



Scheme Description

Contaminated Land (CONTEST) Proficiency Testing Scheme

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RECORD OF ISSUE STATUS AND MODIFICATIONS

Issue	Issue Date	Details	Authorised by
18	May 2018	Minor text changes to sample 21	R. Sharma
19	Dec 2018	The removal of vinyl chloride from sample 19 and 25. Two new samples added Sample 28 for Soil Texture and Sample 29 for Incinerator Bottom Ash. Website information added to page 3	R. Sharma A. McCarthy
20	Nov 2019	New Sample 30 added for Organophosphorus Pesticides (OPs) in Soil. The list of potential SVOCs (Appendix B) updated for Sample 20, new compounds added include 2-Nitrophenol; 4-Nitroaniline; Aniline; Anthraquinone; Azobenzene & Bromophenyl phenyl ether Removed 'Standards' from page 1	R Sharma
21	Sept 2020	Removal of Sample 22. Restructured Sample 25, which will now include BTEX as well a number of new compounds.	R Sharma A McCarthy
22	July 2021	Updated email address and UKAS logo	A Collins
23	Sep 2022	Added PCB (77) in 3C	R. Sharma S. Xystouris
24	July 2023	Added sample 31 for UBM BARGE Method	R. Sharma S. Xystouris
25	July 2024	Removed sample 31 for UBM BARGE Method Sample 14B and 23 analytes for Aromatics have been amended Amendment of sample name for sample 23 Added one new sample for PFAS in soil	R. Sharma S. Xystouris
26	June 2025	Changed volume, range and units for sample 32 Added pH and conductivity to sample 21 and 24	S. Bladowska
27	July 2025	Added methods to all samples Specified total for the analytes in sample 32 Added sample 33 for skeleton fraction Updated AV assessment for Samples 8, 10 & 16	S. Bladowska S. Xystouris R. Sharma S. Bladowska
28	May 2026	Updated units for sample 21 Amended analytes for sample 32 and added Appendix C New UKAS logo added	S. Bladowska A. Collins

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 Contaminated Land Proficiency Testing Scheme (CONTEST) is to enable laboratories performing the analysis of soils to monitor their performance and compare it with that of their peers. CONTEST also aims to provide information to participants on technical issues and methodologies relating to testing of contaminated land.

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

The CONTEST 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 CONTEST 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 CONTEST 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.

Statistical Analysis

Information on the statistics used in CONTEST 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

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

CONTEST PT reports will be available on the website within 10 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.

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).

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

Group A Metals

Sample 1a

Supplied as: 1 x 8mL standard solution

Analyte	Method	AV	Range	SDPA %	Units	DP
Barium	Flame AAS ICP-MS ICP-OES	Formulation	2-12.5	5	mg/L	3
Beryllium		Formulation	0.02-0.15	5	mg/L	3
Cadmium		Formulation	0.02-0.2	5	mg/L	3
Chromium		Formulation	2-20	5	mg/L	2
Cobalt		Formulation	0.1-0.8	5	mg/L	3
Copper		Formulation	2-20	5	mg/L	2
Iron		Formulation	5-100	5	mg/L	2
Lead		Formulation	0.5-25	5	mg/L	2
Manganese		Formulation	0.5-15	5	mg/L	2
Molybdenum		Formulation	0.1-0.8	5	mg/L	3
Nickel		Formulation	0.5-2	5	mg/L	2
Thallium		Formulation	0.05-0.08	5	mg/L	4
Tin		Formulation	0.1-1	5	mg/L	4
Vanadium		Formulation	0.5-2	5	mg/L	3
Zinc		Formulation	1-25	5	mg/L	2

Sample 1b

Supplied as: 1 x 8mL standard solution

Analyte	Method	AV	Range	SDPA %	Units	DP
Antimony	Flame AAS Hydride gen/cold vapour ICP-MS	Formulation	0.05-0.5	10	mg/L	3
Arsenic		Formulation	0.2-5	10	mg/L	2
Selenium		Formulation	0.01-0.2	10	mg/L	3

Sample 1c

Supplied as: 1 x 8mL standard solution

Analyte	Method	AV	Range	SDPA %	Units	DP
Mercury	Flame AAS Hydride gen/cold vapour ICP-MS ICP-OES	Formulation	0.01-0.1	10	mg/L	3

Sample 2

Supplied as: 1 x 60mL solution of soil extract (prepared following ISO 11466 for the extraction of metals)

Analyte	Method	AV	Range	SDPA %	Units	DP
Antimony	Flame AAS Hydride gen/cold vapour ICP-MS ICP-OES	RMean	All	12.5	mg/L	3
Arsenic		RMean	All	12.5	mg/L	3
Barium		RMean	All	7.5	mg/L	3
Beryllium	Flame AAS ICP-MS ICP-OES	RMean	All	7.5 ; 10 if AV <1	mg/L	3
Cadmium		RMean	All	7.5; 10 if AV <1	mg/L	3
Chromium		RMean	All	7.5; 10 if AV <2.5	mg/L	2
Cobalt		RMean	All	7.5	mg/L	2
Copper		RMean	All	7.5	mg/L	2
Iron		RMean	All	7.5	mg/L	2
Lead		RMean	All	7.5	mg/L	2
Manganese		RMean	All	7.5	mg/L	2
Mercury		RMean	All	12.5 ; 15 if AV <0.2	mg/L	3
Molybdenum	Flame AAS ICP-MS ICP-OES	RMean	All	7.5; 10 if AV <0.1	mg/L	3
Nickel		RMean	All	7.5; 10 if AV <2.5	mg/L	2
Selenium	Flame AAS Hydride gen/cold vapour ICP-MS ICP-OES	RMean	All	12.5; 15 if AV <0.2	mg/L	3
Thallium	Flame AAS ICP-MS ICP-OES	RMean	All	7.5; 10 if AV <1	mg/L	4
Tin		RMean	All	7.5; 10 if AV <1	mg/L	3
Vanadium		RMean	All	7.5	mg/L	2
Zinc		RMean	All	7.5	mg/L	2

Sample 3a

Supplied as: 1 x approximately 30g prepared soil, ground to pass 200µm sieve

Analyte	Method	AV	Range	SDPA%	Units	DP	Cut-off
Antimony	Aqua Regia Extraction, ICP-MS Aqua Regia Extraction, ICP-OES Microwave Extraction, ICP-MS Microwave Extration, ICP-OES	RMean	All	15	mg/kg	2	0.5
Arsenic		RMean	All	15	mg/kg	2	1
Barium		RMean	All	10	mg/kg	2	10
Beryllium		RMean	All	10	mg/kg	2	0.5
Cadmium		RMean	All	10	mg/kg	2	0.3
Chromium		RMean	All	10	mg/kg	2	10
Cobalt		RMean	All	10	mg/kg	2	10
Copper		RMean	All	10	mg/kg	2	10
Iron		RMean	All	10	mg/kg	0	10
Lead		RMean	All	10	mg/kg	2	10
Manganese		RMean	All	10	mg/kg	2	10
Mercury		RMean	All	15	mg/kg	2	0.1
Molybdenu		RMean	All	10	mg/kg	2	1
Nickel		RMean	All	10	mg/kg	2	10
Selenium		RMean	All	10	mg/kg	2	0.3
Thallium		RMean	All	10	mg/kg	3	1
Tin		RMean	All	10	mg/kg	2	1
Vanadium		RMean	All	10	mg/kg	2	10
Zinc		RMean	All	10	mg/kg	2	10
Chromium (VI)	Hydrochloric Acid Extraction Water Extract NaOH Extract	RMean	All	20	mg/kg	2	-

Measurable levels of all analytes may not be present in the soil sample for every round. When the consensus value (RMean) falls below the cut-off levels listed above, a z score is provided for information only and should be interpreted with care.

Sample 13

Supplied as: 1 x 60ml standard solution (containing potassium dichromate and another chromium salt)

Analyte	Method	AV	Range	SDPA%	Units	DP
Chromium (VI)	Colorimetry	Formulation	2-40	10	mg/L	2

Group B Inorganics

Sample 3b

Supplied as: 1 x approximately 150g prepared soil, ground to pass 200µm sieve

Analyte	Method	AV	Range	SDPA% (fixed)	Units	DP	Cut-off
Ammonia	Discrete analyser Flow injection analysis Manual colorimetry	RMean	All	20	mgN/kg	2	-
Complex Cyanide	Alkali ext/rapid digest Alkali ext/standard digest Calculated from total and free cyanide	RMean	All	20	mgCN/kg	2	2.5
Free Cyanide	Alkali ext/rapid digest Alkali ext/standard digest	RMean	All	20	mgCN/kg	2	2.5
Total Cyanide	HCl distillation/ISO Phosphoric acid method	RMean	All	20	mgCN/kg	2	25
Dry Matter	Various	RMean	All	(0.75)	%	2	-
Loss on Ignition	450°C 550°C	RMean	All	10	%	2	-
pH	pH Meter Titrator	RMean	All	(0.2)	pH Units	2	-
Thiocyanate	Aqueous Extract NaOH Extraction	RMean	All	20	mgSCN/kg	2	5
Total sulfate	Hydrochloric Acid Extraction	RMean	All	10	mgSO ₄ /kg	0	200
Easily liberated sulfide	Hydrochloric Acid Extraction Sulfuric Acid Extraction Phosphoric Acid Extraction	RMean	All	20	mgS/kg	2	-
Water soluble boron	10:1 Water:Soil 2.5:1 Water:Soil 2:1 Water:Soil	RMean	All	15	mg/kg	2	0.3
Water soluble chloride	10:1 Water:Soil 5:1 Water:Soil	RMean	All	15	mgCl/kg	2	-
Water soluble fluoride	2:1 Water:Soil	RMean	All	15	mgF/kg	2	-

Analyte	Method	AV	Range	SDPA% (fixed)	Units	DP	Cut-off
Water soluble sulfate	10:1 Water:Soil 5:1 Water:Soil 2.5:1 Water:Soil 2:1 Water:Soil	RMean	All	10	mgSO ₄ /kg	1	-
Total Sulfur	Aqua Regia Extraction High Temperature Combustion	RMean	All	10	mgS/kg	2	-

Measurable levels of all analytes may not be present in the soil sample for every round. When the consensus value (RMean) falls below the cut-off levels listed above, a z score is provided for information only and should be interpreted with care.

Sample 6

Supplied as: 1 x 60ml standard solution

Analyte	Method	AV	Range	SDPA %	Units	DP
Total cyanide	IC Spectrophotometry	Formulation	4-15	10	mgCN/L	2

Sample 8

Supplied as: 1 x 60ml standard solution

Analyte	Method	AV	Range	SDPA%	Units	DP
Total sulfate	IC ICP-OES Turbidimetry	RMean	100-800	10	mgSO ₄ /L	2

Sample 10

Supplied as: 1 x 60ml standard solution

Analyte	Method	AV	Range	SDPA%	Units	DP
Water soluble boron	ICP-OES Spectrophotometry	RMean	0.5-2.5	10	mg/L	2

Sample 12

Supplied as: 1 x 60ml standard solution

Analyte	Method	AV	Range	SDPA%	Units	DP
Easily liberated sulfide	Hydrochloric Acid Extraction	RMean	10-90	20	mgS/L	2

Sample 16

Supplied as: 1 x 60ml standard solution

Analyte	Method	AV	Range	SDPA%	Units	DP
Thiocyanate	Various	RMean	1-5	10	mgSCN/L	2

Sample 17

Supplied as: 1 x 60ml standard solution

Analyte	Method	AV	Range	SDPA%	Units	DP
Total fluoride	Colorimetry IC ISE	Formulation	1-2.5	10	mgF/L	2

Group C Organics

Sample 3c

Supplied as: 1 x approximately 70g prepared soil, ground to pass 200µm sieve
1 x 1ml phenol spiking solution

Analyte	Method	AV	Range	SDPA %	Units	DP	Cut-off
Acenaphthene	DCM Extraction, GC-FID	RMean	All	20	mg/kg	2	0.5
Acenaphthylene	DCM Extraction, GC-MS Hexane/Acetone Extraction, GC-FID Hexane/Acetone Extraction, GC-MS Toluene Extraction, GC-FID Toluene Extraction, GC-MS	RMean	All	20	mg/kg	2	0.5
Anthracene	DCM Extraction, GC-FID DCM Extraction, GC-MS Hexane/Acetone Extraction, GC-FID Hexane/Acetone Extraction, GC-MS	RMean	All	20	mg/kg	2	0.5

Analyte	Method	AV	Range	SDPA %	Units	DP	Cut-off
Benz(a)anthracene	DCM Extraction, GC-FID	RMean	All	20	mg/kg	2	0.5
Benzo(b)fluoranthene		RMean	All	20	mg/kg	2	0.5
Benzo(k)fluoranthene		RMean	All	20	mg/kg	2	0.5
Benzo(b/k)fluoranthene (sum)		RMean	All	20	mg/kg	2	0.5
Benzo(ghi)perylene	DCM Extraction, GC-MS	RMean	All	20	mg/kg	2	0.5
Benz(a)pyrene	Hexane/Acetone	RMean	All	20	mg/kg	2	0.5
Chrysene	Extraction, GC-FID	RMean	All	20	mg/kg	2	0.5
Dibenz(ah)anthracene	Hexane/Acetone	RMean	All	20	mg/kg	2	0.5
Fluoranthene	Extraction, GC-MS	RMean	All	20	mg/kg	2	0.5
Fluorene	Toluene Extraction, GC-FID	RMean	All	20	mg/kg	2	0.5
Indeno(123-cd)pyrene	Toluene Extraction, GC-MS	RMean	All	20	mg/kg	2	0.5
Naphthalene		RMean	All	20	mg/kg	2	0.5
Phenanthrene		RMean	All	20	mg/kg	2	0.5
Pyrene		RMean	All	20	mg/kg	2	0.5
Total PAH		RMean	All	20	mg/kg	2	-
Phenols	HPLC	RMean	All	20	mg/kg	2	-
Cresols		RMean	All	20	mg/kg	2	-
Xylenols		RMean	All	20	mg/kg	2	-
Distillable phenolic substances	Colorimetry	RMean	All	20	mg/kg phenol	2	-
PCB (28)	DCM Extraction, GC-ECD	RMean	All	20	mg/kg	4	-
PCB (52)	DCM Extraction, GC-FID	RMean	All	20	mg/kg	4	-
PCB (77)		RMean	All	20	mg/kg	4	-
PCB (101)		RMean	All	20	mg/kg	4	-
PCB (118)	DCM Extraction, GC-MS	RMean	All	20	mg/kg	4	-
PCB (138)		RMean	All	20	mg/kg	4	-
PCB (153)	Hexane/acetone	RMean	All	20	mg/kg	4	-
PCB (180)	Extraction, GC-ECD	RMean	All	20	mg/kg	4	-
	Hexane/Acetone						
	Extraction, GC-FID						
	Hexane /Acetone						
	Extraction, GC-MS						
Elemental sulfur	Toluene Extraction, GC-ECD	RMean	All	20	mg/kg	2	-
	Toluene Extraction, GC-FID						
	Toluene Extraction, GC-MS						
Total organic carbon	Instrumental methods Walkley Black (Titrimetry)	RMean	All	10	mg/kg	1	-
TPH (C ₁₀ -C ₄₀ inclusive)	DCM Extraction, GC-FID	RMean	All	20	mg/kg	0	-
	DCM Extraction, GC-MS						

Analyte	Method	AV	Range	SDPA %	Units	DP	Cut-off
	Hexane/Acetone Extraction, GC-FID Hexane/Acetone Extraction, GC-MS Toluene Extraction, GC-FID Toluene Extraction, GC-MS						
TPH Aliphatic >C ₁₀ -C ₁₂	GC-ECD GC-FID GC-TCD GC/GC-FID	RMean	All	20	mg/kg	1	-
TPH Aliphatic >C ₁₂ - C ₁₆		RMean	All	20	mg/kg	1	-
TPH Aliphatic >C ₁₆ - C ₂₁		RMean	All	20	mg/kg	1	-
TPH Aliphatic >C ₂₁ -C ₃₅		RMean	All	20	mg/kg	1	-
TPH Aliphatic >C ₃₅ -C ₄₀		RMean	All	20	mg/kg	1	-
TPH Aromatic >EC ₁₀ -EC ₁₂		RMean	All	20	mg/kg	1	-
TPH Aromatic >EC ₁₂ -EC ₁₆		RMean	All	20	mg/kg	1	-
TPH Aromatic >EC ₁₆ -EC ₂₁		RMean	All	20	mg/kg	1	-
TPH Aromatic >EC ₂₁ -EC ₃₅		RMean	All	20	mg/kg	1	-
TPH Aromatic >EC ₃₅ -EC ₄₀		RMean	All	20	mg/kg	1	-

Measurable levels of all analytes may not be present in the soil sample for every round. When the consensus values (RMean) of the individual PAHs in this sample fall below 1mg/kg, a z score is provided for information only and should be interpreted with care.

Sample 5

Supplied as: 1 x 2ml standard solution

Analyte	Method	AV	Range	SDPA%	Units	DP
Acenaphthene	GC-FID GC-MS	Formulation	1-4	10	mg/L	3
Acenaphthylene		Formulation	1-4	10	mg/L	3
Anthracene		Formulation	0.2-0.8	10	mg/L	3
Benz(a)anthracene		Formulation	0.2-0.8	10	mg/L	3
Benzo(b)fluoranthene		Formulation	0.4-1.5	10	mg/L	3
Benzo(k)fluoranthene		Formulation	0.4-1.5	10	mg/L	3
Benzo(b/k)fluoranthene (sum)		Formulation	0.8-3.0	10	mg/L	3

Analyte	Method	AV	Range	SDPA%	Units	DP
Benzo(ghi)perylene	GC-FID GC-MS	Formulation	0.4-1.5	10	mg/L	3
Benz(a)pyrene		Formulation	0.2-0.8	10	mg/L	3
Chrysene		Formulation	0.2-0.8	10	mg/L	3
Dibenz(ah)anthracene		Formulation	0.4-1.5	10	mg/L	3
Fluoranthene		Formulation	0.4-1.5	10	mg/L	3
Fluorene		Formulation	0.4-1.5	10	mg/L	3
Indeno(123-cd)pyrene		Formulation	0.2-0.8	10	mg/L	3
Naphthalene		Formulation	1-4	10	mg/L	3
Phenanthrene		Formulation	0.2-0.8	10	mg/L	3
Pyrene		Formulation	0.2-0.8	10	mg/L	3

Sample 7a

Supplied as: 1 x 60ml standard solution

Analyte	Method	AV	Range	SDPA%	Units	DP
Monohydric phenols (by distillation)	Distillation colorimetry	RMean	All	20	mg/L phenol	2

Sample 7b

Supplied as: 2 x 2ml standard solution

Analyte	Method	AV	Range	SDPA%	Units	DP
Total phenols (sum of phenol, cresols and xylenols)	GC HPLC	Formulation	All	20	mg/L	2
Total Cresols		Formulation	4-12	20	mg/L	2
Total Xylenols		Formulation	2-6	20	mg/L	2
Phenol		Formulation	3-12	20	mg/L	2

Sample 11

Supplied as: 1 x 2ml standard solution

Analyte	Method	AV	Range	SDPA%	Units	DP
PCB (28)	GC-ECD GC-MS	Formulation	0.2-1	10	mg/L	2
PCB (52)		Formulation	0.2-1	10	mg/L	2
PCB (101)		Formulation	0.2-1	10	mg/L	2
PCB (118)		Formulation	0.2-1	10	mg/L	2
PCB (138)		Formulation	0.2-1	10	mg/L	2
PCB (153)		Formulation	0.2-1	10	mg/L	2
PCB (180)		Formulation	0.2-1	10	mg/L	2

Sample 14a

Supplied as: 1 x 2ml standard solution

Analyte	Method	AV	Range	SDPA%	Units	DP
TPH, Range C ₁₀ – C ₄₀ (inclusive)	GC-FID	RMean	5000-15000	10	mg/L	1

Sample 14b

Supplied as: 1 x 2ml standard solution

Analyte	Method	AV	Range	SDPA%	Units	DP
TPH, Aliphatic ≤C ₆	Headspace GC Purge & Trap Headspace GC Purge & Trap	RMean	50-200	10	mg/L	2
TPH, Aliphatic >C ₆ -C ₈		RMean	50-200	10	mg/L	2
TPH, Aliphatic >C ₈ -C ₁₀		RMean	50-200	10	mg/L	2
TPH, Aromatic EC ₆		RMean	50-200	10	mg/L	2
TPH, Aromatic >EC ₆ -EC ₈		RMean	50-200	10	mg/L	2
TPH, Aromatic >EC ₈ -EC ₁₀		RMean	50-200	10	mg/L	2

Sample 15

Supplied as: 1 x 2ml standard solution

Analyte	Method	AV	Range	SDPA%	Units	DP
Benzene	Headspace GC-MS	Formulation	20-80	10	µg/L	2
Toluene		Formulation	20-80	10	µg/L	2
Ethylbenzene	Headspace GC-PID/ECD	Formulation	20-80	10	µg/L	2
o-xylene		Formulation	50-150	10	µg/L	2
m + p-Xylenes	P&T-GC PID/ECD P&T-GCMS	Formulation	50-200	10	µg/L	2

Sample 19

Supplied as: 1 x 2ml standard solution

Analyte	Method	AV	Range	SDPA%	Units	DP
1,2,3-trichlorobenzene	Headspace GC-MS Headspace GC-PID/ECD P&T-GC PID/ECD P&T-GCMS	Formulation	30-100	10	µg/L	2
1,2,4-trichlorobenzene		Formulation	30-100	10	µg/L	2
2-Chlorotoluene		Formulation	30-80	10	µg/L	2
1,2-Dichloroethane		Formulation	30-80	10	µg/L	2
1,2-Dichloroethene		Formulation	30-80	10	µg/L	2
Dichloromethane		Formulation	30-80	10	µg/L	2
Hexachloro-1,3-butadiene		Formulation	50 - 100	10	µg/L	2
1,1,1,2-Tetrachloroethane		Formulation	30-100	10	µg/L	2
1,1,1-Trichloroethane		Formulation	30-100	10	µg/L	2
Tetrachloromethane		Formulation	<100	10	µg/L	2
Trichloroethene		Formulation	30-100	10	µg/L	2
Trichloromethane		Formulation	30 - 100	10	µg/L	2

Sample 20

Supplied as: 2 x 10mL standard solutions (sample + blank)

Participants are provided with a solution containing six semi volatile organic compounds (SVOCs) for qualitative identification. This sample is designed to test the ability of a laboratory to identify SVOCs in an organic solvent. A list of potential contaminants is provided in Appendix B. In addition, participants will also be provided with a sample blank.

Group D Leachate

Sample 18

Supplied as: 1 x approximately 200g prepared soil, ground to pass 200µm sieve

Analyte	Method	AV	Range	SDPA%	Units	DP
Antimony	Flame AAS Graphite furnace ICP-MS ICP-OES	RMean	All	10	mg/L	4

Analyte	Method	AV	Range	SDPA%	Units	DP
Arsenic	Flame AAS Graphite furnace Hydride gen/cold vapour ICP-MS ICP-OES	RMean	All	10	mg/L	4
Barium	Flame AAS Graphite furnace	RMean	All	10	mg/L	4
Cadmium	ICP-MS ICP-OES	RMean	All	10	mg/L	4
Calcium	Flame AAS Graphite furnace ICP-MS ICP-OES	RMean	All	10	mg/L	2
Chromium	Flame AAS ICP-MS ICP-OES	RMean	All	10	mg/L	4
Copper	Flame AAS Graphite furnace ICP-MS ICP-OES	RMean	All	10	mg/L	4
Iron	Flame AAS	RMean	All	10	mg/L	4
Lead	ICP-MS	RMean	All	10	mg/L	4
Magnesium	ICP-OES	RMean	All	10	mg/L	2
Mercury	Hydride gen/cold vapour ICP-MS ICP-OES	RMean	All	10	mg/L	4
Molybdenum	Flame AAS ICP-MS ICP-OES	RMean	All	10	mg/L	4
Nickel		RMean	All	10	mg/L	4
Potassium		RMean	All	10	mg/L	2
Selenium		RMean	All	10	mg/L	4
Sodium		RMean	All	10	mg/L	2
Tin		RMean	All	10	mg/L	4
Zinc		RMean	All	10	mg/L	4
Sulfate	Gravimetry IC ICP-OES Turbidimetry	RMean	All	10	mgSO ₄ /L	2

Analyte	Method	AV	Range	SDPA%	Units	DP
Chloride	Colorimetry IC Titration	RMean	All	10	mgCl/L	2
Fluoride	IC ISE Spectrophotometry	RMean	All	10	mgF/L	3
Nitrate	FIA IC Colorimetry	RMean	All	10	mgNO ₃ /L	3
Boron	IC ICP-MS ICP-OES Spectrophotometry	RMean	All	10	mg/L	3
Chromium (VI)	Colorimetry	RMean	All	10	mg/L	4
Phosphate	FIA IC Colorimetry	RMean	All	10	mgP/L	3
Ammonia	IC ISE	RMean	All	10	mgN/L	3
Free Cyanide	IC Spectrophotometry	RMean	All	10	mgCN/L	3
Total Cyanide		RMean	All	10	mgCN/L	2
Thiocyanate	Various	RMean	All	10	mgSCN/ L	2
pH	pH Meter	RMean	All	10	pH units	2
Conductivity (20°C)	Conductivity Meter	RMean	All	10	µS/cm	1
COD	Various	RMean	All	10	mgO ₂ /L	2
TOC/DOC*	Various	RMean	All	10	mg/L	2
Phenol Index	Colorimetry HPLC	RMean	All	10	mg/L	2

*Total Organic Carbon and Dissolved Organic Carbon are regarded as the same Analyte in the leachate sample due to the filtration carried out as part of the analysis procedure.

Measurable levels of all analytes may not be present in the soil sample for every round. When the consensus values (RMean) of the individual metals and inorganics in this sample fall below 0.1mg/L, a z score is provided for information only and should be interpreted with care.

Group E WAC (Waste Acceptance Criteria)

(In accordance with EN 12457-2:2002 - 10:1 single stage leaching test)

Sample 21

Soil for Leaching Tests

Supplied as:

1 x approximately 200g WAC material

Analyte	Method	AV	Range	SDPA% (fixed)	Units	DP
Dry Matter Content Ratio	Various	RMean	All	10	%	2
Antimony	Flame AAS Graphite furnace ICP-MS ICP-OES	RMean	All	10	mg/kg dry weight	4
Arsenic	Flame AAS Graphite furnace Hydride gen/cold vapour ICP-MS ICP-OES	RMean	All	10	mg/kg dry weight	4
Barium	Flame AAS Graphite furnace ICP-MS ICP-OES	RMean	All	10	mg/kg dry weight	2
Cadmium		RMean	All	10	mg/kg dry weight	4
Chromium	Flame AAS ICP-MS ICP-OES	RMean	All	10	mg/kg dry weight	3
Copper		RMean	All	10	mg/kg dry weight	3
Lead		RMean	All	10	mg/kg dry weight	3
Mercury	Flame AAS Hydride gen/cold vapour ICP-MS ICP-OES	RMean	All	10	mg/kg dry weight	4
Molybdenum	Flame AAS Graphite furnace ICP-MS ICP-OES	RMean	All	10	mg/kg dry weight	3
Nickel	Flame AAS	RMean	All	10	mg/kg	3

Analyte	Method	AV	Range	SDPA% (fixed)	Units	DP
	ICP-MS ICP-OES				dry weight	
Selenium	Flame AAS Hydride gen/cold vapour ICP-MS ICP-OES	RMean	All	10	mg/kg dry weight	3
Zinc	Flame AAS ICP-MS ICP-OES	RMean	All	10	mg/kg dry weight	2
Sulfate	Gravimetry IC ICP-OES Turbidimetry	RMean	All	10	mg/kg dry weight	0
Chloride	Colorimetry IC Titration	RMean	All	10	mg/kg dry weight	0
Fluoride	IC ISE Spectrophotometry	RMean	All	10	mg/kg dry weight	2
Phenol Index	Colorimetry HPLC	RMean	All	10	mg/kg dry weight	2
DOC	Various	RMean	All	10	mg/kg dry weight	1
Total Dissolved Solids		RMean	All	10	mg/kg dry weight	0
pH	pH Meter	RMean	All	(0.2)	pH units	2
Conductivity (20°C)	Conductivity Meter	RMean	All	2.5; 10 if AV>25	µS/cm	1

Sample 24**

Prepared Leachate

Supplied as: 1 x approximately 1L leachate material, prepared in accordance with EN 12457-2:2002

Analyte	Method	AV	Range	SDPA% (fixed)	Units	DP
Antimony	Flame AAS Graphite furnace ICP-MS ICP-OES	RMean	All	10	mg/L	4
Arsenic	Flame AAS Graphite furnace Hydride gen/cold vapour ICP-MS ICP-OES	RMean	All	10	mg/L	4
Barium	Flame AAS	RMean	All	10	mg/L	2
Cadmium	Graphite furnace ICP-MS ICP-OES	RMean	All	10	mg/L	4
Chromium	Flame AAS	RMean	All	10	mg/L	3
Copper	ICP-MS	RMean	All	10	mg/L	3
Lead	ICP-OES	RMean	All	10	mg/L	3
Mercury	Flame AAS Hydride gen/cold vapour ICP-MS ICP-OES	RMean	All	10	mg/L	4
Molybdenum	Flame AAS Graphite furnace ICP-MS ICP-OES	RMean	All	10	mg/L	2
Nickel	Flame AAS ICP-MS ICP-OES	RMean	All	10	mg/L	3
Selenium	Flame AAS Hydride gen/cold vapour ICP-MS ICP-OES	RMean	All	10	mg/L	3
Zinc	Flame AAS ICP-MS ICP-OES	RMean	All	10	mg/L	2

Analyte	Method	AV	Range	SDPA% (fixed)	Units	DP
Sulfate	Gravimetry IC ICP-OES Turbidimetry	RMean	All	10	mgSO ₄ /L	0
Chloride	Colorimetry IC Titration	RMean	All	10	mgCl/L	0
Fluoride	IC ISE Spectrophotometry	RMean	All	10	mgF/l	2
Phenol Index	Colorimetry HPLC	RMean	All	10	mg/L	2
DOC	Various	RMean	All	10	mg/L	1
Total Dissolved Solids		RMean	All	10	mg/L	0
pH	pH Meter	RMean	All	(0.2)	pH units	2
Conductivity (20°C)	Conductivity Meter	RMean	All	2.5; 10 if AV>25	µS/cm	1

Other Contest PT samples

Sample 23** **Aliphatic and aromatic fractions of volatile petroleum hydrocarbons in field moist soil**

Supplied as: 50g field moist soil sample to test dry matter
50g of field moist soil for testing of hydrocarbons
1 x 1mL standard solution

Analyte	Method	AV	Range	SDPA %	Units	DP
Aliphatic EC ₅ -EC ₆	Headspace GC Purge & Trap Headspace GC (ISO 16558-1:2015)	RMean	1-50	12.5	mg/kg of dry matter	2
Aliphatic >EC6-EC8		RMean	1-50	12.5	mg/kg of dry matter	2
Aliphatic >EC8-EC10		RMean	1-50	12.5	mg/kg of dry matter	2
Aromatic >EC6-EC9		RMean	1-50	12.5	mg/kg of dry matter	2
Aromatic >EC9-EC10		RMean	1-50	12.5	mg/kg of dry matter	2

**Please note that these samples are not currently within the scope of LGC's UKAS accreditation.

Sample 25**

VOCs in Soil

Supplied as: 1 x 1mL standard solution

1 x 30g soil sample

Analyte	Method	CAS Number	AV	Range	SDPA %	Units	DP
Acetonitrile	Headspace GC Headspace GC-MS Headspace GC- PID/ECD P&T-GC PID/ECD P&T GC- MS Purge & Trap	75-05-8	Formulation	0.02-1	20	mg/kg	2
Benzene		71-43-2	Formulation	0.02-1	20	mg/kg	2
Bromobenzene		108-86-1	Formulation	0.02-1	20	mg/kg	2
Bromochloromethane		74-97-5	Formulation	0.02-1	20	mg/kg	2
Bromodichloromethane		75-27-4	Formulation	0.02-1	20	mg/kg	2
Bromoform		75-25-2	Formulation	0.02-1	20	mg/kg	2
Bromomethane		74-83-9	Formulation	0.02-1	20	mg/kg	2
n-Butylbenzene		104-51-8	Formulation	0.02-1	20	mg/kg	2
sec-Butylbenzene		135-98-8	Formulation	0.02-1	20	mg/kg	2
tert-Butylbenzene		98-06-6	Formulation	0.02-1	20	mg/kg	2
Carbon disulfide		75-15-0	Formulation	0.02-1	20	mg/kg	2
Carbon tetrachloride		56-23-5	Formulation	0.02-1	20	mg/kg	2
Chlorobenzene		108-90-7	Formulation	0.02-1	20	mg/kg	2
Chloroethane		75-00-3	Formulation	0.02-1	20	mg/kg	2
Chloroform		67-66-3	Formulation	0.02-1	20	mg/kg	2
Chloromethane		74-87-3	Formulation	0.02-1	20	mg/kg	2
2-Chlorotoluene		95-49-8	Formulation	0.02-1	20	mg/kg	2
4-Chlorotoluene		106-43-4	Formulation	0.02-1	20	mg/kg	2
cis-1,2-Dichloroethylene		156-59-2	Formulation	0.02-1	20	mg/kg	2
Dibromochloromethane		124-48-1	Formulation	0.02-1	20	mg/kg	2
1,2-Dibromo-3-chloropropane		96-12-8	Formulation	0.02-1	20	mg/kg	2
1,2-Dibromoethane		106-93-4	Formulation	0.02-1	20	mg/kg	2
Dibromomethane		74-95-3	Formulation	0.02-1	20	mg/kg	2
1,2-Dichlorobenzene		95-50-1	Formulation	0.02-1	20	mg/kg	2
1,3-Dichlorobenzene		541-73-1	Formulation	0.02-1	20	mg/kg	2
1,4-Dichlorobenzene		106-46-7	Formulation	0.02-1	20	mg/kg	2
Dichlorodifluoromethane		75-71-8	Formulation	0.02-1	20	mg/kg	2
1,1-Dichloroethane		75-34-3	Formulation	0.02-1	20	mg/kg	2
1,2-Dichloroethane		107-06-2	Formulation	0.02-1	20	mg/kg	2
1,1-Dichloroethylene		75-35-4	Formulation	0.02-1	20	mg/kg	2
trans-1,2-Dichloroethylene		156-60-5	Formulation	0.02-1	20	mg/kg	2
1,2-Dichloropropane		78-87-5	Formulation	0.02-1	20	mg/kg	2
1,3-Dichloropropane		142-28-9	Formulation	0.02-1	20	mg/kg	2
2,2-Dichloropropane		594-20-7	Formulation	0.02-1	20	mg/kg	2
1,1-Dichloropropylene		563-58-6	Formulation	0.02-1	20	mg/kg	2
cis-1,3-Dichloropropylene		10061-01-5	Formulation	0.02-1	20	mg/kg	2
trans-1,3-Dichloropropylene		10061-02-6	Formulation	0.02-1	20	mg/kg	2
Ethylbenzene		100-41-4	Formulation	0.02-1	20	mg/kg	2
Hexachlorobutadiene		87-68-3	Formulation	0.02-1	20	mg/kg	2
Hexachloroethane		67-72-1	Formulation	0.02-1	20	mg/kg	2

Analyte	Method	CAS Number	AV	Range	SDPA %	Units	DP
Isopropylbenzene	Headspace GC Headspace GC-MS Headspace GC-MS Purge & Trap	98-82-8	Formulation	0.02-1	20	mg/kg	2
4-Isopropyltoluene		99-87-6	Formulation	0.02-1	20	mg/kg	2
Methylene chloride		75-09-2	Formulation	0.02-1	20	mg/kg	2
Methyl t-butyl ether		1634-04-4	Formulation	0.02-1	20	mg/kg	2
m-Xylene		108-38-3	Formulation	0.01-1	20	mg/kg	2
m&p-Xylene		-	Formulation	0.02-2	20	mg/kg	2
Naphthalene		91-20-3	Formulation	0.02-1	20	mg/kg	2
Nitrobenzene		98-95-3	Formulation	0.02-1	20	mg/kg	2
n-Propylbenzene		103-65-1	Formulation	0.02-1	20	mg/kg	2
o-Xylene		95-47-6	Formulation	0.02-1	20	mg/kg	2
p-Xylene		106-42-3	Formulation	0.02-1	20	mg/kg	2
Styrene		100-42-5	Formulation	0.02-1	20	mg/kg	2
1,1,1,2-Tetrachloroethane		630-20-6	Formulation	0.02-1	20	mg/kg	2
1,1,2,2-Tetrachloroethane		79-34-5	Formulation	0.02-1	20	mg/kg	2
Tetrachloroethylene		127-18-4	Formulation	0.02-1	20	mg/kg	2
Toluene		108-88-3	Formulation	0.02-1	20	mg/kg	2
Total Xylenes		1330-20-7	Formulation	0.04-4	20	mg/kg	2
1,2,3-Trichlorobenzene		87-61-6	Formulation	0.02-1	20	mg/kg	2
1,2,4-Trichlorobenzene		120-82-1	Formulation	0.02-1	20	mg/kg	2
1,1,1-Trichloroethane		71-55-6	Formulation	0.02-1	20	mg/kg	2
1,1,2-Trichloroethane		79-00-5	Formulation	0.02-1	20	mg/kg	2
Trichloroethylene		79-01-6	Formulation	0.02-1	20	mg/kg	2
Trichlorofluoromethane		75-69-4	Formulation	0.02-1	20	mg/kg	2
1,2,3-Trichloropropane		96-18-4	Formulation	0.02-1	20	mg/kg	2

**Please note that these samples are not currently within the scope of LGC's UKAS accreditation.

Sample 26** **Organochlorine Pesticides in Soil**

Supplied as: 1 x 1mL standard solution
 1 x 30g soil sample

Analyte	Method	AV	Range	SDPA %	Units	DP
Endrin	DCM Extraction, GC-FID DCM Extraction, GC-MS Hexane/Acetone Extraction, GC-FID Hexane/Acetone Extraction GC-MS Toluene Extraction, GC-FID Toluene Extraction, GC-MS	Formulation	0.05-5	20	mg/kg	2
Dieldrin		Formulation	0.05-5	20	mg/kg	2
Aldrin		Formulation	0.05-5	20	mg/kg	2
p,p'-DDT		Formulation	0.05-5	20	mg/kg	2
o,p'-DDT		Formulation	0.05-5	20	mg/kg	2
p,p'-DDE		Formulation	0.05-5	20	mg/kg	2
p,p'-DDD		Formulation	0.05-5	20	mg/kg	2
Alpha Hexachlorocyclohexane		Formulation	0.05-5	20	mg/kg	2
Beta Hexachlorocyclohexane		Formulation	0.05-5	20	mg/kg	2
Delta Hexachlorocyclohexane		Formulation	0.05-5	20	mg/kg	2
Lindane (Gamma HCH)		Formulation	0.05-5	20	mg/kg	2
Trifluralin		Formulation	0.05-5	20	mg/kg	2
Alpha Endosulphan		Formulation	0.05-5	20	mg/kg	2
Beta Endosulphan		Formulation	0.05-5	20	mg/kg	2
Hexachlorobenzene		Formulation	0.05-5	20	mg/kg	2
Heptachlor		Formulation	0.05-5	20	mg/kg	2
Heptachlor epoxide		Formulation	0.05-5	20	mg/kg	2
Pentachlorobenzene		Formulation	0.05-5	20	mg/kg	2

Sample 27** **LOI Soil for HMRC Requirements**

Supplied as: 1 x approximately 1kg LOI material

Analyte	Method	AV	Range	SDPA%	Units	DP
Loss on Ignition at 440°C	440°C	RMean	5-20	10	%	2

**Please note that this sample is not currently within the scope of LGC's UKAS accreditation.

Sample 28** **Soil Texture**
Supplied as: 1 x 500g soil

The intent of this sample is to test the ability of the laboratories in identifying the type of soil provided i.e. sand, clay, silt. Results returned will be identified as satisfactory or unsatisfactory.

Sample 29** **Incinerator Bottom Ash**
Supplied as: 1 x approximately 200g IBA material

Analyte	Method	AV	Range	SDPA%	Units	DP
Arsenic	Aqua Regia Extraction, ICP-MS Aqua Regia Extraction, ICP-OES	RMean	All	20	mg/kg	3
Barium		RMean	All	20	mg/kg	2
Cadmium		RMean	All	20	mg/kg	4
Copper		RMean	All	20	mg/kg	3
Iron		RMean	All	20	mg/kg	3
Lead		RMean	All	20	mg/kg	3
Magnesium		RMean	All	20	mg/kg	2
Manganese		RMean	All	20	mg/kg	3
Nickel		RMean	All	20	mg/kg	3
Potassium		RMean	All	20	mg/kg	2
Sodium		RMean	All	20	mg/kg	2
Total Chromium		RMean	All	20	mg/kg	2
Zinc		RMean	All	20	mg/kg	2
pH	pH Meter	RMean	All	(0.2)	pH Units	2
Alkali reserve	Titration	RMean	All	20	mg/kg	2

**Please note that these samples are not currently within the scope of LGC's UKAS accreditation.

Sample 30** **Organophosphorus Pesticides in Soil**

Supplied as: 1 x 1mL standard solution
1 x 30g soil sample

Analyte	Method	AV	Range	SDPA %	Units	DP
Azinphos-methyl	DCM Extraction, GC-FID DCM Extraction, GC-MS Hexane/Acetone Extraction, GC-FID Hexane/Acetone Extraction GC-MS Toluene Extraction, GC-FID Toluene Extraction, GC-MS	Formulation	0.05-5	20	mg/kg	2
Azinphos-ethyl		Formulation	0.05-5	20	mg/kg	2
Dichlorvos		Formulation	0.05-5	20	mg/kg	2
Fenitrothion		Formulation	0.05-5	20	mg/kg	2
Malathion		Formulation	0.05-5	20	mg/kg	2
Mevinphos		Formulation	0.05-5	20	mg/kg	2
Chlorfenvinphos		Formulation	0.05-5	20	mg/kg	2
Diazinon		Formulation	0.05-5	20	mg/kg	2
Fenthion		Formulation	0.05-5	20	mg/kg	2
Parathion-ethyl		Formulation	0.05-5	20	mg/kg	2
Parathion-methyl		Formulation	0.05-5	20	mg/kg	2
Chlorpyrifos		Formulation	0.05-5	20	mg/kg	2
Cypermethrin		Formulation	0.05-5	20	mg/kg	2

Sample 32** **PFAS in soil**
Supplied as: 1 x 50g soil sample

Analyte	Method	AV	Range	SDPA%	Units	DP
At least 10 PFAS from Appendix C, will be present.	ASTM Method 7968 EPA Method 1633 High Resolution GC/MS LC-MS/MS	RMean	0-500	20	µg /kg	2

**Please note that these samples are not currently within the scope of LGC's UKAS accreditation.

Sample 33** **Granulometric fraction of soil (Skeleton fraction)**
Supplied as: 200g soil sample

Analyte	Method	AV	Range	SDPA	Units	DP
Soil passing through 4.0mm sieve	Gravimetric	RMean	All	Robust SD	%	2
Soil passing through 2.8mm sieve		RMean	All	Robust SD	%	2
Soil passing through 2.0mm sieve		RMean	All	Robust SD	%	2
Soil passing through 1.0mm sieve		RMean	All	Robust SD	%	2

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

**Please note that these samples are not currently within the scope of LGC's UKAS accreditation.

APPENDIX B – Sample 20 potential SVOCs

Chemical	CAS Number
1,2,4,5-Tetrachlorobenzene	95-94-3
1,2,4-Trichlorobenzene	120-82-1
1,3-Dinitrobenzene	99-65-0
2,3,4,6-Tetrachlorophenol	58-90-2
2,4,5-Trichlorophenol	95-95-4
2,4,6-Trichlorophenol	88-06-2
2,4-Dichlorophenol	120-83-2
2,4-Dinitrotoluene	121-14-2
2,6-Dinitrotoluene	606-20-2
2-Acetylaminofluorene	53-96-3
2-Chloronaphthalene	91-58-7
2-Chlorophenol	95-57-8
2-Methylnaphthalene	91-57-6
2-Nitroaniline	88-74-4
3-Methylcholanthrene	56-49-5
2-Nitrophenol	88-75-5
4-Bromophenyl phenyl ether	101-55-3
4-Chloro-3-methylphenol	59-50-7
4-Chlorophenyl phenyl ether	7005-72-3
4-Nitroaniline	100-01-6
4-Nitrophenol	100-02-7
5-Nitro-o-toluidine	99-55-8
Acenaphthene	83-32-9
Acenaphthylene	208-96-8
Acetophenone	98-86-2
Aniline	62-53-3
Anthracene	120-12-7
Anthraquinone	84-65-1
Azobenzene	103-33-3
Benzo(a)anthracene	56-55-3
Benzo(a)pyrene	50-32-8
Benzo(b)fluoranthene	205-99-2
Benzo(g,h,i)perylene	191-24-2
Benzo(k)fluoranthene	207-08-9
Benzyl alcohol	100-51-6
Bis(2-chloroethoxy)methane	111-91-1
Bis(2-chloroethyl)ether	111-44-4
Bis(2-chloroisopropyl)ether	108-60-1
Carbazole	86-74-8

Chemical	CAS Number
Bis(2-ethylhexyl)phthalate	117-81-7
Bromophenyl phenyl ether	101-55-3
Butyl benzyl phthalate	85-68-7
Chrysene	218-01-9
Dibenz(a,h)anthracene	53-70-3
Dibenzofuran	132-64-9
Diethyl phthalate	84-66-2
Dimethyl phthalate	131-11-3
Dimethylaminoazobenzene	60-11-7
Di-n-butyl phthalate	84-74-2
Ethyl methanesulfonate	62-50-0
Fluoranthene	206-44-0
Fluorene	86-73-7
Hexachlorobenzene	118-74-1
Hexachlorobutadiene	87-68-3
Hexachloroethane	67-72-1
Hexachloropropene	1888-71-7
Indeno(1,2,3-cd)pyrene	193-39-5
Isophorone	78-59-1
Isosafrole	120-58-1
m-Cresol	108-39-4
Naphthalene	91-20-3
Nitrobenzene	98-95-3
N-Nitrosodiethylamine	55-18-5
N-Nitrosodi-n-butylamine	924-16-3
N-Nitrosodi-n-propylamine	621-64-7
N-Nitrosomethylethylamine	10595-95-6
N-Nitrosomorpholine	59-89-2
N-Nitrosopiperidine	100-75-4
N-Nitrosopyrrolidine	930-55-2
o-Cresol	95-48-7
p-Cresol	106-44-5
Pentachlorobenzene	608-93-5
Pentachloronitrobenzene	82-68-8
Phenacetin	62-44-2
Phenanthrene	85-01-8
Phenol	108-95-2
Pyrene	129-00-0
Safrole	94-59-7

APPENDIX C – Sample 32 potential PFAS

PFAS 50 (56) COMPOUND LIST		
Compounds	Abbreviation	CAS Reg No
Perfluoroalkyl carboxylic acids		
1	PFBA ~	375-22-4
2	PFPeA ~	2706-90-3
3	PFHxA ~	307-24-4
4	PFHpA ~	375-85-9
5	PFOA Linear ~	335-67-1
6	PFOA Branched #	-
7	PFOA Total #	-
8	PFNA ~	375-95-1
9	PFDA ~	335-76-2
10	PFUnA ~	2058-94-8
11	PFDoA ~	307-55-1
12	PFTeDA ~	376-06-7
13	PFHxDA ~	67905-19-5
14	PFODA ~	16517-11-6
Perfluoroalkyl sulfonic acids		
15	PFBS ~	375-73-5
16	PFPeS ~	2706-91-4
17	PFHxS Linear ~	355-46-4
18	PFHxS Branched #	-
19	PFHxS Total #	-
20	PFHpS ~	375-92-8
21	PFOS Linear ~	1763-23-1
22	PFOS Branched #	-
23	PFOS Total #	-
24	PFNS ~	68259-12-1
25	PFDS ~	335-77-3
26	PFDoS ~	79780-39-5
27	PFUnDS ~	749786-16-1
28	PFTeDA ~	72629-94-8
29	PFecHS ~	335-24-0
Fluorotelomer sulfonic acids		
30	4:2 FTS ~	757124-72-4
31	6:2 FTS ~	27619-97-2
32	8:2 FTSA; 8:2 FTS ~	39108-34-4
33	10:2 FTS	108026-35-3

Perfluorooctane sulfonamides		
34	PFOSA ~	754-91-6
35	NMeFOSA ~	31506-32-8
36	NEtFOSA ~	4151-50-2
Perfluorooctane sulfonamidoacetic acids		
37	NMeFOSAA ~	2355-31-9
38	NEtFOSAA ~	2991-50-6
39	FOSAA	2806-24-8
Per- and Polyfluoroether carboxylic acids		
40	HFPO-DA (Gen X) ~	13252-13-6
41	ADONA ~	919005-14-4
42	PFMPA (PFMOPrA) ~	377-73-1
43	PFMOBA ~	86309089-5
44	NFDHA ~	151772-58-6
45	HFPO-TA ~	13252-14-7
Perfluorooctane sulfonamide ethanols		
46	NMeFOSE ~	24448-09-7
47	NEtFOSE ~	1691-99-2
Ether sulfonic acids		
48	6:2 Cl-PFESA; 9Cl-PF3ONS ~	756426-58-1
49	8:2 Cl-PFESA; 11Cl-PF3OUdS ~	763051-92-9
50	PFEESA ~	113507-82-7
Fluorotelomer carboxylic acids		
51	3:3 FTCA ~	356-02-5
52	5:3 FTCA ~	914637-49-3
53	7:3 FTCA ~	812-70-4
Perfluoroalkane Sulfonamide		
54	FBSA ~	30334-69-1
55	FHxSA ~	41997-13-1
Other		
56	6:2 FTAB # ~	34455-29-3