

MONITORING OF CWRT Y PLYFFIN CLOSED LANDFILL

FACTUAL REPORT Q2 2019

Report No. 1835r2v1d0719

Distribution:

Powell Skips, 2 Tai North, Pennorth, Brecon. LD3 7EJ

Site address: Cwrt y Plyffin Landfill Site (Closed), Trefeitha, Brecon, Powys LD3 0RW

Attachments

1. Water testing Laboratory Certificates

Monitoring Undertaken

Gas and surface water monitoring (where flowing) at closed landfill as summarised in Table 1.

Table 1. Monitoring undertaken

Date	Aspect	Positions sampled	Comments	Comments
9/7/19	Gas	BH1 – BH4	Overgrown Open vent (no tap)	Hot and dry
	Surface water	Downstream	Upstream dry	

Gas monitoring undertaken using calibrated GA-5000. All water testing undertaken at UKAS accredited ALS.

Results

See Appendix 1 for surface water monitoring results and Table 2 for gas monitoring results.

Table 2. Gas Monitoring Results

ID	CH ₄ (%)	CO ₂ (%)	O ₂ (%)	PEAK CH ₄ (%)	PEAK CO ₂ (%)	CO (ppm)	H ₂ (LMH)	H ₂ S (ppm)	BARO (mb)
CYPBH4	0.1	1.2	19.4	0.1	1.2	0	0	2	1001
CYPBH3	0.1	0.2	20.6	0.1	0.2	0	0	0	1001
CYPBH2	0.1	0.1	20.7	0.1	0.1	0	0	1	1001
CYPBH1	0.1	0.5	20.5	0.1	0.5	0	0	0	1001



CERTIFICATE OF ANALYSIS

Validated

SDG: 190711-24
Location: CWRT Y PLYFFIN

Client Reference: 1835
Order Number:

Report Number: 514625
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
20307820	Stream			09/07/2019

Maximum Sample/Coolbox Temperature (°C) :

14.4

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



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Results Legend			20307820					
X Test N No Determination Possible Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other			Stream					
Lab Sample No(s)								
Customer Sample Reference								
AGS Reference								
Depth (m)								
Container			1000ml glass bottle (ALE220)	250ml BOD (ALE212)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	HNO3 Unfiltered (ALE204)	NaOH (ALE246)
Sample Type			SW	SW	SW	SW	SW	SW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 1			X			
BOD True Total	All	NDPs: 0 Tests: 2	X	X				
COD Unfiltered	All	NDPs: 0 Tests: 1		X				
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 1	X					
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 1						X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1			X			
Mercury Unfiltered	All	NDPs: 0 Tests: 1				X		
pH Value	All	NDPs: 0 Tests: 1	X					
Phenols by HPLC (W)	All	NDPs: 0 Tests: 1		X				
Total Metals by ICP-MS	All	NDPs: 0 Tests: 1				X		



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Table of Results - Appendix

Method No	Reference	Description
TM045	MEWAM BOD5 2nd Ed HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on Liquids
TM099	BS 2690: Part 7:1968 / BS 6068: Part 2:11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



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Test Completion Dates

Lab Sample No(s) 20307820
Customer Sample Ref. Cwm

AGS Ref.
Depth
Type Surface Water

Ammoniacal Nitrogen	17-Jul-2019
BOD True Total	16-Jul-2019
COD Unfiltered	12-Jul-2019
Conductivity (at 20 deg.C)	16-Jul-2019
Cyanide Comp/Free/Total/Thiocyanate	16-Jul-2019
Dissolved Metals by ICP-MS	17-Jul-2019
Mercury Unfiltered	15-Jul-2019
pH Value	12-Jul-2019
Phenols by HPLC (W)	15-Jul-2019
Total Metals by ICP-MS	17-Jul-2019



CERTIFICATE OF ANALYSIS

SDG:
Location:

190711-24
CWRT Y PLYFFIN

Client Reference:
Order Number:

1835

Report Number:
Superseded Report:

514625

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix effect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

18. Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
§	Sampled on date not provided
+	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples

19. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Adenolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Standing Committee of Analysts, *The Quantification of Asbestos in Soil* (2107).

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Methane Period	% Gas					Reference Lev Blank	Blank
	BH1	BH2	BH3	BH4	BH5		
Feb-03	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Mar-03	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Apr-03	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
May-03	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Jun-03	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Jul-03	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Aug-03	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Sep-03	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Oct-03	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Nov-03	<0.2		<0.2	<0.2	<0.2	5	0
Dec-03	<0.2		<0.2	<0.2	<0.2	5	0
Jan-04	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Feb-04	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Mar-04	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Apr-04	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
May-04	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Jun-04	<0.2	-	<0.2	<0.2	<0.2	5	0
Jul-04	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Aug-04	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Sep-04	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Oct-04	<0.2	-	<0.2	<0.2	<0.2	5	0
Nov-04	<0.2	-	<0.2	<0.2	<0.2	5	0
Dec-04	<0.2	-	<0.2	<0.2	<0.2	5	0
Jan-05	<0.2	-	<0.2	<0.2	<0.2	5	0
Feb-05	<0.2	-	<0.2	<0.2	<0.2	5	0
Mar-05	<0.2	-	<0.2	<0.2	<0.2	5	0
Apr-05	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
May-05	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Jun-05	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Jul-05	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Aug-05	-	-	-	-	-	5	-
Sep-05	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Oct-05	<0.2	<0.2	<0.2	<0.2	<0.2	5	0
Nov-05	<0.2	<0.2	<0.2	<0.2	<0.2	5	0

Dec-05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Jan-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Feb-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Mar-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Apr-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
May-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Jun-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Jul-06									
Aug-06									
Sep-06									
Oct-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Nov-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Dec-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Jan-07	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Feb-07	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Mar-07	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Apr-07	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
May-07	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Jun-07	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Jun-18	0.1	0.1	0.1	0.1	0.1 -	5	5		
Jul-19	0.1	0.1	0.1	0.1	0.1 -	5	5		
Carbon Dioxide									
Period	BH1	BH2	BH3	BH4	BH5	Reference	Lev Blank	Blank	
Feb-03	<0.2	6.2	<0.2	0.6	0.5	1.5	0	0	0
Mar-03	<0.2	0.6	<0.2	0.4	0.4	1.5	0	0	0
Apr-03	<0.2	6.5	<0.2	0.6	0.6	1.5	0	0	0
May-03	0.5	3.3	<0.2	0.4	2.1	1.5	0	0	0
Jun-03	<0.2	<0.2	<0.2	<0.2	<0.2	1.5	0	0	0
Jul-03	<0.2	3.6	<0.2	1.5	1.4	1.5	0	0	0
Aug-03	<0.2	<0.2	0.7	1.6	4.1	1.5	0	0	0
Sep-03	1.1	3.1	<0.2	6.5	1	1.5	0	0	0
Oct-03	0.1	0.6	<0.2	3	7.1	1.5	0	0	0
Nov-03	2.6	10	0.2	<0.2	3.8	1.5	0	0	0
Dec-03	3.3	1.9	<0.2	1.8	1.3	1.5	0	0	0
Jan-04	<0.2	15	<0.2	2.1	0.3	1.5	0	0	0

Feb-04	1.1	<0.2	5.3	<0.2		3.4	2.7	1.5	0	0
Mar-04	0.4	<0.2			0.2	4.6	1.5	1.5	0	0
Apr-04	<0.2	<0.2				11	1.9	1.5	0	0
May-04	0.7		4.3	<0.2		11	1.3	1.5	0	0
Jun-04	<0.2	-	<0.2	<0.2		19	2.9	1.5	0	0
Jul-04	0.3		19	<0.2		38	6.9	1.5	0	0
Aug-04	<0.2		0.2	<0.2		20	0.4	1.5	0	0
Sep-04	<0.2		36	<0.2		40	14	1.5	0	0
Oct-04	<0.2	-	<0.2	<0.2		37	1.3	1.5	0	0
Nov-04	<0.2	-	<0.2	<0.2		31	6.1	1.5	0	0
Dec-04	<0.2	-	<0.2	<0.2		6.8	1.6	1.5	0	0
Jan-05	0.1				0	6.8	1.3	1.5	0	0
Feb-05	0.4		<0.2	<0.2		7.2	0.2	1.5	0	0
Mar-05	0.4		<0.2	<0.2		5.9	0.4	1.5	0	0
Apr-05	<0.2	<0.2	<0.2	<0.2		6.7	0.8	1.5	0	0
May-05	<0.2		1.1	<0.2		11	8.6	1.5	0	0
Jun-05	1.2		0.2	<0.2		9.3	0.2	1.5	0	0
Jul-05	<0.2		0.2	<0.2		7.2	0.3	1.5	0	0
Aug-05								1.5		
Sep-05	4.9	<0.2	<0.2	<0.2		8.8	<0.2	1.5	0	0
Oct-05	2.6		5.3	<0.2		9.1	5.1	1.5	0	0
Nov-05	1.4	<0.2	<0.2	<0.2		9.5	8.3	1.5	0	0
Dec-05	2.4	<0.2	<0.2	<0.2	<0.2	<0.2		1.5	0	0
Jan-06	1.6		1.3	<0.2		3.6	<0.2	1.5	0	0
Feb-06	<0.2		6.1	<0.2		1.7	<0.2	1.5	0	0
Mar-06	0.7		0.4	<0.2	<0.2	<0.2		1.5	0	0
Apr-06	0.9	<0.2	<0.2	<0.2		6.3	<0.2	1.5	0	0
May-06	<0.2	<0.2	<0.2	<0.2		0.6	<0.2	1.5	0	0
Jun-06	<0.2	<0.2			0.4	3.1	<0.2	1.5	0	0
Jul-06								1.5		
Aug-06								1.5		
Sep-06								1.5		
Oct-06	0.4	<0.2	<0.2	<0.2		2.4	<0.2	1.5	0	0
Nov-06	1.6	<0.2			1.2	0.6	<0.2	1.5	0	0
Dec-06	0.6	<0.2	<0.2	<0.2		2.2	2.4	1.5	0	0
Jan-07	<0.2	<0.2	<0.2	<0.2		2.6	<0.2	1.5	0	0

	Feb-07	0.6 <0.2	<0.2	8.2	5.8	1.5	0	0
	Mar-07	0.8 <0.2	<0.2	3.3	0.7	1.5	0	0
	Apr-07	1.1	0.3 <0.2	14	5.7	1.5	0	0
	May-07	0.9 <0.2	<0.2	9	8.2	1.5	0	0
	Jun-07	3.1 <0.2	<0.2	7.5	1.3	1.5	0	0
	Jun-18	0.5	1.7	0.1		1.5		
	Jul-19	0.5	0.1	0.2	1.2	1.5		
Oxygen				%				
Period	BH1	BH2	BH3	BH4	BH5	Reference	Lev Blank	Blank
	Feb-03	20.6	13.3	20.5	19.9	20	20.8	20.7
	Mar-03	20.7	19.8	20.8	20.2	19.9	20.7	20.7
	Apr-03	20.5	13.5	20.5	20	19.7	20.7	20.5
	May-03	20.2	16.5	20.5	20.3	18	20.9	20.6
	Jun-03	21	20.9	21.1	19.4	19.6	21.1	20.8
	Jul-03	21	16.7	20.7	18.5	19.5	21	20.6
	Aug-03	21.2	21.2	20	19.2	15.8	21.3	20.8
	Sep-03	19.9	17.6	20.6	13.8	19.5	21.5	20.8
	Oct-03	20.6	20.1	20.8	17.4	12	20.8	20.6
	Nov-03	10.9	6.5	20.3	20.8	14.8	21.1	20.5
	Dec-03	13.7	19	21.3	18.7	19.2	21.7	21.1
	Jan-04	20.6	5.5	20	17.5	19.4	20.6	19.7
	Feb-04	18.9	15.6	20.8	16.8	18.3	21.1	20.8
	Mar-04	20.4	21.3	20.7	15.1	19.3	21.3	21.3
	Apr-04	21	21	21	12	17	21	21
	May-04	19.9	15.2	20.7	10.2	19.1	20.8	20.7
	Jun-04	20.6		20.5	11.1	18.4	20.7	20.4
	Jul-04	20.1	10.3	20.6	5.9	15.1	21	20.7
	Aug-04	20.8	20	20.6	9.6	19.5	20.8	20.6
	Sep-04	20.7	5.3	20.7	5.2	10.6	20.8	20.6
	Oct-04	21.2		21	6.5	19.1	21.2	20.8
	Nov-04	21.5		21.4	9.7	15.1	21.5	21.4
	Dec-04							
	Jun-18	20.2	19.1	20.7	20.5		20	
	Jul-19	20.5	20.7	20.6	19.4		20	

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**POWYS COUNTY COUNCIL
ENERGY & FACILITIES**

Energy & Facilities
County Hall
Llandrindod Wells
Powys
LD1 5LG
Tel 01597 826761

Client: Gethyn Powell Skip Hire
2 Tai North
Pennorth
Brecon
LD3 7EJ

File No. WATER

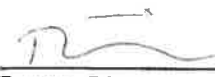
Date Reported: 25-Feb-15

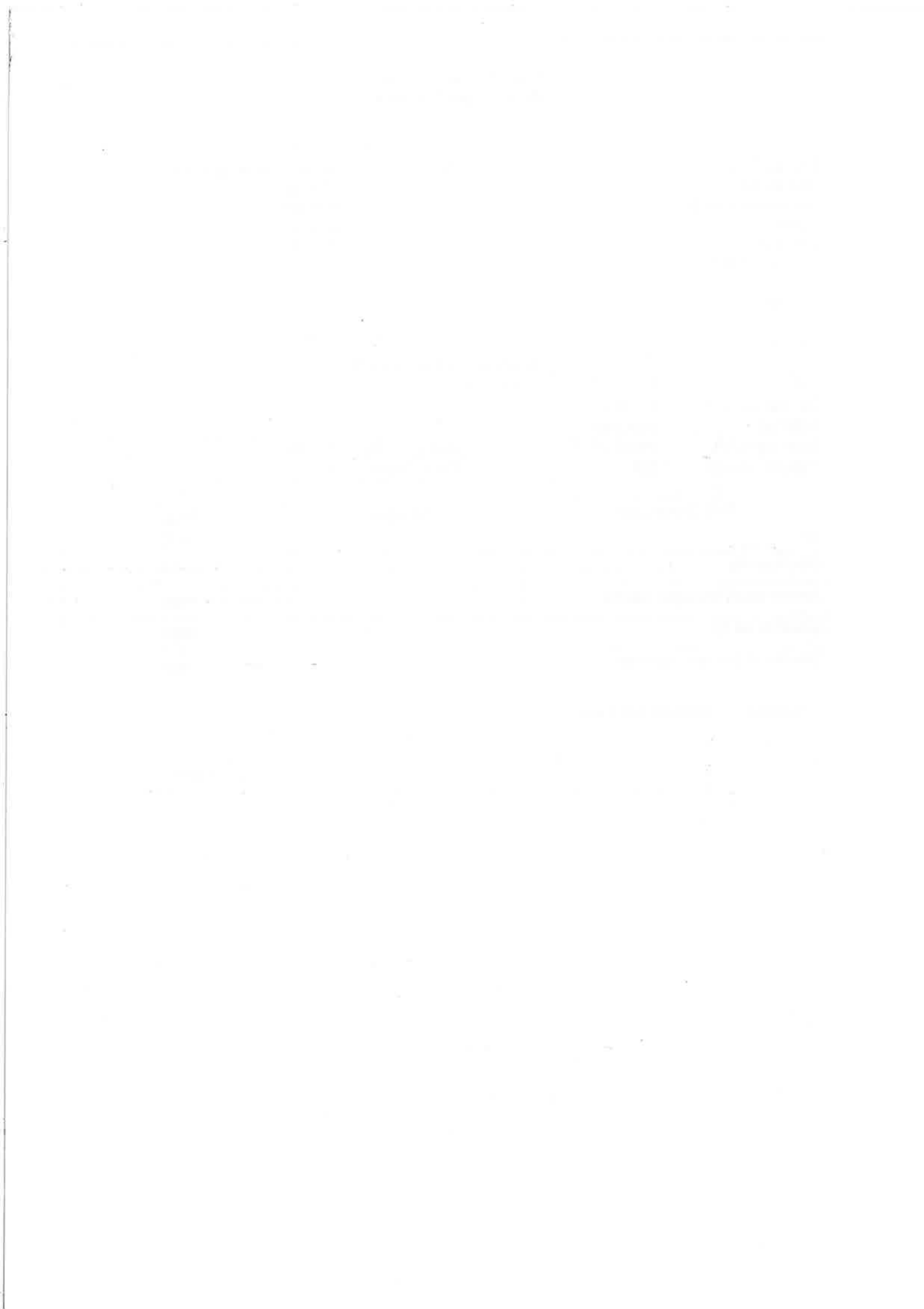
Analysis of Leachate Suite

Site	Cwrt Y Plyffin, Private Landfill Site		
Sample Location	Location 1		
Material	Leachate		
Date Sampled	09/02/2015	Sampled By	TG/TM
Date Received	N/A	Date Tested	N/A

Test Description	Result	Units
pH	-	N/A
Conductivity	-	$\mu\text{S/cm}$
Ammoniacal Nitrogen (as N)	-	mg/L
Chloride as Cl	-	mg/L
Dissolved Oxygen, Unfixed	-	mg/L

Remarks : Sample point was dry


Gethyn Gittens





**POWYS COUNTY COUNCIL
ENERGY & FACILITIES**

Energy & Facilities
County Hall
Llandrindod Wells
Powys
LD1 5LG
Tel 01597 826761
File No. WATER

Client: Gethyn Powell Skip Hire
2 Tai North
Pennorth
Brecon
LD3 7EJ

Date Reported: 25-Feb-15

Analysis of Leachate Suite

Site	Cwrt Y Plyffin, Private Landfill Site		
Sample Location	Location 2		
Material	Leachate		
Date Sampled	09/02/2015	Sampled By	TG/TM
Date Received	09/02/2015	Date Tested	10/02/2015 to 19/02/2015

Test Description	Result	Units
pH	7.0	N/A
Conductivity	1400	$\mu\text{S/cm}$
BOD ₅ (ATU)	<1	mg/L
COD	299	mg/L
Ammoniacal Nitrogen (as N)	<0.27	mg/L
Nitrate (as N)	0.71	mg/L
Total Cyanide	0.010	mg/L
Total Cadmium	0.001	mg/L
Total Chromium	0.008	mg/L
Total Copper	0.093	mg/L
Total Iron	63.3	mg/L
Total Lead	0.077	mg/L
Total Manganese	13.5	mg/L
Total Nickel	0.022	mg/L
Total Zinc	0.931	mg/L
Dissolved Iron	<0.23	mg/L
Phenols, Monohydric	<0.15	mg/L
Mercury	0.00027	mg/L

Remarks : This test was subcontracted to a UKAS laboratory.
Access was severely restricted to this sample location. Access will need to be improved for any future sampling visits.

Tracy Gittens



**POWYS COUNTY COUNCIL
ENERGY & FACILITIES**

Energy & Facilities
County Hall
Llandrindod Wells
Powys
LD1 5LG
Tel 01597 826761
File No. WATER

Client: Gethyn Powell Skip Hire
2 Tai North
Pennorth
Brecon
LD3 7EJ

Date Reported: 25-Feb-15

Analysis of Leachate Suite

Site	Cwrt Y Plyffin, Private Landfill Site		
Sample Location	Location 3		
Material	Leachate		
Date Sampled	09/02/2015	Sampled By	TG/TM
Date Received	09/02/2015	Date Tested	10/02/2015 to 19/02/2015

Test Description	Result	Units
pH	7.8	N/A
Conductivity	1140	$\mu\text{S/cm}$
BOD ₅ (ATU)	3	mg/L
COD	171	mg/L
Ammoniacal Nitrogen (as N)	<0.27	mg/L
Nitrate (as N)	1.91	mg/L
Total Cyanide	<0.009	mg/L
Total Cadmium	<0.0006	mg/L
Total Chromium	0.004	mg/L
Total Copper	0.011	mg/L
Total Iron	7.52	mg/L
Total Lead	0.010	mg/L
Total Manganese	3.01	mg/L
Total Nickel	0.008	mg/L
Total Zinc	0.243	mg/L
Dissolved Iron	<0.23	mg/L
Phenols, Monohydric	<0.15	mg/L
Mercury	<0.00010	mg/L

Remarks : This test was subcontracted to a UKAS laboratory.
Access was severely restricted to this sample location. Access will need to be improved for any future sampling visits.


Tracy Gittens



Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)

Hawarden

Deeside

CH5 3US

Tel: (01244) 528700

Fax: (01244) 528701

email: hawardencustomerservices@alsglobal.com

Website: www.alsenvironmental.co.uk

Geotechnology
5 Cefn-yr-Allt
Aberdulais
Neath
West Glamorgan
SA10 8HE

Attention: Ben Rees

CERTIFICATE OF ANALYSIS

Date:	05 July 2018
Customer:	H_GETCNO_NAH
Sample Delivery Group (SDG):	180628-3
Your Reference:	1835
Location:	CWRT Y PLYFFIN
Report No:	463010

We received 1 sample on Thursday June 28, 2018 and 1 of these samples were scheduled for analysis which was completed on Thursday July 05, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager





1911
1912
1913
1914
1915

1916 1917 1918 1919 1920

1921 1922 1923 1924 1925
1926 1927 1928 1929 1930
1931 1932 1933 1934 1935
1936 1937 1938 1939 1940

1941 1942 1943 1944 1945 1946 1947 1948 1949 1950
1951 1952 1953 1954 1955 1956 1957 1958 1959 1960
1961 1962 1963 1964 1965 1966 1967 1968 1969 1970
1971 1972 1973 1974 1975 1976 1977 1978 1979 1980



MONITORING OF CWRT Y PLYFFIN CLOSED LANDFILL

FACTUAL REPORT 1. Report No. 1835r1v1d0818

First report of 2018 (Q2 monitoring)

Distribution:

Powell Skips
2 Tai North
Pennorth
Brecon
Powys
LD3 7EJ

Site address: Cwrt y Plyffin Landfill Site (Closed), Trefeitha, Brecon Powys LD3 0RW

Attachments

1. Water testing Laboratory Certificates

Monitoring Undertaken

Gas and surface water monitoring (where flowing) at closed landfill as summarised in Table 1.

Table 1. Monitoring undertaken

Date	Aspect	Positions sampled	Comments	Weather
26/6/18	Gas	BH1 – BH5	Overgrown Open vent	Hot and dry
	Surface water	Downstream	Upstream dry Position IDs to be confirmed	

Gas monitoring undertaken using calibrated GA-5000. All water testing undertaken at UKAS accredited ALS.

Results

See Appendix 1 for surface water monitoring results and Table 2 for gas monitoring results.

Table 2. Gas Monitoring Results

ID	CH ₄ (%)	CO ₂ (%)	O ₂ (%)	PEAK CH ₄ (%)	PEAK CO ₂ (%)	CO (ppm)	H ₂ (LMH)	H ₂ S (ppm)	BARO (mb)	REL.PRESSURE (mb)
CYPBH4	0.1	0.1	20.5	0.1	0.1	1	0	0	1005	0.12
CYPBH3	0.1	0.1	20.7	0.1	0.1	1	0	0	1005	0.03
CYPBH2	0.1	1.7	19.1	0.1	1.7	0	0	0	1004	0.02
CYPBH1	0.1	0.5	20.2	0.1	0.6	0	0	0	1005	0



CERTIFICATE OF ANALYSIS

Validated

SDG:	180628-3	Client Reference:	1835	Report Number:	463010
Location:	CWRTY PLYFFIN	Order Number:	Geotech Rate Card.	Superseded Report:	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17830683	STREAM			26/06/2018

Maximum Sample/Coolbox Temperature (°C) :

19.8

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of

maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 180628-3 Client Reference: 1835 Report Number: 463010
 Location: CWRT Y PLYFFIN Order Number: Geotech Rate Card. Superseded Report:

Results Legend								
X Test N No Determination Possible Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Lab Sample No(s)		17830683					
	Customer Sample Reference		STREAM					
	AGS Reference							
	Depth (m)							
	Container		NaOH (ALE245)	HNO3 Filtered (ALE204)	H2SO4 (ALE244)	500ml Plastic (ALE208)	250ml BOD (ALE212)	
	Sample Type		SW	SW	SW	SW	SW	
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 1			X			
BOD True Total	All	NDPs: 0 Tests: 1	X					
COD Unfiltered	All	NDPs: 0 Tests: 1	X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 1		X				
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 1						X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1			X			
Mercury Unfiltered	All	NDPs: 0 Tests: 1		X				
pH Value	All	NDPs: 0 Tests: 1		X				
Phenols by HPLC (W)	All	NDPs: 0 Tests: 1			X			
Total Metals by ICP-MS	All	NDPs: 0 Tests: 1	X					

**CERTIFICATE OF ANALYSIS**

Validated

SDG: 180628-3
Location: CWRT Y PLYFFIN**Client Reference:** 1835
Order Number: Geotech Rate Card.**Report Number:** 463010
Superseded Report:**Table of Results - Appendix**

Method No	Reference	Description
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).



CERTIFICATE OF ANALYSIS

Validated

SDG: 180628-3
Location: CWRT Y PLYFFIN

Client Reference: 1835
Order Number: Geotech Rate Card.

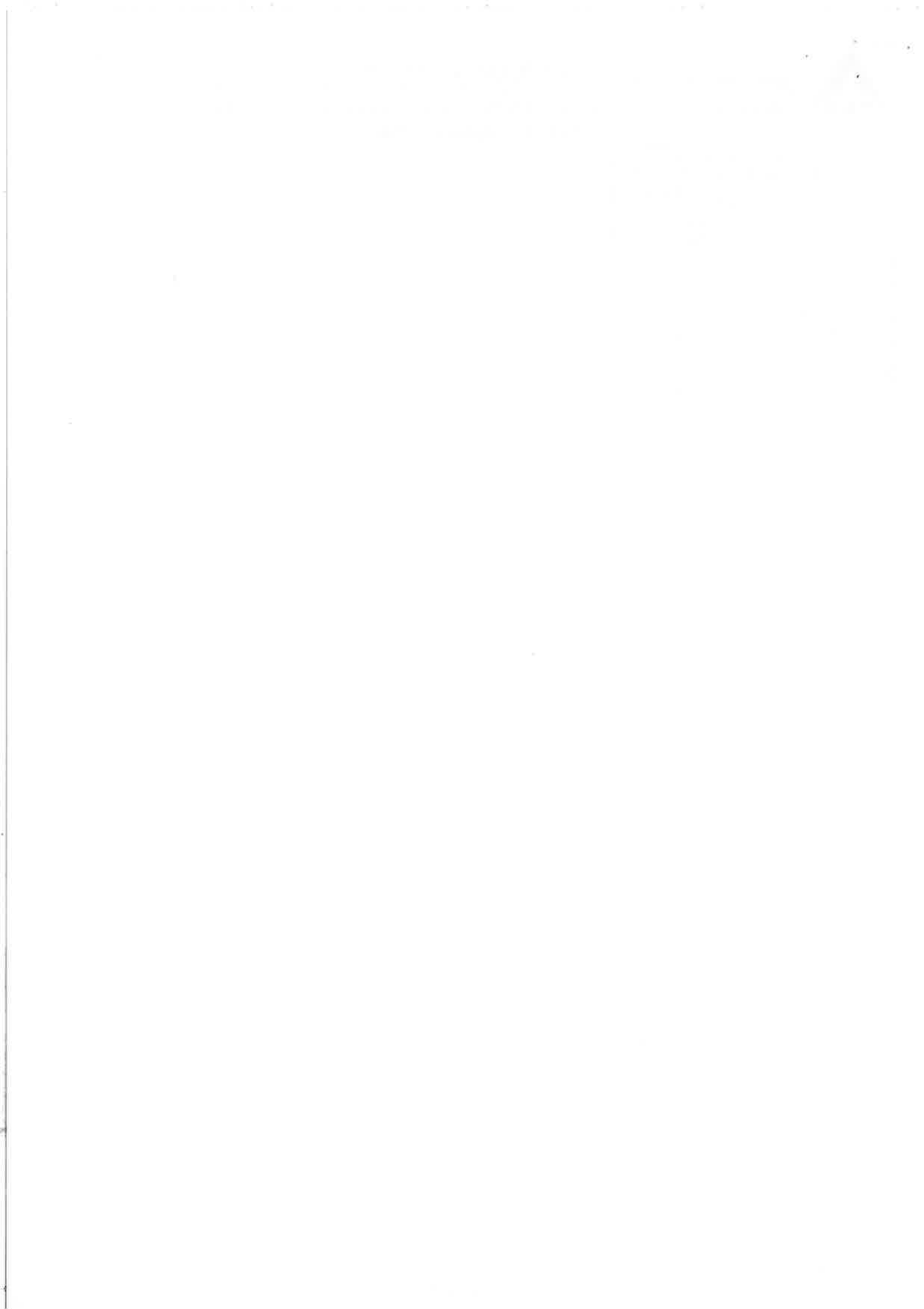
Report Number: 463010
Superseded Report:

Test Completion Dates

Lab Sample No(s) 17830683
Customer Sample Ref. STREAM

AGS Ref.
Depth
Type Surface Water

Ammoniacal Nitrogen	05-Jul-2018
BOD True Total	03-Jul-2018
COD Unfiltered	01-Jul-2018
Conductivity (at 20 deg.C)	03-Jul-2018
Cyanide Comp/Free/Total/Thiocyanate	03-Jul-2018
Dissolved Metals by ICP-MS	04-Jul-2018
Mercury Unfiltered	04-Jul-2018
pH Value	03-Jul-2018
Phenols by HPLC (W)	04-Jul-2018
Total Metals by ICP-MS	02-Jul-2018





CERTIFICATE OF ANALYSIS

SDG: 180628-3 Client Reference: 1835 Report Number: 463010
Location: CWRT Y PLYFFIN Order Number: Geotech Rate Card. Superseded Report:

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



The first part of the paper discusses the importance of the study and the objectives of the research. It then proceeds to a detailed description of the methodology used, including the selection of participants and the procedures followed. The results of the study are presented in the following section, followed by a discussion of the findings and their implications. The paper concludes with a summary of the main points and suggestions for further research.

The second part of the paper discusses the importance of the study and the objectives of the research. It then proceeds to a detailed description of the methodology used, including the selection of participants and the procedures followed. The results of the study are presented in the following section, followed by a discussion of the findings and their implications. The paper concludes with a summary of the main points and suggestions for further research.

The third part of the paper discusses the importance of the study and the objectives of the research. It then proceeds to a detailed description of the methodology used, including the selection of participants and the procedures followed. The results of the study are presented in the following section, followed by a discussion of the findings and their implications. The paper concludes with a summary of the main points and suggestions for further research.

The fourth part of the paper discusses the importance of the study and the objectives of the research. It then proceeds to a detailed description of the methodology used, including the selection of participants and the procedures followed. The results of the study are presented in the following section, followed by a discussion of the findings and their implications. The paper concludes with a summary of the main points and suggestions for further research.

The fifth part of the paper discusses the importance of the study and the objectives of the research. It then proceeds to a detailed description of the methodology used, including the selection of participants and the procedures followed. The results of the study are presented in the following section, followed by a discussion of the findings and their implications. The paper concludes with a summary of the main points and suggestions for further research.

Dec-05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Jan-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Feb-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Mar-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Apr-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
May-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Jun-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Jul-06									
Aug-06									
Sep-06									
Oct-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Nov-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Dec-06	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Jan-07	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Feb-07	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Mar-07	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Apr-07	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
May-07	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Jun-07	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5	0	0
Jun-18	0.1	0.1	0.1	0.1	0.1 -	5	5		
Carbon Dioxide									
	BH1	BH2	BH3	BH4	BH5	Reference Lev	Blank		
Feb-03	<0.2		6.2 <0.2		0.6	0.5	1.5	0	0
Mar-03	<0.2		0.6 <0.2		0.4	0.4	1.5	0	0
Apr-03	<0.2		6.5 <0.2		0.6	0.6	1.5	0	0
May-03	0.5		3.3 <0.2		0.4	2.1	1.5	0	0
Jun-03	<0.2	<0.2	<0.2	<0.2	<0.2		1.5	0	0
Jul-03	<0.2		3.6 <0.2		1.5	1.4	1.5	0	0
Aug-03	<0.2	<0.2		0.7	1.6	4.1	1.5	0	0
Sep-03			3.1 <0.2		6.5	1	1.5	0	0
Oct-03			0.6 <0.2		3	7.1	1.5	0	0
Nov-03			10	0.2 <0.2		3.8	1.5	0	0
Dec-03			1.9 <0.2		1.8	1.3	1.5	0	0
Jan-04	<0.2		15 <0.2		2.1	0.3	1.5	0	0
Feb-04	1.1	5.3 <0.2			3.4	2.7	1.5	0	0

Mar-04	0.4	<0.2		0.2	4.6	1.5	1.5	0	0
Apr-04	<0.2	<0.2			11	1.9	1.5	0	0
May-04	0.7		4.3	<0.2	11	1.3	1.5	0	0
Jun-04	<0.2	-		<0.2	19	2.9	1.5	0	0
Jul-04	0.3		19	<0.2	38	6.9	1.5	0	0
Aug-04	<0.2		0.2	<0.2	20	0.4	1.5	0	0
Sep-04	<0.2		36	<0.2	40	14	1.5	0	0
Oct-04	<0.2	-		<0.2	37	1.3	1.5	0	0
Nov-04	<0.2	-		<0.2	31	6.1	1.5	0	0
Dec-04	<0.2	-		<0.2	6.8	1.6	1.5	0	0
Jan-05	0.1				6.8	1.3	1.5	0	0
Feb-05	0.4			<0.2	7.2	0.2	1.5	0	0
Mar-05	0.4			<0.2	5.9	0.4	1.5	0	0
Apr-05	<0.2	<0.2		<0.2	6.7	0.8	1.5	0	0
May-05	<0.2		1.1	<0.2	11	8.6	1.5	0	0
Jun-05	1.2		0.2	<0.2	9.3	0.2	1.5	0	0
Jul-05	<0.2		0.2	<0.2	7.2	0.3	1.5	0	0
Aug-05							1.5		
Sep-05	4.9	<0.2		<0.2	8.8	<0.2	1.5	0	0
Oct-05	2.6		5.3	<0.2	9.1	5.1	1.5	0	0
Nov-05	1.4	<0.2		<0.2	9.5	8.3	1.5	0	0
Dec-05	2.4	<0.2		<0.2		<0.2	1.5	0	0
Jan-06	1.6		1.3	<0.2	3.6	<0.2	1.5	0	0
Feb-06	<0.2		6.1	<0.2	1.7	<0.2	1.5	0	0
Mar-06	0.7		0.4	<0.2		<0.2	1.5	0	0
Apr-06	0.9	<0.2		<0.2	6.3	<0.2	1.5	0	0
May-06	<0.2	<0.2		<0.2	0.6	<0.2	1.5	0	0
Jun-06	<0.2	<0.2			3.1	<0.2	1.5	0	0
Jul-06				0.4			1.5		
Aug-06							1.5		
Sep-06							1.5		
Oct-06	0.4	<0.2		<0.2	2.4	<0.2	1.5	0	0
Nov-06	1.6	<0.2		1.2	0.6	<0.2	1.5	0	0
Dec-06	0.6	<0.2		<0.2	2.2	2.4	1.5	0	0
Jan-07	<0.2	<0.2		<0.2	2.6	<0.2	1.5	0	0
Feb-07	0.6	<0.2		<0.2	8.2	5.8	1.5	0	0

[illegible]

**POWYS COUNTY COUNCIL****POWYS LABORATORY SERVICES**

Powys Laboratory Services
County Hall
Llandrindod Wells
Powys
LD1 5LG

Tel 01597 826761

Project ref: L2013/0012
Client: Mr G Powell

Results to: Mr G Powell
2 Tai North
Pennorth
Brecon
LD3 7EJ

Copy to:

LMS calibration due: 19/06/2015 (00268)

Date Reported: 19/01/2015

Site ref: CS 11-50

Laboratory sample ref: 150116

GAS MONITORING**ANALYSIS TO IHM G1: TESTING OF GAS FROM LANDFILL SITES OR OTHER GROUND**

Site Name	: Cwrt-Y-Plyffin private landfill site
Location	: As listed
Date Analysed	: 16/01/2015
Analyst	: TG
Downloaded by:	TM
Weather	: Windy, partly cloudy
Start Air Temperature (°C)	: 6.3
End Air Temperature (°C)	: 5.8

Q/A checks completed	Before site visit	Yes
	After site visit	Yes

RESULTS

BH	CH4 (%)	CO2 (%)	O2 (%)	CO (ppm)	H2S (ppm)	LEL(%)	aP(mb)	Balance (%)	Res. Nitrogen (%)	Internal Flow (l/h)	Date - Time	Preferred Sampling Method
1	<0.2	0.6	20.7	0	0	0	975	78.7	0.45	0	16/01/2015 11:28	Vent
2	<0.2	2.4	19.3	0	0	0	975	78.3	5.35	0	16/01/2015 11:37	Vent
3	<0.2	<0.2	21.5	0	0	0	975	78.4	0	0.1	16/01/2015 11:49	Vent
4	<0.2	2.4	19.1	0	0	0	976	78.5	6.3	0	16/01/2015 11:54	Vent
5	<0.2	1.3	20.4	0	0	0	976	78.3	1.19	0	16/01/2015 11:59	Vent
Blank 1	0	0	21.2	0	0	0	976	78.8	0		16/01/2015 11:23	
Blank 2	0	0.1	21.6	0	0	0	975	78.3	0		16/01/2015 12:04	

Remarks:

Locations 3 and 4 were overgrown. It is unlikely that access will be possible during the Summer months.

Blanks as recorded on LMS system.

Tracy Gittens

