



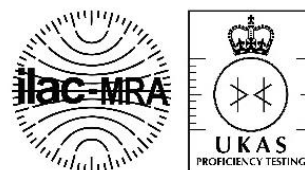
# CONTEST

**Contaminated Land Proficiency Testing Scheme**

## **Scheme Description**

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CONTEST Scheme Description

Record of issue status and modifications

| ISSUE | ISSUE DATE | DETAILS  | AUTHORISED BY                |
|-------|------------|--|------------------------------|
| 10    | Jan 2015   | Split of trichlorobenzenes into individual analytes. Addition of sample 26 as regular sample. Inclusion of subcontracting information in 'Test Materials' section.   | M. Whetton                   |
| 11    | Feb 2015   | Correction of concentration range for 1,2,3-trichlorobenzene   | M. Whetton                   |
| 12    | Mar 2015   | Addition of Total Sulfur to sample 3B  | M. Whetton                   |
| 13    | Jan 2016   | Amended ranges for sample 12 Easily liberated sulphide, sample 15 Toluene and Ethylbenzene. Sample 3 PAHs cut off values added. Added 'Dry Matter Content Ratio' to sample 21. Standard solution for samples 25 and 26 amended to 1ml.<br>Removed hard copy report information.                    | M. Whetton<br><br>N. Mason   |
| 14    | Jan 2017   | Addition of a phenol spike solution to sample 3C. New trial sample 27 for LOI Fines under the HMRC Requirements.   | R. Sharma                    |
| 15    | Feb 2017   | Changed the Phenol spike in group 3C, sample 22 and 23 from 2ml to 1ml   | A. McCarthy                  |
| 16    | June 2017  | Minor text changes to sample 27  | R. Sharma                    |
| 17    | Jan 2018   | Minor text changes.  | R. Sharma                    |
| 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.<br>Website information added to page 3   | R. Sharma<br><br>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<br><br>Removed 'Standards' from page 1 | R Sharma<br><br>A McCarthy   |
| 21    | Sept 2020  | Removal of Sample 22. Restructured Sample 25, which will now include BTEX as well a number of new compounds.   | R Sharma<br><br>A McCarthy   |

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

### **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 previously operated from April to March. The scheme year is currently in a period of transition and will be aligned with the 'January – December' scheme year from January 2022. Further information about CONTEST, including test material availability, round despatch dates and reporting deadlines, is available on the current CONTEST application form and on the LGC website [www.lgcstandards.com](http://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 Appendix A. 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 deemed appropriate. Details of homogeneity tests performed and results are given in the CONTEST 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 Appendix A

### **Methods**

Methods are listed in Appendix A and 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 results are returned through our electronic reporting software, PORTAL, full instructions for which are provided by email.

CONTEST 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.

## APPENDIX A - Description of abbreviations used

### Assigned Value (AV)

The assigned value may be derived in the following ways:

- From the robust mean (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 as illustrated 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 (Formulation). 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

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).

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### **Units**

This indicates the units used for the assessment of data. These are the units 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.

**Group A****Metals****Sample 1a****Supplied as:** 1 x 8mL standard solution

| Analyte    | AV          | Range     | SDPA % | Units | DP |
|------------|-------------|-----------|--------|-------|----|
| Barium     | 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  | AV          | Range    | SDPA % | Units | DP |
|----------|-------------|----------|--------|-------|----|
| Antimony | 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 | AV          | Range    | SDPA % | Units | DP |
|---------|-------------|----------|--------|-------|----|
| Mercury | Formulation | 0.01-0.1 | 10     | mg/L  | 3  |

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**Sample 2**

**Supplied as:**

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

| Analyte    | AV    | Range | SDPA %              | Units | DP |
|------------|-------|-------|---------------------|-------|----|
| Antimony   | RMean | All   | 12.5                | mg/L  | 3  |
| Arsenic    | RMean | All   | 12.5                | mg/L  | 3  |
| Barium     | RMean | All   | 7.5                 | mg/L  | 3  |
| Beryllium  | 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 | 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   | RMean | All   | 12.5; 15 if AV <0.2 | mg/L  | 3  |
| Thallium   | 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

| Determinand | AV    | Range | SDPA% | Units | DP | Cut-off |
|-------------|-------|-------|-------|-------|----|---------|
| Antimony    | 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      |

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| Determinand   | AV    | Range | SDPA% | Units | DP | Cut-off |
|---------------|-------|-------|-------|-------|----|---------|
| Mercury       | RMean | All   | 15    | mg/kg | 2  | 0.1     |
| Molybdenum    | RMean | All   | 10    | mg/kg | 2  | 1       |
| Nickel        | RMean | All   | 10    | mg/kg | 2  | 10      |
| Selenium      | RMean | All   | 15    | 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) | 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)

| Determinand   | AV          | Range | SDPA% | Units | DP |
|---------------|-------------|-------|-------|-------|----|
| Chromium (VI) | 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

| Determinand              | AV    | Range | SDPA% (fixed) | Units                 | DP | Cut-off |
|--------------------------|-------|-------|---------------|-----------------------|----|---------|
| Ammonia                  | RMean | All   | 20            | mgN/kg                | 2  | -       |
| Complex Cyanide          | RMean | All   | 20            | mgCN/kg               | 2  | 2.5     |
| Free Cyanide             | RMean | All   | 20            | mgCN/kg               | 2  | 2.5     |
| Total Cyanide            | RMean | All   | 20            | mgCN/kg               | 2  | 25      |
| Dry Matter               | RMean | All   | (0.75)        | %                     | 2  | -       |
| Loss on Ignition         | RMean | All   | 10            | %                     | 2  | -       |
| pH                       | RMean | All   | (0.2)         | pH Units              | 2  | -       |
| Thiocyanate              | RMean | All   | 20            | mgSCN/kg              | 2  | 5       |
| Total sulfate            | RMean | All   | 10            | mgSO <sub>4</sub> /kg | 0  | 200     |
| Easily liberated sulfide | RMean | All   | 20            | mgS/kg                | 2  | -       |
| Water soluble boron      | RMean | All   | 15            | mg/kg                 | 2  | 0.3     |
| Water soluble chloride   | RMean | All   | 15            | mgCl/kg               | 2  | -       |
| Water soluble fluoride   | RMean | All   | 15            | mgF/kg                | 2  | -       |
| Water soluble sulfate    | RMean | All   | 10            | mgSO <sub>4</sub> /kg | 1  | -       |
| Total Sulfur             | 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

| Determinand   | AV          | Range | SDPA% | Units  | DP |
|---------------|-------------|-------|-------|--------|----|
| Total cyanide | Formulation | 4-15  | 10    | mgCN/L | 2  |

**Sample 8****Supplied as:**

1 x 60ml standard solution

| Determinand   | AV          | Range   | SDPA% | Units                | DP |
|---------------|-------------|---------|-------|----------------------|----|
| Total sulfate | Formulation | 100-800 | 10    | mgSO <sub>4</sub> /L | 2  |

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**Sample 10**

**Supplied as:** 1 x 60ml standard solution

| Determinand         | AV          | Range   | SDPA% | Units | DP |
|---------------------|-------------|---------|-------|-------|----|
| Water soluble boron | Formulation | 0.5-2.5 | 10    | mg/L  | 2  |

**Sample 12**

**Supplied as:** 1 x 60ml standard solution

| Determinand              | AV    | Range | SDPA% | Units | DP |
|--------------------------|-------|-------|-------|-------|----|
| Easily liberated sulfide | RMean | 10-90 | 20    | mgS/L | 2  |

**Sample 16**

**Supplied as:** 1 x 60ml standard solution

| Determinand | AV          | Range | SDPA% | Units   | DP |
|-------------|-------------|-------|-------|---------|----|
| Thiocyanate | Formulation | 1-5   | 10    | mgSCN/L | 2  |

**Sample 17**

**Supplied as:** 1 x 60ml standard solution

| Determinand    | AV          | Range | SDPA% | Units | DP |
|----------------|-------------|-------|-------|-------|----|
| Total fluoride | 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

| Determinand                                      | AV    | Range | SDPA% | Units        | DP | Cut-off |
|--|-------|-------|-------|--------------|----|---------|
| Acenaphthene                                     | RMean | All   | 20    | mg/kg        | 2  | 0.5     |
| Acenaphthylene                                   | RMean | All   | 20    | mg/kg        | 2  | 0.5     |
| Anthracene                                       | RMean | All   | 20    | mg/kg        | 2  | 0.5     |
| Benz(a)anthracene                                | 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                               | RMean | All   | 20    | mg/kg        | 2  | 0.5     |
| Benz(a)pyrene                                    | RMean | All   | 20    | mg/kg        | 2  | 0.5     |
| Chrysene   | RMean | All   | 20    | mg/kg        | 2  | 0.5     |
| Dibenz(ah)anthracene                             | RMean | All   | 20    | mg/kg        | 2  | 0.5     |
| Fluoranthene                                     | RMean | All   | 20    | mg/kg        | 2  | 0.5     |
| Fluorene   | RMean | All   | 20    | mg/kg        | 2  | 0.5     |
| Indeno(123-cd)pyrene                             | 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  | RMean | All   | 20    | mg/kg        | 2  | -       |
| Cresols  | RMean | All   | 20    | mg/kg        | 2  | -       |
| Xylenols   | RMean | All   | 20    | mg/kg        | 2  | -       |
| Distillable phenolic substances                  | RMean | All   | 20    | mg/kg phenol | 2  | -       |
| PCB (28)   | RMean | All   | 20    | mg/kg        | 4  | -       |
| PCB (52)   | RMean | All   | 20    | mg/kg        | 4  | -       |
| PCB (101)  | RMean | All   | 20    | mg/kg        | 4  | -       |
| PCB (118)  | RMean | All   | 20    | mg/kg        | 4  | -       |
| PCB (138)  | RMean | All   | 20    | mg/kg        | 4  | -       |
| PCB (153)  | RMean | All   | 20    | mg/kg        | 4  | -       |
| PCB (180)  | RMean | All   | 20    | mg/kg        | 4  | -       |
| Elemental sulfur                                 | RMean | All   | 20    | mg/kg        | 2  | -       |
| Total organic carbon                             | RMean | All   | 10    | mg/kg        | 1  | -       |
| TPH (C <sub>10</sub> -C <sub>40</sub> inclusive) | RMean | All   | 20    | mg/kg        | 0  | -       |
| TPH Aliphatic >C <sub>10</sub> -C <sub>12</sub>  | RMean | All   | 20    | mg/kg        | 1  | -       |
| TPH Aliphatic >C <sub>12</sub> -C <sub>16</sub>  | RMean | All   | 20    | mg/kg        | 1  | -       |

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| Determinand                                      | AV    | Range | SDPA% | Units | DP | Cut-off |
|--|-------|-------|-------|-------|----|---------|
| TPH Aliphatic >C <sub>16</sub> -C <sub>21</sub>  | RMean | All   | 20    | mg/kg | 1  | -       |
| TPH Aliphatic >C <sub>21</sub> -C <sub>35</sub>  | RMean | All   | 20    | mg/kg | 1  | -       |
| TPH Aliphatic >C <sub>35</sub> -C <sub>40</sub>  | RMean | All   | 20    | mg/kg | 1  | -       |
| TPH Aromatic >EC <sub>10</sub> -EC <sub>12</sub> | RMean | All   | 20    | mg/kg | 1  | -       |
| TPH Aromatic >EC <sub>12</sub> -EC <sub>16</sub> | RMean | All   | 20    | mg/kg | 1  | -       |
| TPH Aromatic >EC <sub>16</sub> -EC <sub>21</sub> | RMean | All   | 20    | mg/kg | 1  | -       |
| TPH Aromatic >EC <sub>21</sub> -EC <sub>35</sub> | RMean | All   | 20    | mg/kg | 1  | -       |
| TPH Aromatic >EC <sub>35</sub> -EC <sub>40</sub> | 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

| Determinand                  | AV          | Range   | SDPA% | Units | DP |
|------------------------------|-------------|---------|-------|-------|----|
| Acenaphthene                 | 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  |
| Benzo(ghi)perylene           | 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

| Determinand                             | AV    | Range | SDPA% | Units       | DP |
|---|-------|-------|-------|-------------|----|
| Monohydric phenols<br>(by distillation) | RMean | All   | 20    | mg/L phenol | 2  |

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**Sample 7b**

**Supplied as:** 2 x 2ml standard solution

| Determinand   | AV          | Range | SDPA% | Units | DP |
|---|-------------|-------|-------|-------|----|
| Total phenols (sum of phenol, cresols and xylenols) | 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

| Determinand | AV          | Range | SDPA% | Units | DP |
|-------------|-------------|-------|-------|-------|----|
| PCB (28)    | 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

| Determinand  | AV    | Range      | SDPA% | Units | DP |
|--|-------|------------|-------|-------|----|
| TPH, Range C <sub>10</sub> – C <sub>40</sub> (inclusive) | RMean | 5000-15000 | 10    | mg/L  | 1  |

**Sample 14b**

**Supplied as:** 1 x 2ml standard solution

| Determinand                                     | AV    | Range  | SDPA% | Units | DP |
|---|-------|--------|-------|-------|----|
| TPH, Aliphatic ≤C <sub>6</sub>                  | RMean | 50-200 | 10    | mg/L  | 2  |
| TPH, Aliphatic >C <sub>6</sub> -C <sub>8</sub>  | RMean | 50-200 | 10    | mg/L  | 2  |
| TPH, Aliphatic >C <sub>8</sub> -C <sub>10</sub> | RMean | 50-200 | 10    | mg/L  | 2  |
| TPH, Aromatic C <sub>6</sub>                    | RMean | 50-200 | 10    | mg/L  | 2  |
| TPH, Aromatic >C <sub>6</sub> -C <sub>8</sub>   | RMean | 50-200 | 10    | mg/L  | 2  |
| TPH, Aromatic >C <sub>8</sub> -C <sub>10</sub>  | RMean | 50-200 | 10    | mg/L  | 2  |

CONTEST Scheme Description

**Sample 15**

**Supplied as:** 1 x 2ml standard solution

| Determinand   | AV          | Range  | SDPA% | Units | DP |
|---------------|-------------|--------|-------|-------|----|
| Benzene       | Formulation | 20-80  | 10    | µg/L  | 2  |
| Toluene       | Formulation | 20-80  | 10    | µg/L  | 2  |
| Ethylbenzene  | Formulation | 20-80  | 10    | µg/L  | 2  |
| o-xylene      | Formulation | 50-150 | 10    | µg/L  | 2  |
| m + p-Xylenes | Formulation | 50-200 | 10    | µg/L  | 2  |

**Sample 19**

**Supplied as:** 1 x 2ml standard solution

| Determinand               | AV          | Range    | SDPA% | Units | DP |
|---------------------------|-------------|----------|-------|-------|----|
| 1,2,3-trichlorobenzene    | 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

| Determinand   | AV    | Range | SDPA% | Units                | DP |
|---------------|-------|-------|-------|----------------------|----|
| Antimony      | RMean | All   | 10    | mg/L                 | 4  |
| Arsenic       | RMean | All   | 10    | mg/L                 | 4  |
| Barium        | RMean | All   | 10    | mg/L                 | 4  |
| Cadmium       | RMean | All   | 10    | mg/L                 | 4  |
| Calcium       | RMean | All   | 10    | mg/L                 | 2  |
| Chromium      | RMean | All   | 10    | mg/L                 | 4  |
| Copper        | RMean | All   | 10    | mg/L                 | 4  |
| Iron          | RMean | All   | 10    | mg/L                 | 4  |
| Lead          | RMean | All   | 10    | mg/L                 | 4  |
| Magnesium     | RMean | All   | 10    | mg/L                 | 2  |
| Mercury       | RMean | All   | 10    | mg/L                 | 4  |
| Molybdenum    | 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       | RMean | All   | 10    | mgSO <sub>4</sub> /L | 2  |
| Chloride      | RMean | All   | 10    | mgCl/L               | 2  |
| Fluoride      | RMean | All   | 10    | mgF/L                | 3  |
| Nitrate       | RMean | All   | 10    | mgNO <sub>3</sub> /L | 3  |
| Boron         | RMean | All   | 10    | mg/L                 | 3  |
| Chromium (VI) | RMean | All   | 10    | mg/L                 | 4  |
| Phosphate     | RMean | All   | 10    | mgP/L                | 3  |
| Ammonia       | RMean | All   | 10    | mgN/L                | 3  |

CONTEST Scheme Description

| Determinand         | AV    | Range | SDPA% | Units               | DP |
|---------------------|-------|-------|-------|---------------------|----|
| Free Cyanide        | RMean | All   | 10    | mgCN/L              | 3  |
| Total Cyanide       | RMean | All   | 10    | mgCN/L              | 2  |
| Thiocyanate         | RMean | All   | 10    | mgSCN/L             | 2  |
| pH                  | RMean | All   | 10    | pH units            | 2  |
| Conductivity (20°C) | RMean | All   | 10    | µS/cm               | 1  |
| COD                 | RMean | All   | 10    | mgO <sub>2</sub> /L | 2  |
| TOC/DOC*            | RMean | All   | 10    | mg/L                | 2  |
| Phenol Index        | RMean | All   | 10    | mg/L                | 2  |

\*Total Organic Carbon and Dissolved Organic Carbon are regarded as the same determinand 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

| <b>Determinand</b>       | <b>AV</b> | <b>Range</b> | <b>SDPA%</b> | <b>Units</b>          | <b>DP</b> |
|--------------------------|-----------|--------------|--------------|-----------------------|-----------|
| Dry Matter Content Ratio | RMean     | All          | 10           | %                     | 2         |
| Antimony                 | RMean     | All          | 10           | mg/kg                 | 4         |
| Arsenic                  | RMean     | All          | 10           | mg/kg                 | 4         |
| Barium                   | RMean     | All          | 10           | mg/kg                 | 2         |
| Cadmium                  | RMean     | All          | 10           | mg/kg                 | 4         |
| Chromium                 | RMean     | All          | 10           | mg/kg                 | 3         |
| Copper                   | RMean     | All          | 10           | mg/kg                 | 3         |
| Lead                     | RMean     | All          | 10           | mg/kg                 | 3         |
| Mercury                  | RMean     | All          | 10           | mg/kg                 | 4         |
| Molybdenum               | RMean     | All          | 10           | mg/kg                 | 3         |
| Nickel                   | RMean     | All          | 10           | mg/kg                 | 3         |
| Selenium                 | RMean     | All          | 10           | mg/kg                 | 3         |
| Zinc                     | RMean     | All          | 10           | mg/kg                 | 2         |
| Sulfate                  | RMean     | All          | 10           | mgSO <sub>4</sub> /kg | 0         |
| Chloride                 | RMean     | All          | 10           | mgCl/kg               | 0         |
| Fluoride                 | RMean     | All          | 10           | mgF/kg                | 2         |
| Phenol Index             | RMean     | All          | 10           | mg/kg                 | 2         |
| DOC                      | RMean     | All          | 10           | mg/kg                 | 1         |
| Total Dissolved Solids   | RMean     | All          | 10           | mg/kg                 | 0         |

**Sample 24\*\***

**Prepared Leachate**

**Supplied as:**

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

| Determinand            | AV    | Range | SDPA% | Units                | DP |
|------------------------|-------|-------|-------|----------------------|----|
| Antimony               | RMean | All   | 10    | mg/L                 | 4  |
| Arsenic                | RMean | All   | 10    | mg/L                 | 4  |
| Barium                 | RMean | All   | 10    | mg/L                 | 2  |
| Cadmium                | RMean | All   | 10    | mg/L                 | 4  |
| Chromium               | RMean | All   | 10    | mg/L                 | 3  |
| Copper                 | RMean | All   | 10    | mg/L                 | 3  |
| Lead                   | RMean | All   | 10    | mg/L                 | 3  |
| Mercury                | RMean | All   | 10    | mg/L                 | 4  |
| Molybdenum             | RMean | All   | 10    | mg/L                 | 2  |
| Nickel                 | RMean | All   | 10    | mg/L                 | 3  |
| Selenium               | RMean | All   | 10    | mg/L                 | 3  |
| Zinc                   | RMean | All   | 10    | mg/L                 | 2  |
| Sulfate                | RMean | All   | 10    | mgSO <sub>4</sub> /L | 0  |
| Chloride               | RMean | All   | 10    | mgCl/L               | 0  |
| Fluoride               | RMean | All   | 10    | mgF/l                | 2  |
| Phenol Index           | RMean | All   | 10    | mg/L                 | 2  |
| DOC                    | RMean | All   | 10    | mg/L                 | 1  |
| Total Dissolved Solids | RMean | All   | 10    | mg/L                 | 0  |

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

**Other Contest PT samples**

**Sample 23\*\***

**Total Hydrocarbons in Soil**

**Supplied as:**

1 x 1mL standard solution

1 x 30g soil sample

| Determinand                                     | AV    | Range | SDPA% | Units | DP |
|---|-------|-------|-------|-------|----|
| TPH, Aliphatic ≤C <sub>6</sub>                  | RMean | 1-50  | 20    | mg/kg | 2  |
| TPH, Aliphatic >C <sub>6</sub> -C <sub>8</sub>  | RMean | 1-50  | 20    | mg/kg | 2  |
| TPH, Aliphatic >C <sub>8</sub> -C <sub>10</sub> | RMean | 1-50  | 20    | mg/kg | 2  |
| TPH, Aromatic C <sub>6</sub>                    | RMean | 1-50  | 20    | mg/kg | 2  |
| TPH, Aromatic >C <sub>6</sub> -C <sub>8</sub>   | RMean | 1-50  | 20    | mg/kg | 2  |
| TPH, Aromatic >C <sub>8</sub> -C <sub>10</sub>  | RMean | 1-50  | 20    | mg/kg | 2  |

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

CONTEST Scheme Description

**Sample 25\*\***

**Supplied as:**

**VOCs in Soil**

1 x 1mL standard solution

1 x 30g soil sample

| Determinand                 | CAS Number | AV          | Range  | SDPA% | Units | DP |
|-----------------------------|------------|-------------|--------|-------|-------|----|
| Acetonitrile                | 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  |

CONTEST Scheme Description

| Determinand               | CAS Number | AV          | Range  | SDPA% | Units | DP |
|---------------------------|------------|-------------|--------|-------|-------|----|
| 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  |
| Isopropylbenzene          | 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

| Determinand                 | AV          | Range  | SDPA% | Units | DP |
|-----------------------------|-------------|--------|-------|-------|----|
| Endrin                      | 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  |

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

**Sample 27\*\***

**LOI Soil for HMRC Requirements**

**Supplied as:**

1 x approximately 1kg LOI material

| Determinand               | AV    | Range | SDPA% | Units | DP |
|---------------------------|-------|-------|-------|-------|----|
| Loss on Ignition at 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.

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

**Sample 29\*\*****Incinerator Bottom Ash****Supplied as:**

1 x approximately 200g IBA material

| Determinand    | AV    | Range | SDPA% | Units    | DP |
|----------------|-------|-------|-------|----------|----|
| Arsenic        | 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             | RMean | All   | (0.2) | pH Units | 2  |
| Alkali reserve | RMean | All   | 20    | mg/kg    | 2  |

\*\*Please note that this sample is 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

| Determinand      | AV          | Range  | SDPA% | Units | DP |
|------------------|-------------|--------|-------|-------|----|
| Azinphos-methyl  | 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  |

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

CONTEST Scheme Description

**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    |