



## Instructions for Handling Test Materials and Recording Results

### *Changes to Document from Previous Issue*

- Vinyl chloride removed from sample 19 and sample 23
- Addition of sample 28 and sample 29

### **General Instructions**

#### **Sample Storage**

All standard solutions should be stored in a refrigerator at  $4(\pm 2)^{\circ}\text{C}$ , in the dark, from the time of arrival at your laboratory. Other samples should be stored in accordance with your normal procedures. If a preservative is routinely added to the type of sample provided, as part of your laboratory procedures, a suitable aliquot should be preserved as soon as possible in the normal way. Any dilutions that result from addition of preservatives should be corrected for before submission of results.

**N.B. Samples 15 & 19 (Group C) and Samples 22, 23, 25 & 26 (BTEX, TPH, VOCs, OCs) spiking solutions should be stored at  $-20^{\circ}\text{C}$  or lower on receipt.**

#### **Sample Preparation**

All samples should be equilibrated at room temperature  $20(\pm 5)^{\circ}\text{C}$  before any dilutions or analyses are performed. Samples should be prepared in accordance with the specific instructions for the group. The dilutions specified should be conducted in such a way as to ensure that any errors introduced by this dilution are much smaller than the overall analytical error involved in your method. As a general rule it is suggested that the error from dilution should be less than 1%. Example dilutions are given for illustration to help clarify the meaning of the instructions. These procedures should be followed exactly to ensure comparability of results. **Any dilutions detailed as part of these procedures should not be used in the calculation of results. These dilutions simply provide a final sample for analysis within the expected concentration ranges.**

#### **Sample Analysis**

Samples should be analysed by the normal methods used for those analytes by your laboratory.

CONTEST samples should be treated like any other samples and all normal quality control procedures should be adopted.

Results should only be corrected for recovery and blank, if appropriate, **and** if this is the normal practice in the laboratory. **If the sample is diluted as part of the analytical process (this is apart from the dilutions in the sample preparation instructions), such dilutions should be corrected for.**

#### **Soil Matrix**

The classification for the soil matrix (soil type), for each round, will be provided in the main report for Samples 3a, 3b, 3c and 18.

#### **General Safety**

Some of the CONTEST samples contain acids or alkalis and are corrosive. Others will contain low levels of carcinogens and toxic or flammable chemicals.



### Instructions for Handling Test Materials and Recording Results

#### Group A – Metals

##### Sample 1a

#### **Materials Supplied**

- Approximately 8mL standard solution (in 0.2M nitric acid)

Analyte	Bottle	Instruction
Barium	<b>Sample 1a Group A Metals</b>	Dilute an aliquot of the sample supplied by a factor of 10 (e.g. 1mL made up to 10mL) using <b>deionised</b> water or <b>acid</b> to achieve your normal final acid strength then analyse by your chosen instrumental technique.
Beryllium		
Cadmium		
Chromium		
Cobalt		
Copper		
Iron		
Lead		
Manganese		
Molybdenum		
Nickel		
Thallium		
Tin		
Vanadium		
Zinc		

**Do not correct the results for these dilutions.**

##### Sample 1b

#### **Materials Supplied**

- Approximately 8mL standard solution (in 0.2M nitric acid)

Analyte	Bottle	Instruction
Antimony	<b>Sample 1b Group A Hydrides</b>	Dilute the sample supplied by a factor of 10 (e.g. 1mL made up to 10mL) using <b>deionised</b> water or <b>acid</b> to achieve your normal final acid strength then analyse by your chosen instrumental technique.
Arsenic		
Selenium		

**Do not correct the results for these dilutions.**



### Instructions for Handling Test Materials and Recording Results

#### Sample 1c

##### Materials Supplied

- Approximately 8mL standard solution (in 2% HCl acid)

Analyte	Bottle	Instruction
Mercury	<b>Sample 1c Group A Mercury</b>	Dilute the sample supplied by a factor of 10 (e.g. 1mL made up to 10mL) using <b>deionised</b> water or <b>acid</b> to achieve your normal final acid strength then analyse by your chosen instrumental technique.

**Do not correct the results for these dilutions.**

**N.B:** Mercury may be present in both organic and inorganic forms.

#### Sample 2

##### Materials Supplied

- Approximately 60ml extract of soil (prepared following ISO 11466 for the extraction of metals, acid strength 21% HCl and 7% HNO<sub>3</sub>)

Analyte	Bottle	Instruction
Antimony	<b>Sample 2 Group A Soil Extract</b>	Analyse the sample by your chosen instrumental technique.
Arsenic		
Barium		
Beryllium		
Cadmium		
Chromium		
Cobalt		
Copper		
Iron		
Lead		
Manganese		
Mercury		
Molybdenum		
Nickel		
Selenium		
Thallium		
Tin		
Vanadium		
Zinc		



### Instructions for Handling Test Materials and Recording Results

#### Sample 3a

##### Materials Supplied

- Approximately 30g prepared soil, ground to pass through a 200µm sieve

Analyte	Bottle	Instruction
Antimony	<b>Sample 3a Group A Soil</b>	Analyse the sample by your chosen instrumental technique.
Arsenic		
Barium		
Beryllium		
Cadmium		
Chromium		
Cobalt		
Copper		
Iron		
Lead		
Manganese		
Mercury		
Molybdenum		
Nickel		
Selenium		
Thallium		
Tin		
Vanadium		
Zinc		
Chromium (VI)		

#### Sample 13

##### Materials Supplied

- Approximately 60mL standard solution (containing potassium dichromate and another chromium salt)

Analyte	Bottle	Instruction
Chromium (VI)	<b>Sample 13 Group A Cr (VI)</b>	Analyse the sample by your chosen instrumental technique.



### Instructions for Handling Test Materials and Recording Results

#### Group B – Inorganics

##### Sample 3b

##### **Materials Supplied**

- Approximately 150g prepared soil, ground to pass through a 200µm sieve

Analyte	Bottle	Instruction
Ammonia	<b>Sample 3b Group B Soil</b>	Report each analyte result in mg/kg of the prepared soil sample
Complex cyanide		
Free cyanide		
Total cyanide		
Dry matter		
Loss on ignition*		
pH		
Thiocyanate		
Total sulfate		
Easily liberated sulfide		
Water soluble boron*		
Water soluble chloride*		
Water soluble fluoride*		
Water soluble sulfate*		

**N.B:** \*Participants should use the temperature or water:soil ratio they use in their routine analysis.

##### Sample 6

##### **Materials Supplied**

- Approximately 60mL standard solution (preserved in 0.1M sodium hydroxide)

Analyte	Bottle	Instruction
Total cyanide	<b>Sample 6 Group B Total Cyanide</b>	Analyse the sample by your chosen instrumental technique.

##### Sample 8

##### **Materials Supplied**

- Approximately 60mL standard solution

Analyte	Bottle	Instruction
Total sulfate	<b>Sample 8 Group B Total Sulfate</b>	Analyse the sample by your chosen instrumental technique.



### Instructions for Handling Test Materials and Recording Results

#### Sample 10

##### Materials Supplied

- Approximately 60mL standard solution

Analyte	Bottle	Instruction
Water soluble boron	<b>Sample 10 Group B Boron</b>	Analyse the sample by your chosen instrumental technique.

#### Sample 12

##### Materials Supplied

- Approximately 60mL standard solution (preserved with zinc acetate)

Analyte	Bottle	Instruction
Easily liberated sulfide	<b>Sample 12 Group B Easily liberated sulfide</b>	Shake the sample well and take a 5mL sub-sample. Analyse the aliquot by your chosen instrumental technique.

**N.B:** Results should be reported as mg/L as the concentration of the solution.

#### Sample 16

##### Materials Supplied

- Approximately 60mL standard solution

Analyte	Bottle	Instruction
Thiocyanate	<b>Sample 16 Group B Thiocyanate</b>	Analyse the sample by your chosen instrumental technique.

**N.B:** Results should be reported as SCN.

#### Sample 17

##### Materials Supplied

- Approximately 60mL standard solution

Analyte	Bottle	Instruction
Total fluoride	<b>Sample 17 Group B Total fluoride</b>	Analyse the sample by your chosen instrumental technique.



### Instructions for Handling Test Materials and Recording Results

#### Group C – Organics

**N.B:** The weight of the sample plus the vial on preparation is given on all the vials. Please reweigh before analysis and if the weight difference is greater than 40mg please contact [contest@lgcgroup.com](mailto:contest@lgcgroup.com)

<b>Sample 3c</b>
------------------

#### Materials Supplied

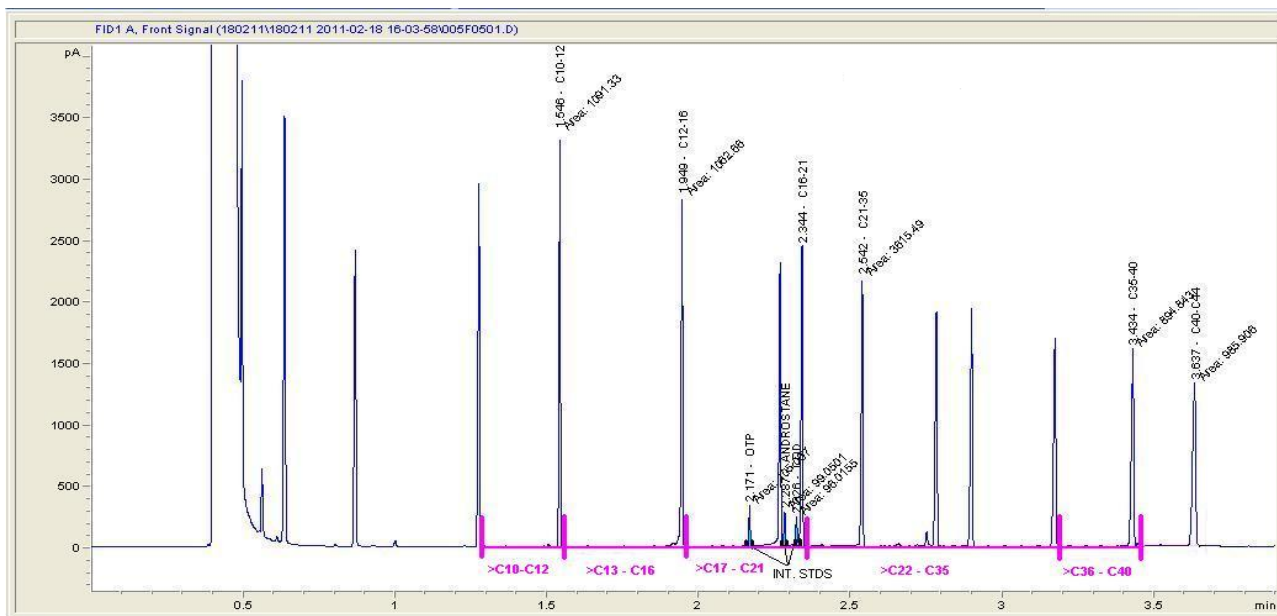
- Approximately 70g prepared soil, ground to pass through a 200µm sieve
- 1ml phenol spike solution

Analyte	Bottle	Instruction
Acenaphthene	<b>Sample 3c Group C Soil</b>	Report each analyte result in mg/kg of the prepared soil sample.
Acenaphthylene		
Anthracene		
Benz(a)anthracene		
Benzo(b)fluoranthene		
Benzo(k)fluoranthene		
Benzo(b/k)fluoranthene (sum of the 2 isomers)		
Benzo(ghi)perylene		
Benz(a)pyrene		
Chrysene		
Dibenz(ah)anthracene		
Fluoranthene		
Fluorene		
Indeno(123-cd)pyrene		
Naphthalene		
Phenanthrene		
Pyrene		
Total PAH		
PCB (28,52,101,118,138,153,180)		
Elemental sulphur		
Total organic carbon		
TPH (C <sub>10</sub> -C <sub>40</sub> inclusive)		
TPH aliphatic >C <sub>10</sub> -C <sub>12</sub>		
TPH aliphatic >C <sub>12</sub> -C <sub>16</sub>		
TPH aliphatic >C <sub>16</sub> -C <sub>21</sub>		
TPH aliphatic >C <sub>21</sub> -C <sub>35</sub>		
TPH aliphatic >C <sub>35</sub> -C <sub>40</sub>		
TPH aromatic >EC <sub>10</sub> -EC <sub>12</sub>		
TPH aromatic >EC <sub>12</sub> -EC <sub>16</sub>		
TPH aromatic >EC <sub>16</sub> -EC <sub>21</sub>		
TPH aromatic >EC <sub>21</sub> -EC <sub>35</sub>		
TPH aromatic >EC <sub>35</sub> -EC <sub>40</sub>		
Phenols	<b>Sample 3c Group C Soil Group C Phenols in Soil</b>	Accurately transfer 0.5mL of the phenol solution to 10g of the soil supplied. Perform an extraction of the entire sub-sample and analyse by your chosen instrumental technique. Report each analyte result in mg/kg of the prepared soil sample.  <b>Do not correct the results for these dilutions.</b>
Cresols		
Xylenols		
Distillable phenolic substances		

### Instructions for Handling Test Materials and Recording Results

Please find below a visual indication of how to correctly integrate the TPH bands for reporting in the CONTEST scheme:

**N.B:** The bands shown in the chromatogram may not be those required for reporting in the CONTEST scheme.



#### Sample 5

#### Materials Supplied

- Approximately 2mL standard solution in hexane (for GC analysis)

Analyte	Bottle	Instruction
Acenaphthene	<b>Sample 5 Group C PAH</b>	Analyse the sample by your chosen instrumental technique.
Acenaphthylene		
Anthracene		
Benz(a)anthracene		
Benzo(b)fluoranthene		
Benzo(k)fluoranthene		
Benzo(b/k)fluoranthene (sum of isomers)		
Benzo(ghi)perylene		
Benz(a)pyrene		
Chrysene		
Dibenz(ah)anthracene		
Fluoranthene		
Fluorene		
Indeno(123-cd)pyrene		
Naphthalene		
Phenanthrene		
Pyrene		





### Instructions for Handling Test Materials and Recording Results

#### Sample 7a

##### Materials Supplied

- Approximately 60mL standard solution in sodium hydroxide (for analysis by distillation and subsequent colorimetric analysis)

Analyte	Bottle	Instruction
Monohydric phenols (by distillation)	<b>Sample 7a</b> <b>Group C Phenols</b>	Analyse the sample by your chosen instrumental technique.

#### Sample 7b

##### Materials Supplied

- 2 x approximately 2mL standard solutions in methanol/water (for instrumental analysis)

Analyte	Bottle	Instruction
Total phenols (sum of phenol, cresols and xylenols)	<b>Sample 7b</b> <b>Group C Phenols</b>	Analyse the sample by your chosen instrumental technique.
Total cresols		
Total xylenols		
Phenol		

#### Sample 11

##### Materials Supplied

- Approximately 2mL standard solution in isooctane

Analyte	Bottle	Instruction
PCB 28	<b>Sample 11</b> <b>Group C PCB's</b>	Analyse the sample by your chosen instrumental technique.
PCB 52		
PCB 101		
PCB 118		
PCB 138		
PCB 153		
PCB 180		

#### Sample 14a

##### Materials Supplied

- Approximately 2mL standard solution in hexane

**N.B:** This solution must be stored at 4(±2)°C



# CONTEST

## Contaminated Land Proficiency Testing Scheme

Version: 24

Issue Date: April 2019

### Instructions for Handling Test Materials and Recording Results

Analyte	Bottle	Instruction
Total petroleum hydrocarbons (C <sub>10</sub> -C <sub>40</sub> inclusive)	<b>Sample 14a</b> <b>Group C TPH</b>	Analyse the sample by your chosen instrumental technique.



### Instructions for Handling Test Materials and Recording Results

#### Sample 14b

##### Materials Supplied

- Approximately 2mL standard solution in methanol

**N.B:** This solution must be stored at 4(±2)°C

Analyte	Bottle	Instruction
TPH Aliphatic ≤C <sub>6</sub>	<b>Sample 14b Group C TPH</b>	Dilute the sample supplied by a factor of 100 (e.g. 0.1mL made up to 10mL) using <b>deionised</b> water then analyse the resulting solution plus a blank by your chosen instrumental technique.
TPH Aliphatic >C <sub>6</sub> -C <sub>8</sub>		
TPH Aliphatic >C <sub>8</sub> -C <sub>10</sub>		
TPH Aromatic C <sub>6</sub>		
TPH Aromatic >C <sub>6</sub> -C <sub>8</sub>		
TPH Aromatic >C <sub>8</sub> -C <sub>10</sub>		
TPH Aliphatic ≤C <sub>6</sub>		

**Do not correct the results for these dilutions.**

#### Sample 15

##### Materials Supplied

- Approximately 2mL standard solution in methanol

**N.B:** This solution must be stored at -20°C or below

Analyte	Bottle	Instruction
Benzene	<b>Sample 15 Group C BTEX</b>	Dilute the sample supplied by a factor of 10,000 (e.g. 0.1mL made up to 1L) using <b>deionised</b> water then analyse the resulting solution plus a blank by your chosen instrumental technique.
Toluene		
Ethylbenzene		
o-Xylene		
m- and p-xylene		

**Do not correct the results for these dilutions.**



### Instructions for Handling Test Materials and Recording Results

#### Sample 19

##### Materials Supplied

- Approximately 2mL standard solution in methanol

**N.B:** This solution must be stored at -20°C or below

Analyte	Bottle	Instruction
1,2,4-trichlorobenzene	<b>Sample 19 Group C Chlorinated Hydrocarbons</b>	Dilute the sample supplied by a factor of 10,000 (e.g. 0.1mL made up to 1L) using <b>deionised</b> water then analyse the resulting solution plus a blank by your chosen instrumental technique.  <b>Vinyl chloride is extremely volatile. This solution must be analysed promptly.</b>
1,2,3-trichlorobenzene		
2-Chlorotoluene		
1,2-Dichloroethane		
1,2-Dichloroethene		
Dichloromethane		
Hexachloro-1,3-butadiene		
1,1,1,2-Tetrachloroethane		
1,1,1-Trichloroethane		
Tetrachloromethane		
Trichloroethene		
Trichloromethane		

**Do not correct the results for these dilutions**

#### Sample 20

##### Materials Supplied

- 1 x approximately 10mL amber vial containing a solution of 6 organic compounds at a level of approximately 0.5mg/L in dichloromethane
- 1 x approximately 10mL amber vials containing dichloromethane blank

##### Preparation

Analyse the sample as received, or dilute if necessary, to bring into the working range of your instrument. Identify the six unknowns present in the test sample and select the appropriate compound from the drop down list on the result entry page of the reporting system.

A blank is supplied to eliminate adventitious contaminants. The unknowns should be present in the solution only and not present (or present at trace levels) in the blank.

**Possible chemicals found in this sample can be found on the following page:**



### Instructions for Handling Test Materials and Recording Results

<b>Sample 20</b>
------------------

#### Possible chemicals

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	131-14-2
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
4-Bromophenyl phenyl ether	101-55-3
4-Chloro-3-methylphenol	59-50-7
4-Chlorophenyl phenyl ether	7005-72-3
4-Nitrophenol	100-02-7
5-Nitro-o-toluidine	99-55-8
Acenaphthene	83-32-9
Acenaphthylene	208-96-8
Acetophenone	98-86-2
Anthracene	120-12-7
Benz(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
Bis(2-ethylhexyl)phthalate	117-81-7
Butyl benzyl phthalate	85-68-7
Carbazole	86-74-8

Chemical	CAS Number
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



### Instructions for Handling Test Materials and Recording Results

#### Group D – Leachate

<b>Sample 18</b>
------------------

#### Materials Supplied

- Approximately 200g prepared soil, ground to pass through a 200µm sieve

Analyte	Bottle	Instruction
Antimony	<b>Sample 18 Group D Soil</b>	Using a 'dry' sample (as received), extract the sample using a 10:1 leachate: soil ratio. Analyse the sample by your chosen instrumental technique.
Arsenic		
Barium		
Cadmium		
Calcium		
Chromium		
Copper		
Iron		
Lead		
Magnesium		
Mercury		
Molybdenum		
Nickel		
Potassium		
Selenium		
Sodium		
Tin		
Zinc		
Sulfate (as SO <sub>4</sub> )		
Chloride (as Cl)		
Fluoride (as F)		
Nitrate (as NO <sub>3</sub> )		
Boron		
Chromium (VI)		
Phosphate (as P)		
Ammonia (as N)		
Free cyanide (as CN)		
Total cyanide (as CN)		
Thiocyanate (as SCN)		
pH		
Conductivity (20°C)		
COD (as O <sub>2</sub> )		
TOC/ DOC*		
Phenol Index		

**N.B:** Results should be reported as mg/L

Due to the very low levels of some analytes found in the leachate, many are not at a sufficient concentration for z scores to be calculated. The soil for leaching has therefore been spiked with a number of different parameters to raise the concentration of these to measureable levels.

\*N.B: 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 analytical procedure.



# CONTEST

*Contaminated Land Proficiency Testing Scheme*

Version: 24

Issue Date: April 2019

## Instructions for Handling Test Materials and Recording Results



### Instructions for Handling Test Materials and Recording Results

#### Group E Soils for Waste Acceptance Criteria (in accordance with EN 12457-2:2002 (10:1 single stage leaching test))

#### Sample 21

##### Materials Supplied

- Approximately 200g WAC material

##### Preparation

- Determine the moisture content (at 105°C) of the material provided PRIOR to determining the concentration of any other analyte.
- Calculate the Dry Matter Content Ratio using the following calculation:

$$DR = 100 \times M_D / M_W$$

Where

*DR* is the dry matter content ratio

*M<sub>D</sub>* is the mass of the dried test portion (kg)

*M<sub>W</sub>* is the mass of undried test portion (kg).

- Report this value in PORTAL.
- Calculate the required test portion using the following calculations. The amount of sample should be equivalent to 0.09kg of dry mass.

$$\text{Required weight (kg)} = 100 \times 0.09 / DR$$

- Calculate the Moisture Content Ratio using the following calculation:

$$\text{Moisture Content (MC)} = 100 \times (M_W - M_D) / M_D$$

- Calculate the required amount of leachant using the following calculations. This should establish a 10:1 liquid to solid ratio.

$$L = (10 - MC/100) \times 0.09$$

Where

*L* is the volume of leachant used (in l)

*MC* is the moisture content ratio (in %) (Calculated above)

Analyte	Bottle	Instruction
Antimony	Sample 21 Group E WAC Soil	<p>Please note the test material is a natural WAC sample, the test material may need to be dried and ground to pass through a 4mm sieve PRIOR to carrying out the analysis further.</p> <ul style="list-style-type: none"> <li>Leach the sample according to EN 12457-2.</li> <li>Analyse the sample by your chosen instrumental technique.</li> </ul>
Arsenic		
Barium		
Cadmium		
Chromium		
Copper		
Lead		
Mercury		
Molybdenum		
Nickel		
Selenium		
Zinc		
Sulfate (as SO <sub>4</sub> )		
Chloride (as Cl)		
Fluoride (as F)		
Phenol Index		
DOC		





# CONTEST

## Contaminated Land Proficiency Testing Scheme

Version: 24

Issue Date: April 2019

### Instructions for Handling Test Materials and Recording Results

Total dissolved solids		
------------------------	--	--

#### Sample 21 (continued)

**N.B:** Results obtained by the leaching test will be expressed in mg/L, however the results obtained from the eluate should be expressed as the amount of constituent leached relative to the total mass of the sample, in mg/kg of dry matter.

Participants must use the following calculation to convert their results:

$$A = C \times ((L/0.09) + (MC/100))$$

Where

**A** is the concentration of the analyte in mg/kg dry matter (this must be reported as the result);

**C** is the concentration of the analyte in the eluate (in mg/l);

**L** is the volume of leachant used (in l);

**MC** is the moisture content ratio.

#### Sample 24

#### Materials Supplied

- Approximately 1L leachate solution

Analyte	Bottle	Instruction
Antimony	Sample 24 Group E WAC Leachate	Analyse the sample by your chosen instrumental technique.
Arsenic		
Barium		
Cadmium		
Chromium		
Copper		
Lead		
Mercury		
Molybdenum		
Nickel		
Selenium		
Zinc		
Sulfate (as SO <sub>4</sub> )		
Chloride (as Cl)		
Fluoride (as F)		
Phenol Index		
DOC		
Total dissolved solids		

**N.B:** Results should be reported in mg/L



### Instructions for Handling Test Materials and Recording Results

#### Standard solutions in soil

#### Sample 22

##### Materials Supplied

- Approximately 1mL standard solution in methanol
- Approximately 30g soil material

**N.B:** This solution must be stored at -20°C or below

Analyte	Bottle	Instruction
Benzene	<b>Sample 22 BTEX Soil</b> <b>Sample 22 BTEX Solution</b>	Accurately transfer 0.5mL of the standard solution to 10g of the soil supplied. Perform an extraction of the entire sub-sample and analyse by your chosen instrumental technique.  <b>Do not correct the results for these dilutions.</b>  Report each analyte result in mg/kg of the prepared soil sample.
Toluene		
Ethylbenzene		
o-Xylene		
m- and p-xylene		

#### Sample 23

##### Materials Supplied

- Approximately 1mL standard solution in methanol
- Approximately 30g soil material

**N.B:** This solution must be stored at -20°C or below

Analyte	Bottle	Instruction
TPH, Aliphatic $\leq C_6$	<b>Sample 23 TPH Soil</b> <b>Sample 23 TPH Solution</b>	Accurately transfer 0.5mL of the standard solution to 10g of the soil supplied. Perform an extraction of the entire sub sample and analyse by your chosen instrumental technique.  <b>Do not correct the results for these dilutions</b>  Report each analyte result in mg/kg of the prepared soil sample.
TPH, Aliphatic $> C_6-C_8$		
TPH, Aliphatic $> C_8-C_{10}$		
TPH, Aromatic $C_6$		
TPH, Aromatic $> C_6-C_8$		
TPH, Aromatic $> C_8-C_{10}$		



### Instructions for Handling Test Materials and Recording Results

#### Sample 25

##### Materials Supplied

- Approximately 1mL standard solution in methanol
- Approximately 30g soil material

**N.B:** This solution must be stored at -20°C or below

Analyte	Bottle	Instruction
Chlorobenzenes	<b>Sample 25 VOC's Soil</b> <b>Sample 25 VOC's Solution</b>	Accurately transfer 0.5mL of the standard solution to 10g of the soil supplied. Perform an extraction of the entire sub sample and analyse by your chosen instrumental technique.  <b>Do not correct results for these dilutions.</b>  Report each analyte result in mg/kg of the prepared soil sample.
2-Chlorotoluene		
1,2-Dichloroethane		
1,2-Dichloroethene		
Dichloromethane		
Hexachloro-1,3-butadiene		
1,1,1,2-Tetrachloroethane		
1,1,1-Trichloroethane		
Tetrachloromethane		
Trichloroethene		
Trichloromethane		

#### Sample 26

##### Materials Supplied

- Approximately 1mL standard solution in methanol
- Approximately 30g soil material

**N.B:** This solution must be stored at -20°C or below

Analyte	Bottle	Instruction
Endrin	<b>Sample 26 OC's Soil</b> <b>Sample 26 OC's Solution</b>	Accurately transfer 0.5mL of the standard solution to 10g of the soil supplied. Perform an extraction of the entire sub sample and analyse by your chosen instrumental technique.  <b>Do not correct results for these dilutions.</b>  Report each analyte result in mg/kg of the prepared soil sample.
Dieldrin		
Aldrin		
p,p'-DDT		
o,p'-DDT		
p,p'-DDE		
p,p'-DDD		
Alpha Hexachlorocyclohexane		
Beta Hexachlorocyclohexane		
Delta Hexachlorocyclohexane		
Lindane (Gamma HCH)		
Trifluralin		
Alpha Endosulphan		
Beta Endosulphan		
Hexachlorobenzene		
Heptachlor		
Heptachlor epoxide		
Pentachlorobenzene		



### Instructions for Handling Test Materials and Recording Results

#### LOI FINES

##### Sample 27

#### **Materials Supplied**

- Approximately 1kg soil

Analyte	Bottle	Instruction
LOI at 440°C	<b>Sample 27 LOI FINES</b>	<ul style="list-style-type: none"><li>• Air dry the sample, cone and quarter to produce a sub-sample.</li><li>• Sieve the sub-sample and then grind to &lt;2mm.</li><li>• A minimum of 20g is then required to carry out the LOI test.</li></ul> <p><b>(In accordance to the HMRC LOI testing regime)</b></p>

#### SOIL TEXTURE (ST)

##### Sample 28

#### **Materials Supplied**

- Approximately 500g soil

Analyte	Bottle	Instruction
Soil Texture	<b>Sample 28 Soil Texture</b>	Determine the soil texture by using the <b>Feel or Ribbon Method</b>

*\*\*The structure of this sample is to be confirmed and details will be circulated to participants closer to round.*



### Instructions for Handling Test Materials and Recording Results

#### INCINERATOR BOTTOM ASH (IBA)

<b>Sample 29</b>
------------------

#### Materials Supplied

- Approximately 200g IBA material

Analyte	Bottle	Instruction
Arsenic	<b>Sample 29 IBA</b>	<ul style="list-style-type: none"><li>• Mix sample thoroughly and grind sample to &lt;300 µm</li><li>• Analyse sample via a single shot IBA</li></ul>
Barium		
Cadmium		
Copper		
Iron		
Lead		
Magnesium		
Manganese		
Nickel		
Potassium		
Sodium		
Total Chromium		
Zinc		
pH		
Alkali reserve		

*\*\*The structure of this sample is to be confirmed and details will be circulated to participants closer to round.*