NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 22/17723

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 22/17723

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

EMT Job No: 22/17723

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM83	Modified USEPA method 8260B v2:1996. Determination of Alcohols, Acetates, Acetone, Fuel Oxygenates, THF and Cyclohexane by Headspace GC-MS	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM83	Modified USEPA method 8260B v2:1996. Determination of Alcohols, Acetates, Acetone, Fuel Oxygenates, THF and Cyclohexane by Headspace GC-MS	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

P: +44 (0) 1244 833780
F: +44 (0) 1244 833781
W: www.element.com

Arcadis Consulting (UK) Limited
10 Medawar Road
Surrey Research Park
Guildford
GU2 7AR

Attention :	Jon Raven
Date :	8th November, 2022
Your reference :	10044284
Our reference :	Test Report 22/17851 Batch 1
Location :	Shell Bemerton
Date samples received :	29th October, 2022
Status :	Final Report
Issue :	1

Six samples were received for analysis on 29th October, 2022 of which five were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Paul Boden BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Client Name: Arcadis Consulting (UK) Limited
Reference: 10044284
Location: Shell Bemerton
Contact: Jon Raven
EMT Job No: 22/17851

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, HN=$HN0_3$

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-4	5-8	9-11	12-15	16-19						LOD/LOR	Units	Method No.
Sample ID	01EB271022WG	02MW106271022WG12.515:11	03MW205271022WG11.513:30	04MW204271022WG1314:10	05MW202271022WG1212:41								
Depth		12.50	11.50	13.00	12.00								
COC No / misc													
Containers	V G	V G	V G	V G	V G								
Sample Date	27/10/2022	27/10/2022 15:11	27/10/2022 13:30	27/10/2022 14:10	27/10/2022 12:41								
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water								
Batch Number	1	1	1	1	1								
Date of Receipt	29/10/2022	29/10/2022	29/10/2022	29/10/2022	29/10/2022								
PAH MS													
Naphthalene #	<0.1	-	4.6	<0.1 SV	-						<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.005	<0.025 SV AB	<0.005	<0.005 SV	<0.010 SV AA						<0.005	ug/l	TM4/PM30
Acenaphthene #	<0.005	<0.025 SV AB	0.025	<0.005 SV	<0.010 SV AA						<0.005	ug/l	TM4/PM30
Fluorene #	<0.005	<0.025 SV AB	0.051	<0.005 SV	0.116 SV AA						<0.005	ug/l	TM4/PM30
Phenanthrene #	<0.005	<0.025 SV AB	0.033	<0.005 SV	<0.010 SV AA						<0.005	ug/l	TM4/PM30
Anthracene #	<0.005	<0.025 SV AB	<0.005	<0.005 SV	<0.010 SV AA						<0.005	ug/l	TM4/PM30
Fluoranthene #	<0.005	<0.025 SV AB	<0.005	<0.005 SV	<0.010 SV AA						<0.005	ug/l	TM4/PM30
Pyrene #	<0.005	<0.025 SV AB	<0.005	<0.005 SV	<0.010 SV AA						<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.005	<0.025 SV AB	<0.005	<0.005 SV	<0.010 SV AA						<0.005	ug/l	TM4/PM30
Chrysene #	<0.005	<0.025 SV AB	<0.005	<0.005 SV	<0.010 SV AA						<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	<0.008	<0.040 SV AB	<0.008	<0.008 SV	<0.016 SV AA						<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.005	<0.025 SV AB	<0.005	<0.005 SV	<0.010 SV AA						<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	<0.025 SV AB	<0.005	<0.005 SV	<0.010 SV AA						<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	<0.025 SV AB	<0.005	<0.005 SV	<0.010 SV AA						<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	<0.025 SV AB	<0.005	<0.005 SV	<0.010 SV AA						<0.005	ug/l	TM4/PM30
PAH 16 Total #	<0.173	34.700 AB	4.709	<0.173	12.316 AA						<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	<0.040 AB	<0.008	<0.008	<0.016 AA						<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	<0.040 AB	<0.008	<0.008	<0.016 AA						<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	70	62 SV AB	74	67 SV	64 SV AA						<0	%	TM4/PM30
Methyl Tertiary Butyl Ether #	<0.1	1.5	<0.1	<0.1	<0.1						<0.1	ug/l	TM15/PM10
Benzene #	<0.5	167.7	19.1	<0.5	<0.5						<0.5	ug/l	TM15/PM10
Toluene #	<5	2733 AC	<5	<5	<5						<5	ug/l	TM15/PM10
Ethylbenzene #	<1	952	<1	<1	<1						<1	ug/l	TM15/PM10
m/p-Xylene #	<2	>>3251	142	<2	284						<2	ug/l	TM15/PM10
o-Xylene #	<1	>>1214	<1	<1	2						<1	ug/l	TM15/PM10
n-Hexane	<50	<50	<50	<50	<50						<50	ug/l	TM15/PM10
Surrogate Recovery Toluene D8	91	106	101	96	96						<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	93	108	103	97	98						<0	%	TM15/PM10
2-Methylnaphthalene #	<1	6	1	<1	3						<1	ug/l	TM16/PM30
Surrogate Recovery 2-Fluorobiphenyl	91	86	98	93	86						<0	%	TM16/PM30
Surrogate Recovery p-Terphenyl-d14	93	94	98	96	90						<0	%	TM16/PM30
GRO (>C4-C8) #	<10	3616	68	<10	419						<10	ug/l	TM36/PM12
GRO (>C8-C12) #	<10	5940	429	<10	1358						<10	ug/l	TM36/PM12
GRO (>C4-C12) #	<10	9556	497	<10	1777						<10	ug/l	TM36/PM12
EPH (C8-C40) #	<10	6350	470	<10	1320						<10	ug/l	TM5/PM30

Element Materials Technology

Client Name: Arcadis Consulting (UK) Limited
Reference: 10044284
Location: Shell Bemerton
Contact: Jon Raven
EMT Job No: 22/17851

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
$H=H_2SO_4$, Z=ZnAc, N=NaOH, $HN=HN0_3$

EMT Sample No.	1-4	5-8	9-11	12-15	16-19						LOD/LOR	Units	Method No.
Sample ID	01EB271022WG	02MW106271022WG12.515:11	03MW205271022WG11.513:30	04MW204271022WG1314:10	05MW202271022WG1212:41								
Depth		12.50	11.50	13.00	12.00								
COC No / misc													
Containers	V G	V G	V G	V G	V G								
Sample Date	27/10/2022	27/10/2022 15:11	27/10/2022 13:30	27/10/2022 14:10	27/10/2022 12:41								
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water								
Batch Number	1	1	1	1	1								
Date of Receipt	29/10/2022	29/10/2022	29/10/2022	29/10/2022	29/10/2022								
TPH CWG													
Aliphatics													
>C5-C6 #	<10	40	<10	<10	43						<10	ug/l	TM36/PM12
>C6-C8 #	<10	1048	43	<10	317						<10	ug/l	TM36/PM12
>C8-C10 #	<10	1275	135	<10	360						<10	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5	<5	<5						<5	ug/l	TM5/PM16/PM30
>C12-C16 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
>C16-C21 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
>C21-C35 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 #	<10	2363	178	<10	720						<10	ug/l	TM5/TM36/PM12/PM16/PM30
Aromatics													
>C5-EC7 #	<10	121	15	<10	<10						<10	ug/l	TM36/PM12
>EC7-EC8 #	<10	2387	<10	<10	<10						<10	ug/l	TM36/PM12
>EC8-EC10 #	<10	3818	113	<10	213						<10	ug/l	TM36/PM12
>EC10-EC12 #	<5	251	69	<5	285						<5	ug/l	TM5/PM16/PM30
>EC12-EC16 #	<10	10	<10	<10	20						<10	ug/l	TM5/PM16/PM30
>EC16-EC21 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
>EC21-EC35 #	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 #	<10	6587	197	<10	518						<10	ug/l	TM5/TM36/PM12/PM16/PM30
Total aliphatics and aromatics(C5-35) #	<10	8950	375	<10	1238						<10	ug/l	TM5/TM36/PM12/PM16/PM30
Ethyl Tert Butyl Ether (ETBE) #	<1	<1	<1	<1	<1						<1	ug/l	TM83/PM10
Di isopropyl Ether (DIPE) #	<1	<1	<1	<1	<1						<1	ug/l	TM83/PM10
Tert Butyl Alcohol (TBA)	<100	<100	<100	<100	<100						<100	ug/l	TM83/PM10
Tert Amyl Methyl Ether (TAME) #	<1	<1	<1	<1	<1						<1	ug/l	TM83/PM10
Ethanol	<100	<100	<100	<100	<100						<100	ug/l	TM83/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: Arcadis Consulting (UK) Limited

Reference: 10044284

Location: Shell Bemerton

Contact: Jon Raven

Matrix : Liquid

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
22/17851	1	02MW106271022WG12.515:11	12.50	5-8	VOC	Analysis taken from a previously sampled container.

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.

Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 22/17851

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x2 Dilution
AB	x5 Dilution
AC	x10 Dilution

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 22/17851

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

EMT Job No: 22/17851

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM83	Modified USEPA method 8260B v2:1996. Determination of Alcohols, Acetates, Acetone, Fuel Oxygenates, THF and Cyclohexane by Headspace GC-MS	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.				
TM83	Modified USEPA method 8260B v2:1996. Determination of Alcohols, Acetates, Acetone, Fuel Oxygenates, THF and Cyclohexane by Headspace GC-MS	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

P: +44 (0) 1244 833780
F: +44 (0) 1244 833781
W: www.element.com

Arcadis
Part 3rd Floor
Charter House
62-68 Hills Road
Cambridge
Cambridgeshire
CB2 1LA

Attention :	Jon Raven
Date :	6th April, 2023
Your reference :	10044284
Our reference :	Test Report 23/4928 Batch 1
Location :	Shell Bemerton
Date samples received :	29th March, 2023
Status :	Final Report
Issue :	1

One sample was received for analysis on 29th March, 2023 and was scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Simon Gomery BSc
Project Manager

Please include all sections of this report if it is reproduced

Client Name: Arcadis
Reference: 10044284
Location: Shell Bemerton
Contact: Jon Raven
EMT Job No: 23/4928

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

Please see attached notes for all abbreviations and acronyms

EMT Sample No.	1-2										LOD/LOR	Units	Method No.
Sample ID	01MW301230 323SO10.8-10.9												
Depth	10.8-10.9												
COC No / misc													
Containers	V J												
Sample Date	23/03/2023												
Sample Type	Soil												
Batch Number	1												
Date of Receipt	29/03/2023												
PAH MS													
Naphthalene #	<0.04										<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03										<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05										<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04										<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03										<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04										<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03										<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03										<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06										<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02										<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07										<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04										<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04										<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04										<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04										<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6										<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05										<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02										<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	97										<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	<2										<2	ug/kg	TM15/PM10
Benzene #	<3										<3	ug/kg	TM15/PM10
Toluene #	<3										<3	ug/kg	TM15/PM10
Ethylbenzene #	<3										<3	ug/kg	TM15/PM10
m/p-Xylene #	<5										<5	ug/kg	TM15/PM10
o-Xylene #	<3										<3	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	96										<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	100										<0	%	TM15/PM10
EPH (C8-C40) (EH_1D_Total) #	<30										<30	mg/kg	TM5/PM8
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<0.1										<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	0.3										<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	1.5										<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	<0.2										<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	<4										<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	<7										<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	<7										<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35 (EH+HS_CU_1D_AL)	<19										<19	mg/kg	TM5/TM36/PM8/PM12/PM16

Element Materials Technology

Client Name: Arcadis
Reference: 10044284
Location: Shell Bemerton
Contact: Jon Raven
EMT Job No: 23/4928

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-2												
Sample ID	01MW301230 323SO10.8-10.9												
Depth	10.8-10.9										Please see attached notes for all abbreviations and acronyms		
COC No / misc													
Containers	V J												
Sample Date	23/03/2023												
Sample Type	Soil												
Batch Number	1										LOD/LOR	Units	Method No.
Date of Receipt	29/03/2023												
TPH CWG													
Aromatics													
>C5-EC7 (HS_1D_AR)#	<0.1										<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR)#	<0.1										<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR)#	<0.1										<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR)#	<0.2										<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR)#	<4										<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR)#	<7										<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR)#	<7										<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 (EH+HS_CU_1D_AR)#	<19										<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-35) (EH+HS_CU_1D_Total)	<38										<38	mg/kg	TM5/TM36/PM8/PM12/PM16
GRO (>C4-C8) (HS_1D_Total)#	334										<100	ug/kg	TM36/PM12
GRO (>C8-C12) (HS_1D_Total)#	3180										<100	ug/kg	TM36/PM12
GRO (>C4-C12) (HS_1D_Total)#	3514										<100	ug/kg	TM36/PM12
Natural Moisture Content	32.4										<0.1	%	PM4/PM0
Fraction Organic Carbon	<0.001										<0.001	None	TM21/PM24
Ethyl Tert Butyl Ether (ETBE)	<5										<5	ug/kg	TM83/PM10
Di isopropyl Ether (DIPE)	<5										<5	ug/kg	TM83/PM10
Tert Butyl Alcohol (TBA)	<100										<100	ug/kg	TM83/PM10
Tert Amyl Methyl Ether (TAME)	<5										<5	ug/kg	TM83/PM10
Ethanol	<100										<100	ug/kg	TM83/PM10

Client Name: Arcadis
Reference: 10044284
Location: Shell Bemerton
Contact: Jon Raven

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 23/4928						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

Please include all sections of this report if it is reproduced

EMT Job No.: 23/4928

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 23/4928

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.			AD	Yes

Please include all sections of this report if it is reproduced

EMT Job No: 23/4928

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM83	Modified USEPA method 8260B v2:1996. Determination of Alcohols, Acetates, Acetone, Fuel Oxygenates, THF and Cyclohexane by Headspace GC-MS	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

Element Materials Technology
Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

P: +44 (0) 1244 833780
F: +44 (0) 1244 833781
W: www.element.com

Arcadis
Part 3rd Floor
Charter House
62-68 Hills Road
Cambridge
Cambridgeshire
CB2 1LA

Attention :	Jon Raven
Date :	23rd January, 2023
Your reference :	10044254
Our reference :	Test Report 23/695 Batch 1
Location :	Shell Bemerton
Date samples received :	18th January, 2023
Status :	Final Report
Issue :	1

Two samples were received for analysis on 18th January, 2023 of which two were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.
All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:

Simon Gomery BSc
Project Manager

Please include all sections of this report if it is reproduced

Client Name: Arcadis
Reference: 10044254
Location: Shell Bemerton
Contact: Jon Raven
EMT Job No: 23/695

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5											
Sample ID	01RW3011201 23SO11-11.5	02RW3021701 23SO5-5.2											
Depth	11.00-11.50	5.00-5.20											
COC No / misc													
Containers	V J B	J											
Sample Date	12/01/2023	12/01/2023											
Sample Type	Soil	Soil											
Batch Number	1	1											
Date of Receipt	18/01/2023	18/01/2023											

Please see attached notes for all abbreviations and acronyms

											LOD/LOR	Units	Method No.
PAH MS													
Naphthalene #	<0.04	-									<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	-									<0.03	mg/kg	TM4/PM8
Acenaphthene #	<0.05	-									<0.05	mg/kg	TM4/PM8
Fluorene #	<0.04	-									<0.04	mg/kg	TM4/PM8
Phenanthrene #	<0.03	-									<0.03	mg/kg	TM4/PM8
Anthracene #	<0.04	-									<0.04	mg/kg	TM4/PM8
Fluoranthene #	<0.03	-									<0.03	mg/kg	TM4/PM8
Pyrene #	<0.03	-									<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	<0.06	-									<0.06	mg/kg	TM4/PM8
Chrysene #	<0.02	-									<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	<0.07	-									<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	<0.04	-									<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	<0.04	-									<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	<0.04	-									<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	<0.04	-									<0.04	mg/kg	TM4/PM8
PAH 16 Total	<0.6	-									<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	<0.05	-									<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	<0.02	-									<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	45 SV	-									<0	%	TM4/PM8
Methyl Tertiary Butyl Ether #	<2	-									<2	ug/kg	TM15/PM10
Benzene #	<3	-									<3	ug/kg	TM15/PM10
Toluene #	<3	-									<3	ug/kg	TM15/PM10
Ethylbenzene #	<3	-									<3	ug/kg	TM15/PM10
m/p-Xylene #	<5	-									<5	ug/kg	TM15/PM10
o-Xylene #	<3	-									<3	ug/kg	TM15/PM10
n-Hexane	<50	-									<50	ug/kg	TM15/PM10
Surrogate Recovery Toluene D8	94	-									<0	%	TM15/PM10
Surrogate Recovery 4-Bromofluorobenzene	89	-									<0	%	TM15/PM10
2-Methylnaphthalene #	<10	-									<10	ug/kg	TM16/PM8
EPH (C8-C40) (EH_1D_Total) #	<30	-									<30	mg/kg	TM5/PM8

Element Materials Technology

Client Name: Arcadis
Reference: 10044254
Location: Shell Bemerton
Contact: Jon Raven
EMT Job No: 23/695

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	1-4	5									LOD/LOR	Units	Method No.
Sample ID	01RW3011201 23SO11-11.5	02RW3021701 23SO5-5.2											
Depth	11.00-11.50	5.00-5.20											
COC No / misc													
Containers	V J B	J											
Sample Date	12/01/2023	12/01/2023											
Sample Type	Soil	Soil											
Batch Number	1	1											
Date of Receipt	18/01/2023	18/01/2023											
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL)#	<0.1	-									<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL)#	<0.1	-									<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	<0.1	-									<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL)#	<0.2	-									<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL)#	<4	-									<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL)#	<7	-									<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL)#	<7	-									<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-35 (EH+HS_CU_1D_AL)	<19	-									<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Aromatics													
>C5-EC7 (HS_1D_AR)#	<0.1	-									<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR)#	<0.1	-									<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR)#	<0.1	-									<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR)#	<0.2	-									<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR)#	<4	-									<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR)#	<7	-									<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR)#	<7	-									<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-35 (EH+HS_CU_1D_AR)#	<19	-									<19	mg/kg	TM5/TM36/PM8/PM12/PM16
Total aliphatics and aromatics(C5-35) (EH+HS_CU_1D_Total)	<38	-									<38	mg/kg	TM5/TM36/PM8/PM12/PM16
GRO (>C4-C8) (HS_1D_Total)#	<100	-									<100	ug/kg	TM36/PM12
GRO (>C8-C12) (HS_1D_Total)#	<100	-									<100	ug/kg	TM36/PM12
GRO (>C4-C12) (HS_1D_Total)#	<100	-									<100	ug/kg	TM36/PM12
Natural Moisture Content	30.8	-									<0.1	%	PM4/PM0
Fraction Organic Carbon	<0.001	0.002									<0.001	None	TM21/PM24
Ethyl Tert Butyl Ether (ETBE)	<5	-									<5	ug/kg	TM83/PM10
Di isopropyl Ether (DIPE)	<5	-									<5	ug/kg	TM83/PM10
Tert Butyl Alcohol (TBA)	<100	-									<100	ug/kg	TM83/PM10
Tert Amyl Methyl Ether (TAME)	<5	-									<5	ug/kg	TM83/PM10
Ethanol	<100	-									<100	ug/kg	TM83/PM10

Please see attached notes for all abbreviations and acronyms

Client Name: Arcadis
Reference: 10044254
Location: Shell Bemerton
Contact: Jon Raven

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
23/695	1	01RW30112023SO11-11.5	11.00-11.50	4	Simon Postlewhite	23/01/2023	**General Description (Bulk Analysis)**	Chalk
					Simon Postlewhite	23/01/2023	**Asbestos Fibres**	NAD
					Simon Postlewhite	23/01/2023	**Asbestos ACM**	NAD
					Simon Postlewhite	23/01/2023	**Asbestos Type**	NAD

Client Name: Arcadis
Reference: 10044254
Location: Shell Bemerton
Contact: Jon Raven

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analysis	Reason
No deviating sample report results for job 23/695						

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating.
Only analyses which are accredited are recorded as deviating if set criteria are not met.

Please include all sections of this report if it is reproduced

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/695

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overesitimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.
Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.
Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 23/695

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM16	Modified USEPA 8270D v5:2014. Quantitative determination of Semi-Volatile Organic compounds (SVOCs) by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes

EMT Job No: 23/695

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/SANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.			AD	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM83	Modified USEPA method 8260B v2:1996. Determination of Alcohols, Acetates, Acetone, Fuel Oxygenates, THF and Cyclohexane by Headspace GC-MS	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes