr EC50	RMean	2-12	30	% Dilution	3
Vibrio Fischeri 30 minute IC50 (ISO 11348-3)	RMean	0.2-1.5	30	% Dilution	3
Other 30 min luminescent bacteria IC50 tests	RMean	0.1-5	30	% Dilution	3
15 minute luminescent bacteria IC50 tests	RMean	0.5-2	30	% Dilution	3
Freshwater algae growth inhibition test (*Pseudokirschneriella subcapitata*)	RMean	0.02-1.2	30	% Dilution	3

Participants are required to dilute the sample provided in line with their usual practice, and to determine the EC50 (or IC50) dilution using any or all of the ecotoxicity tests listed. The solution will contain zinc sulfate at a concentration in the range 10 to 200mgZn/L. The % dilutions to produce an EC50 returned will be converted to mg Zn/L and performance scores awarded based on a suitable assigned value with a percentage SDPA of 30%.

Sample PT-AQ-51** **Synthetic Pyrethroid Insecticides**
Supplied as: 1 x 500mL of groundwater sample
1 x 10ml spiking solution

Analyte	AV	Range	SDPA %	Units	DP
Bifenthrin	Formulation	50-250	10	ng/L	1
Cyfluthrin	Formulation	50-250	10	ng/L	1
Cypermethrin	Formulation	50-250	10	ng/L	1
Flumethrin	Formulation	50-250	10	ng/L	1
cis-Permethrin	Formulation	50-250	10	ng/L	1
trans-Permethrin	Formulation	50-250	10	ng/L	1

**Test materials currently not included in LGC Standards' UKAS Scope of Accreditation

Sample PT-AQ-52** **Low Level CIP2 contaminants**
Supplied as: 2 x 10mL spiking solution
1 x 7mL spiking solution

Analyte	AV	Range	SDPA %	Units	DP
Benzo(a)pyrene	Formulation	0.02-20	25	ng/L	3
Fluoranthene	Formulation	0.02-20	25	ng/L	3
Cypermethrin	Formulation	0.01-10	25	ng/L	3
PFOS	Formulation	0.1-1	25	ng/L	3
PFOA	Formulation	0.1-1	25	ng/L	3

Sample PT-AQ-53** **EQSD Directive – Low Level Triazines**
Supplied as: 1 x 10mL spiking solution for triazines

Analyte	AV	Range	SDPA %	Units	DP
Simazine	Formulation	1-5	25	ng/L	3
Atrazine	Formulation	1-5	25	ng/L	3
Terbutryn	Formulation	1-5	25	ng/L	3
Alachlor	Formulation	1-5	25	ng/L	3
Diclofol	Formulation	1-5	25	ng/L	3
Bifenox	Formulation	1-5	25	ng/L	3
Quinoxyfen	Formulation	1-5	25	ng/L	3

Sample PT-AQ-56** **EQSD Directive – Low Level Organophosphorus & Chlorinated Solvents**
Supplied as: 1 x 10mL spiking solutions for organophosphorus
1 x 10mL spiking solution for chlorinated solvents

Analyte	AV	Range	SDPA %	Units	DP
Dichlorvos	Formulation	1-5	25	ng/L	3
Fenitrothion	Formulation	1-5	25	ng/L	3
Malathion	Formulation	1-5	25	ng/L	3
Chlorfenvinphos	Formulation	1-5	25	ng/L	3
Diazinon	Formulation	1-5	25	ng/L	3
Chlorpyrifos	Formulation	1-5	25	ng/L	3
Hexachlorobutadiene	Formulation	1-5	25	ng/L	3
1,2,3-Trichlorobenzene	Formulation	1-5	25	ng/L	3
1,2,4-Trichlorobenzene	Formulation	1-5	25	ng/L	3
1,3,5-Trichlorobenzene	Formulation	1-5	25	ng/L	3

**Test materials currently not included in LGC Standards' UKAS Scope of Accreditation

Sample PT-AQ-57** **Pharmaceuticals in groundwater**
Supplied as: 1 x 10mL spiking solution for pharmaceuticals
1 x 1L groundwater

Analyte	AV	Range	SDPA %	Units	DP
Ibuprofen	Formulation	0.05-1	10	µg/L	3
Propranolol	Formulation	0.05-1	10	µg/L	3
Ofloxacin	Formulation	0.05-1	10	µg/L	3
Oxytetracycline	Formulation	0.05-1	10	µg/L	3
Salicylic acid	Formulation	0.05-1	10	µg/L	3
Fluoxetine	Formulation	0.05-1	10	µg/L	3
Diclofenac	Formulation	0.05-1	10	µg/L	3
Naproxen	Formulation	0.05-1	10	µg/L	3
Azithromycin	Formulation	0.05-1	10	µg/L	3

The structure of this sample is to be confirmed, and details will be circulated to participants prior to each round.

Sample PT-AQ-58** **EQSD Directive – Low Level Organochlorines**
Supplied as: 1 x 10mL spiking solution for organochlorines

Analyte	AV	Range	SDPA %	Units	DP
Endrin	Formulation	1-5	25	ng/L	3
Dieldrin	Formulation	1-5	25	ng/L	3
Aldrin	Formulation	1-5	25	ng/L	3
p,p'-DDT	Formulation	1-5	25	ng/L	3
o,p-DDT	Formulation	1-5	25	ng/L	3
p,p'-DDE	Formulation	1-5	25	ng/L	3
p,p'-DDD	Formulation	1-5	25	ng/L	3
Alpha Hexachlorocyclohexane	Formulation	1-5	25	ng/L	3
Beta Hexachlorocyclohexane	Formulation	1-5	25	ng/L	3
Delta Hexachlorocyclohexane	Formulation	1-5	25	ng/L	3
Lindane (Gamma HCH)	Formulation	1-5	25	ng/L	3
Trifluralin	Formulation	1-5	25	ng/L	3
Alpha Endosulphan	Formulation	1-5	25	ng/L	3
Beta Endosulphan	Formulation	1-5	25	ng/L	3
Hexachlorobenzene	Formulation	1-5	25	ng/L	3
Heptachlor	Formulation	1-5	25	ng/L	3
Heptachlor Epoxide	Formulation	1-5	25	ng/L	3
Pentachlorobenzene	Formulation	1-5	25	ng/L	3
Pendimethalin	Formulation	1-5	25	ng/L	3

**Test materials currently not included in LGC Standards' UKAS Scope of Accreditation

Sample PT-AQ-59** **Bottled Mineral Water**
Supplied as: 1 x 500mL sample

Analyte	AV	Range	SDPA % (Fixed)	Units	DP
Calcium	Formulation	5-100	7.5 (1)	mg/L	2
Magnesium	Formulation	1-40	7.5 (0.25)	mg/L	2
Potassium	Formulation	0.1-5	7.5 (0.2)	mg/L	3
Sodium	Formulation	2-20	7.5 (0. 5)	mg/L	2
Bicarbonate	Formulation	20-500	10 (5)	mgCa/L	1
Chloride	Formulation	1-30	7.5 (2)	mg/L	2
Sulfate	Formulation	2-20	7.5 (1)	mg/L	2
Nitrate	Formulation	1-50	7.5 (0.1)	mgNO_3/L	2
pH	Formulation	6-9	(0.1)	-	2
TDS/ Dry Residue	Formulation	50-250	10 (10)	mg/L	1

Sample PT-AQ-60** **MCerts**
Supplied as: 1 x 500mL sample containing all analytes

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Ammonia	Formulation	0.5-10	10	mgN/L	2
COD	Formulation	5-100	7.5	mgO2/L	1
Conductivity (20°C)	RMean	50-1000	7.5	µS/cm	1
Nitrate	Formulation	3.75-30	7.5	mgN/L	3
Nitrite	Formulation	0.1-4	7.5	mgN/L	3
Orthophosphate	Formulation	0.13-10	10	mgP/L	3
pH at 20-25°C	RMean	4-8	(0.1)	-	2
Total Aluminium	RMean	0-0.2	RSD	mg/L	3
Total Arsenic	Formulation	0.5-10	10	µg/L	2
Total Copper	Formulation	0.5-5	10	µg/L	2
Total Mercury	Formulation	0.01-0.1	10	µg/L	3
Total Cadmium	Formulation	0.1-1	10	µg/L	2
Total Iron	RMean	0-1	RSD	mg/L	2
Total Lead	Formulation	0.4-4	10	µg/L	2
Total Nickel	Formulation	5-50	10	µg/L	1
Total Zinc	RMean	0-0.2	RSD	mg/L	3
Turbidity	RMean	3-30	10	NTU	2

**Test materials currently not included in LGC Standards' UKAS Scope of Accreditation

Sample PT-AQ-61** **Sea Water – Nutrients**
Supplied as: 1 x 500mL sample containing all analytes

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Total Oxidised Nitrogen	RMean	0.1-1	10	mgNO_3/L	3
Nitrate	RMean	0.5-5	10	mgNO_3/L	3
Total Phosphorus	RMean	0.02-0.1	10	mgP/L	3
Potassium	RMean	200-500	10	mgK/L	0
Sulfate	RMean	1000-3000	10	mgSO_4/L	0
Magnesium	RMean	600-1500	10	mg/L	0
Calcium	RMean	200-500	10	mg/L	0
Alkalinity	RMean	100-200	10	mgHCO_3/L	1
Ammonia	RMean	0.01-0.1	10	mgN/L	3
Total Nitrogen	RMean	0.1-1	10	mgN/L	2
Orthophosphate	RMean	0.02-1	10	mgP/L	3
pH at 20-25ºC	RMean	6-9	(0.1)	-	2
Conductivity (20ºC)	RMean	30000-75000	7.5	µS/cm	0
Silicate	RMean	0.2-1	10	mgSiO2/L	2
Total Dissolved Solids	RMean	20000-40000	10	mg/L	0

Sample PT-AQ-62** **Sea Water – Metals**
Supplied as: 1 x 500mL sample containing all analytes

Analyte	AV	Range	SDPA %	Units	DP
Arsenic	RMean	5-40	10	µg/L	1
Boron	RMean	6-30	10	mg/L	1
Cadmium	RMean	0.2-5	10	µg/L	3
Copper	RMean	0.2-10	10	µg/L	2
Iron	RMean	0.3-5	10	mg/L	3
Manganese	RMean	0.2-50	10	µg/L	2
Molybdenum	RMean	2-10	10	µg/L	2
Strontium	RMean	1-7.5	10	mg/L	2
Zinc	RMean	1-30	10	µg/L	2
Barium	RMean	0.1-50	10	mg/L	2
Lithium	RMean	2-20	10	mg/L	1
Sodium	RMean	4000-10000	10	mg/L	0
Sulfur	RMean	500-1000	10	mg/L	0
Nickel	RMean	1-5	10	µg/L	2
Cobalt	RMean	0.2-5	10	µg/L	3
Lead	RMean	0.2-15	10	µg/L	2
Selenium	RMean	0.2-5	10	µg/L	3

**Test materials currently not included in LGC Standards' UKAS Scope of Accreditation

Sample PT-AQ-63** **Acetate & Iodide**
Supplied as: 1 x 30mL spiking solution

Analyte	AV	Range	SDPA %	Units	DP
Acetate	Formulation	2-20	10	mg/L	2
Iodide	Formulation	0.05-0.5	10	mg/L	3

Sample PT-AQ-64** **Trihalomethanes (THMs) & Nutrients in Swimming Pool Water**
Supplied as: 1 x 500mL sample containing all analytes

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Trichloromethane	RMean	10-100	10	ug/L	2
Bromodichloromethane	RMean	10-100	10	ug/L	2
Dibromochloromethane	RMean	10-100	10	ug/L	2
Tribromomethane	RMean	10-100	10	ug/L	2
Total Trihalomethanes (TTHM)	RMean	50-250	10	ug/L	1
pH at 20-25°C	RMean	6-8	(0.1)	-	2
Total Organic Carbon (TOC)	RMean	100-500	10	mgC/L	2
Total Alkalinity	RMean	50-200	10	mgHCO_3/L	1
Total Hardness	RMean	10-50	10	mgCa/L	1
Total Dissolved Solids	RMean	500-2500	10	mg/L	0

Sample PT-AQ-65** **Explosives in groundwater**
Supplied as: 2 x 1L groundwater sample
1 x 1mL spiking solution

Analyte	AV	Range	SDPA	Units	DP
1,3,5-Trinitrobenzene	Formulation	1-5	Robust SD	ug/L	1
1,3-Dinitrobenzene	Formulation	1-5	Robust SD	ug/L	1
2,4-Dinitrotoluene	Formulation	0.5-2.5	Robust SD	ug/L	2
2,6-Dinitrotoluene	Formulation	0.5-2.5	Robust SD	ug/L	2
2-Amino-4,6-dinitrotoluene	Formulation	1-5	Robust SD	ug/L	1
2-Nitrotoluene	Formulation	5-25	Robust SD	ug/L	1
3-Nitrotoluene	Formulation	5-25	Robust SD	ug/L	1
4-Amino-2,6-dinitrotoluene	Formulation	1-5	Robust SD	ug/L	1
4-Nitrotoluene	Formulation	5-25	Robust SD	ug/L	1
Diphenylamine	Formulation	1-5	Robust SD	ug/L	1
Nitrobenzene	Formulation	5-25	Robust SD	ug/L	1

The structure of this sample is to be confirmed, and details will be circulated to participants prior to each round

**Test materials currently not included in LGC Standards' UKAS Scope of Accreditation

Sample PT-AQ-66** **Neonicotinoids in groundwater**
Supplied as: 2 x 1L groundwater sample
1 x 10mL spiking solution

Analyte	AV	Range	SDPA	Units	DP
Clothianidin	Formulation	24-120	10 (5)	ng/L	1
Imidacloprid	Formulation	24-120	10 (5)	ng/L	1
Thiamethoxam	Formulation	24-120	10 (5)	ng/L	1
Acetamiprid	Formulation	24-120	10 (5)	ng/L	1
Thiacloprid	Formulation	24-120	10 (5)	ng/L	1

**Test materials currently not included in LGC Standards' UKAS Scope of Accreditation

Sample PT-AQ-67** **20 x PFAS in potable water (EU Drinking Water Directive)**
Supplied as: 2 x 1L potable water sample
1 x 1mL spiking solution

Analyte	CAS Number	AV	Range	SDPA	Units	DP
Perfluorobutanoic acid (PFBA)	375-22-4	RMean	50-150	Robust SD	ng/L	1
Perfluoropentanoic acid (PFPA)	2706-90-3	RMean	50-150	Robust SD	ng/L	1
Perfluorohexanoic acid (PFHxA)	307-24-4	RMean	50-150	Robust SD	ng/L	1
Perfluoroheptanoic acid (PFHpA)	375-85-9	RMean	50-150	Robust SD	ng/L	1
Perfluorooctanoic acid (PFOA)	335-67-1	RMean	50-150	Robust SD	ng/L	1
Perfluorononanoic acid (PFNA)	375-95-1	RMean	50-150	Robust SD	ng/L	1
Perfluorodecanoic acid (PFDA)	335-76-2	RMean	50-150	Robust SD	ng/L	1
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	RMean	50-150	Robust SD	ng/L	1
Perfluorododecanoic acid (PFDoDA)	307-55-1	RMean	50-150	Robust SD	ng/L	1
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	RMean	50-150	Robust SD	ng/L	1
Perfluorobutane sulfonic acid (PFBS)	375-73-5	RMean	50-150	Robust SD	ng/L	1
Perfluoropentane sulfonic acid (PFPS)	2706-91-4	RMean	50-150	Robust SD	ng/L	1
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	RMean	50-150	Robust SD	ng/L	1

Analyte	CAS Number	AV	Range	SDPA	Units	DP
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	RMean	50-150	Robust SD	ng/L	1
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	RMean	50-150	Robust SD	ng/L	1
Perfluorodecane sulfonic acid (PFDS)	335-77-3	RMean	50-150	Robust SD	ng/L	1
Perfluorononanesulfonic acid (PFNS)	68259-12-1	RMean	50-150	Robust SD	ng/L	1
Perfluoroundecane sulfonic acid (PFUnDS)	749786-16-1	RMean	50-150	Robust SD	ng/L	1
Perfluorododecane sulfonic acid (PFDoS)	335-77-3	RMean	50-150	Robust SD	ng/L	1
Perfluorotridecane sulfonic acid	791563-89-8	RMean	50-150	Robust SD	ng/L	1
Sum of the 20 PFAS	-	RMean	1000-3000	Robust SD	ng/L	0
Total PFAS	**-**	**RMean**	**-**	**Robust SD**	**ng/L**	**0**

The formulation values for all analytes in Sample 67 will be provided in the reports

Sample PT-AQ-68** **Estrogens in potable water**
Supplied as: 1 x 1L potable water sample
1 x 10mL spiking solution

Analyte	AV	Range	SDPA	Units	DP
17-β Estradiol	Formulation	0.05-5	25	ng/L	3
Estrone	Formulation	0.05-5	25	ng/L	3

Sample PT-AQ-69** **Free Chlorine in treated domestic wastewater**
Supplied as: 1 x 500mL treated domestic wastewater sample
1 x 10mL free chlorine spiking solution and 1 x 30mL plastic bottle (to be used for mixing solutions)

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Free Chlorine	Formulation	0.1-1	10 (0.03)	mgCl2/L	3

The structure of this sample is to be confirmed, and details will be circulated to participants prior to each round.

**Test materials currently not included in LGC Standards' UKAS Scope of Accreditation

Sample PT-AQ-70** **48 x PFAS in potable water**
Supplied as: 2 x 1L potable sample
3 x 1mL spiking solution

Spiking solution 70(1)

Analyte	CAS Number	AV	Range	SDPA	Units	DP
PFBA	375-22-4	RMean	50-150	Robust SD	ng/L	1
PFPeA	2706-90-3	RMean	50-150	Robust SD	ng/L	1
PFHxA	307-24-4	RMean	50-150	Robust SD	ng/L	1
PFHpA	375-85-9	RMean	50-150	Robust SD	ng/L	1
PFOA	335-67-1	RMean	50-150	Robust SD	ng/L	1
PFNA	375-95-1	RMean	50-150	Robust SD	ng/L	1
PFDA	335-76-2	RMean	50-150	Robust SD	ng/L	1
PFUnA; PFUdA	2058-94-8	RMean	50-150	Robust SD	ng/L	1
PFDoA	307-55-1	RMean	50-150	Robust SD	ng/L	1
PFTrDA; PFTriA	72629-94-8	RMean	50-150	Robust SD	ng/L	1
PFTeA	376-06-7	RMean	50-150	Robust SD	ng/L	1
PFHxDA	67905-19-5	RMean	50-150	Robust SD	ng/L	1
PFODA	16517-11-6	RMean	50-150	Robust SD	ng/L	1
PFBS	375-73-5	RMean	50-150	Robust SD	ng/L	1
PFPeS	2706-91-4	RMean	50-150	Robust SD	ng/L	1
PFHxS	355-46-4	RMean	50-150	Robust SD	ng/L	1
PFHpS	375-92-8	RMean	50-150	Robust SD	ng/L	1
PFOS	1763-23-1	RMean	50-150	Robust SD	ng/L	1
PFNS	68259-12-1	RMean	50-150	Robust SD	ng/L	1
PFDS	335-77-3	RMean	50-150	Robust SD	ng/L	1
PFUnDS	749786-16-1	RMean	50-150	Robust SD	ng/L	1
PFDoS	79780-39-5	RMean	50-150	Robust SD	ng/L	1
4:2 FTSA; 4:2 FTS	757124-72-4	RMean	50-150	Robust SD	ng/L	1
6:2 FTSA; 6:2 FTS	27619-97-2	RMean	50-150	Robust SD	ng/L	1
8:2 FTSA; 8:2 FTS	39108-34-4	RMean	50-150	Robust SD	ng/L	1
4:2 FTSA; 4:2 FTS	757124-72-4	RMean	50-150	Robust SD	ng/L	1

Spiking solution 70(2)

Analyte	CAS Number	AV	Range	SDPA	Units	DP
HFPO-DA; Gen X	13252-13-6	RMean	50-150	Robust SD	ng/L	1
HFPO-TA	13252-14-7	RMean	50-150	Robust SD	ng/L	1
DONA; ADONA	919005-14-4	RMean	50-150	Robust SD	ng/L	1
PFMOPrA	377-73-1	RMean	50-150	Robust SD	ng/L	1
NFDHA	151772-58-6	RMean	50-150	Robust SD	ng/L	1
PFMOBA	863090-89-5	RMean	50-150	Robust SD	ng/L	1
PFECHS	646-83-3	RMean	50-150	Robust SD	ng/L	1
PFEESA	113507-82-7	RMean	50-150	Robust SD	ng/L	1
6:2 Cl-PFESA; 9Cl-PF3ONS	756426-58-1	RMean	50-150	Robust SD	ng/L	1
8:2 Cl-PFESA; 11Cl-PF3OUdS	763051-92-9	RMean	50-150	Robust SD	ng/L	1
FBSA	30334-69-1	RMean	50-150	Robust SD	ng/L	1
FHxSA	41997-13-1	RMean	50-150	Robust SD	ng/L	1
FOSA	754-91-6	RMean	50-150	Robust SD	ng/L	1
MeFOSA; N-MeFOSA	31506-32-8	RMean	50-150	Robust SD	ng/L	1
EtFOSA; N-EtFOS	4151-50-2	RMean	50-150	Robust SD	ng/L	1
MeFOSE	24448-09-7	RMean	50-150	Robust SD	ng/L	1
EtFOSE	1691-99-2	RMean	50-150	Robust SD	ng/L	1
NMeFOSAA; MeFOSAA	2355-31-9	RMean	50-150	Robust SD	ng/L	1
NEtFOSAA; EtFOSAA	2991-50-6	RMean	50-150	Robust SD	ng/L	1
6:2 FTAB	34455-29-3	RMean	50-150	Robust SD	ng/L	1

Spiking solution 70(3)

Analyte	CAS Number	AV	Range	SDPA	Units	DP
3:3 FTCA	356-02-5	RMean	50-150	Robust SD	ng/L	1
5:3 FTCA	914637-49-3	RMean	50-150	Robust SD	ng/L	1
7:3 FTCA	812-70-4	RMean	50-150	Robust SD	ng/L	1
Total PFAS	**-**	**RMean**	**-**	**Robust SD**	**ng/L**	**0**

The structure of this sample is to be confirmed, and details will be circulated to participants prior to each round.

The formulation values for all analytes in Sample 70 will be provided in the reports

Sample PT-AQ-71** **6PPD quinone in surface water**
Supplied as: 1 x 1L surface water sample
1 x 1mL spiking solution

Analyte	AV	Range	SDPA	Units	DP
6PPD quinone	Formulation	1-5	Robust SD	ng/L	3

The structure of this sample is to be confirmed, and details will be circulated to participants prior to each round.

**Test materials currently not included in LGC Standards' UKAS Scope of Accreditation

Sample PT-AQ-72** **Epichlorohydrin in potable water**
Supplied as: 1 x 1L potable water sample
1 x 10mL spiking solution

Analyte	AV	Range	SDPA	Units	DP
Epichlorohydrin	RMean	0.05-2	Robust SD	µg/L	3

Sample PT-AQ-73** **Fluorotelomer Alcohols (FTOHs) in potable water**
Supplied as: 1 x 1L potable water sample
1 x 10mL spiking solution

Analyte	AV	Range	SDPA	Units	DP
6:2 Fluorotelomer Alcohol	RMean	10-50	Robust SD	ng/L	2
8:2 Fluorotelomer Alcohol	RMean	10-50	Robust SD	ng/L	2

Sample PT-AQ-74** **Vinyl chloride in potable water**
Supplied as: 1 x 1L potable water sample
1 x 1mL spiking solution

Analyte	AV	Range	SDPA	Units	DP
Vinyl chloride	RMean	0.05-2	Robust SD	µg/L	3

Sample PT-AQ-75** **Lanthanides in surface water (Preserved in 0.5% Nitric Acid)**
Supplied as: 1 x 500mL element sample containing all analytes

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Lanthanum	RMean	0.5-5	Robust SD	µg/L	2
Cerium	RMean	0.5-5	Robust SD	µg/L	2
Praseodymium	RMean	0.5-5	Robust SD	µg/L	2
Neodymium	RMean	0.5-5	Robust SD	µg/L	2
Gadolinium	RMean	0.5-5	Robust SD	µg/L	2
Terbium	RMean	0.5-5	Robust SD	µg/L	2

The structure of this sample is to be confirmed, and details will be circulated to participants prior to each round.

Sample PT-AQ-76** **Cyanuric acid in swimming pool water**
Supplied as: 1 x 500mL pool water sample

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Cyanuric acid	Formulation	5-200	Robust SD	mg/L	2

The structure of this sample is to be confirmed, and details will be circulated to participants prior to each round.

**Test materials currently not included in LGC Standards' UKAS Scope of Accreditation

Sample PT-AQ-77** **Inorganic Fertiliser**
Supplied as: 1 x 50g sample

Analyte	AV	Range	SDPA %	Units	DP
pH	RMean	All	Robust SD	-	3
Moisture	RMean	All	Robust SD	%	2
Conductivity (20ºC)	RMean	All	Robust SD	mS/cm	2
Total nitrogen	RMean	All	Robust SD	%	1
Ammoniacal nitrogen	RMean	All	Robust SD	%	1
Mercury	RMean	All	Robust SD	mg/kg	2
Lead	RMean	All	Robust SD	mg/kg	2
Cadmium	RMean	All	Robust SD	mg/kg	2
Calcium	RMean	All	Robust SD	mg/kg	2

The structure of this sample is to be confirmed, and details will be circulated to participants prior to each round.

Sample PT-AQ-78** **Bisphenol A in potable water**
Supplied as: 10ml of spike solution
1 x 1L potable water sample

Analyte	AV	Range	SDPA % (fixed)	Units	DP
Bisphenol A	Formulation	0.02-1	25	µg/L	3

The structure of this sample is to be confirmed, and details will be circulated to participants prior to each round.

**Test materials currently not included in LGC Standards' UKAS Scope of Accreditation

APPENDIX I Main (default) and alternative units

For all the samples listed below, participants can report in either of these units.
Please Note: The alternative unit will be automatically converted when the report is produced.

Sample number	Analyte	Main (Default) unit	Alternative unit
PT-AQ-01A	Conductivity (20°C)	µS/cm (20°C)	µS/cm (25°C)
PT-AQ-01A	Conductivity (20°C)	µS/cm (20°C)	mS/cm (20°C)
PT-AQ-01A	Conductivity (20°C)	µS/cm (20°C)	mS/cm (25°C)
PT-AQ-01H	Alkalinity	mgHCO3/L	mgCaCO3/L
PT-AQ-01H	Conductivity (20°C)	µS/cm (20°C)	µS/cm (25°C)
PT-AQ-01H	Conductivity (20°C)	µS/cm (20°C)	mS/cm (20°C)
PT-AQ-01H	Conductivity (20°C)	µS/cm (20°C)	mS/cm (25°C)
PT-AQ-01H	Fluoride	µgF/L	mgF/L
PT-AQ-01H	Total Hardness	mgCa/L	mgCaCO3/L
PT-AQ-01S	Alkalinity	mgHCO3/L	mgCaCO3/L
PT-AQ-01S	Conductivity (20°C)	µS/cm (20°C)	µS/cm (25°C)
PT-AQ-01S	Conductivity (20°C)	µS/cm (20°C)	mS/cm (20°C)
PT-AQ-01S	Conductivity (20°C)	µS/cm (20°C)	mS/cm (25°C)
PT-AQ-01S	Fluoride	µgF/L	mgF/L
PT-AQ-01S	Total Hardness	mgCa/L	mgCaCO3/L
PT-AQ-02H	Conductivity (20°C)	µS/cm (20°C)	µS/cm (25°C)
PT-AQ-02H	Conductivity (20°C)	µS/cm (20°C)	mS/cm (20°C)
PT-AQ-02H	Conductivity (20°C)	µS/cm (20°C)	mS/cm (25°C)
PT-AQ-02H	Nitrate	mgNO3/L	mgN/L
PT-AQ-02H	Nitrite	mgNO2/L	mgN/L
PT-AQ-02H	Total oxidised nitrogen (TON)	mgNO3/L	mgN/L
PT-AQ-02H	Ammonia	mgNH4/L	mgN/L
PT-AQ-02S	Ammonia	mgNH4/L	mgN/L
PT-AQ-02S	Conductivity (20°C)	µS/cm (20°C)	µS/cm (25°C)
PT-AQ-02S	Conductivity (20°C)	µS/cm (20°C)	mS/cm (20°C)
PT-AQ-02S	Conductivity (20°C)	µS/cm (20°C)	mS/cm (25°C)
PT-AQ-02S	Nitrate	mgNO3/L	mgN/L
PT-AQ-02S	Nitrite	mgNO2/L	mgN/L
PT-AQ-02S	Total oxidised nitrogen (TON)	mgNO3/L	mgN/L
PT-AQ-03	Methylene blue active substances (MBAS)	µgLS/L	µgNaLS/L
PT-AQ-10	Ammonia	mgN/L	mgNH4/L
PT-AQ-10	Soluble reactive phosphorus (PO4)	mgP/L	mgPO4/L

Sample number	Analyte	Main (Default) unit	Alternative unit
PT-AQ-11	Methylene blue active substances (MBAS)	mgLS/L	mgNaLS/L
PT-AQ-13	Total Nitrogen	% N	mg/kg
PT-AQ-13	Total Phosphorus	% P	mg/kg
PT-AQ-13	Total Potassium	% K	mg/kg
PT-AQ-14	Conductivity (20°C)	µS/cm (20°C)	µS/cm (25°C)
PT-AQ-17A	Conductivity (20°C)	mS/cm (20°C)	µS/cm (20°C)
PT-AQ-17A	Conductivity (20°C)	mS/cm (20°C)	µS/cm (25°C)
PT-AQ-17A	Conductivity (20°C)	mS/cm (20°C)	mS/cm (25°C)
PT-AQ-1HP	Total Hardness	mgCa/L	mgCaCO3/L
PT-AQ-1HP	Alkalinity	mgHCO3/L	mgCaCO3/L
PT-AQ-1HP	Fluoride	µgF/L	mgF/L
PT-AQ-1HP	Conductivity (20°C)	µS/cm (20°C)	µS/cm (25°C)
PT-AQ-1HP	Conductivity (20°C)	µS/cm (20°C)	mS/cm (20°C)
PT-AQ-1HP	Conductivity (20°C)	µS/cm (20°C)	mS/cm (25°C)
PT-AQ-1SP	Total Hardness	mgCa/L	mgCaCO3/L
PT-AQ-1SP	Alkalinity	mgHCO3/L	mgCaCO3/L
PT-AQ-1SP	Fluoride	µgF/L	mgF/L
PT-AQ-1SP	Conductivity (20°C)	µS/cm (20°C)	µS/cm (25°C)
PT-AQ-1SP	Conductivity (20°C)	µS/cm (20°C)	mS/cm (20°C)
PT-AQ-1SP	Conductivity (20°C)	µS/cm (20°C)	mS/cm (25°C)
PT-AQ-2HP	Nitrite	mgNO2/L	mgN/L
PT-AQ-2HP	Ammonia	mgNH4/L	mgN/L
PT-AQ-2HP	Conductivity (20°C)	µS/cm (20°C)	µS/cm (25°C)
PT-AQ-2HP	Conductivity (20°C)	µS/cm (20°C)	mS/cm (20°C)
PT-AQ-2HP	Conductivity (20°C)	µS/cm (20°C)	mS/cm (25°C)
PT-AQ-2HP	Nitrate	mgNO3/L	mgN/L
PT-AQ-2SP	Total oxidised nitrogen (TON)	mgNO3/L	mgN/L
PT-AQ-2SP	Nitrite	mgNO2/L	mgN/L
PT-AQ-2SP	Ammonia	mgNH4/L	mgN/L
PT-AQ-2SP	Conductivity (20°C)	µS/cm (20°C)	µS/cm (25°C)
PT-AQ-2SP	Conductivity (20°C)	µS/cm (20°C)	mS/cm (20°C)
PT-AQ-2SP	Conductivity (20°C)	µS/cm (20°C)	mS/cm (25°C)
PT-AQ-2SP	Nitrate	mgNO3/L	mgN/L
PT-AQ-59	Bicarbonate	mgHCO3/L	mgCaCO3/L

APPENDIX II Definitions of the types of matrices

"At typical surface/potable levels" means that when the AQUACHECK Instructions are followed, the resulting water matrix, will be artificially spiked at levels relevant to legislative levels for potable or surface water. The water matrix may not be provided; therefore, deionised water will be used.

"Potable water" is water either in its original state or after treatment, suitable for drinking, cooking, food preparation, and other domestic purposes, regardless of its origin or how it is supplied. This includes water from distribution networks, tankers, bottled water, and even spring water. The specification on its hardness will always be provided in the scheme description.

"Groundwater" is water used for water supply e.g. drinking, food production, cooking and is obtained from the saturation zone that is in direct contact with the ground or subsoil.

"Surface water" refers to all inland waters, transitional waters, and coastal waters. Essentially, it includes any body of water on the surface of the land, including rivers, lakes, and areas where freshwater meets the sea.

"Wastewater"; a synthetic effluent, produced as a simulant to treated final effluent from a water treatment works.

"Sludge" is a pressed (dewatered) filter cake.

"Bottled mineral water" is natural mineral water or spring water.

"Swimming pool water" is water sampled from a swimming pool.