

Site Investigation Report for land off
Gatewen Road, Wrexham

Appendix 10

Ground Gas Monitoring Results

Project Name: Gatewen Road, Wrexham
Project No. 7791
Prepared by: BH
Checked by: PRS

Date of Production: 2 August 2021

GROUND GAS MONITORING RECORD SUMMARY SHEET

Borehole Reference	Response Depth (m-bgl)	Date	Time	Temp (°c)	Gas Analyser	Weather Conditions	CH ₄ (peak) (%)	CH ₄ (steady) (%)	CO ₂ (peak) (%)	CO ₂ (steady) (%)	O ₂ (min.) (%)	O ₂ (steady) (%)	H ₂ S (peak) (ppm)	CO (peak) (ppm)	Flow (initial) (l/hr)	Flow (steady) (l/hr)	TWL (m - bgl)	Atmos. Pressure (mbar)	Remarks
WS01	1.0-4.0	03/06/2021	16:25:00	20	GA5000	Warm, broken cloud	0.1	0	1.7	1.7	18.1	18.1	0	1	0	0.3	Dry	1008	Dry
		14/06/2021	16:46:21	17	GA5000	Warm and dry	0.1	0.1	1.3	1.1	20.5	20.8	0	1	0.1	0.2	Dry	1013	
		15/7/21	N/A	18	GA5000	Cloudy	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Borehole vandalised, cover opened and bung missing, replaced for monitoring on subsequent visit
WS02	1.0-4.0	03/06/2021	16:40:00	20	GA5000	Warm, broken cloud	0	0	3.4	3.2	14.2	14.3	1	3	0	0.2	Dry	1009	Dry
		14/06/2021	17:02:52	17	GA5000	Warm and dry	0.1	0	3.4	3.3	16.3	16.3	0	1	0	0.2	Dry	1013	
		15/07/2021	08:57:00	18	GA5000	Cloudy	0.1	0.1	3.6	3.5	16.9	16.9	0	1	0.1	0.3	Dry	1014	
WS03	1.0-4.0	03/06/2021	16:55:00	20	GA5000	Warm, broken cloud	0	0	4.7	4.6	15.8	16	0	3	0	0.1	Dry	1001	Dry
		14/06/2021	17:17:27	17	GA5000	Warm and dry	0.1	0.1	2.9	2.8	19.4	19.5	0	1	0	0.2	Dry	1012	
		15/07/2021	09:13:00	18	GA5000	Cloudy	0.1	0.1	3.4	3.3	18.3	18.4	0	1	0	0.2	Dry	1014	
WS04	1.0-3.75	03/06/2021	17:12:00	20	GA5000	Warm, broken cloud	0	0	1.6	1.5	20	20.2	0	2	0	0.1	Dry	1009	Damp at base
		14/06/2021	17:31:27	17	GA5000	Warm and dry	0.1	0.1	0.8	0.8	21.5	21.6	0	1	0	0.1	Dry	1013	
		15/07/2021	09:30:00	18	GA5000	Cloudy	0.1	0.1	2.2	2	19.5	19.9	0	1	0	0.1	Dry	1015	
WS05	1.0-4.0	03/06/2021	17:30:00	20	GA5000	Warm, broken cloud	0	0	4.8	4.6	13.5	13.5	0	2	0.1	0.2	1.8	1008	
		14/06/2021	17:45:24	17	GA5000	Warm and dry	0.1	0	5.1	5	18.3	18.3	0	1	0	0.2	1.74	1012	
		15/07/2021	09:46:00	18	GA5000	Cloudy	0.1	0.1	5	4.8	15.8	15.8	0	1	0	0.1	2.94	1014	

Visit Conditions Summary

Visit Date	Temperature	Atmos Pressure	Pressure Trend	Weather
03/06/2021	20	1008	Steady	Warm, broken cloud
14/06/2021	17	1013	Mid, reducing	Warm and dry
15/7/21	18	1014	Steady	Cloudy

CERTIFICATION OF CALIBRATION



Date Of Calibration: 23-Mar-2021

Certificate Number: G501314_2/27736

Issued by: QED Environmental Systems Ltd.

Customer: Coopers
Park House Sandpiper Court Chester Business Park
CHESTER CH4 9QU UNITED KINGDOM

Description: Gas Analyser

Model: GA5000

Serial Number: G501314

UKAS Accredited results:

Results after adjustment :

Methane (CH ₄)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
5.0	4.9	0.072
15.0	15.0	0.13
60.0	59.8	0.42

Carbon Dioxide (CO ₂)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
5.0	5.0	0.074
15.0	15.0	0.13
40.0	40.2	0.29

Oxygen (O ₂)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
21.4	21.5	0.25

The inwards assessment was carried out 16-Mar-2021.

The maximum adjustment is larger than the specification limit.

Inwards assessment data is available if requested.

All concentrations are molar.

CH₄, CO₂ readings recorded at : 32.8 °C ± 2.5 °C

O₂ readings recorded at : 24.3 °C ± 2.5 °C

Barometric Pressure : 1013 mbar ± 4 mbar

Method of Test : The analyser is calibrated in a temperature controlled chamber using a series of reference gases, in compliance with procedure LP004.

Instrument has passed calibration as the measurement result is within the specification limit. The specification limit takes into account the measurement uncertainty.

The results relate only to the item calibrated

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

Calibration Instance:111 IGC Instance:111

Page 1 of 2 | LP015GIUKAS-2.5

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QED Environmental Systems Ltd. Cyan Park - Unit 3, Jimmy Hill Way, Coventry, CV2 4QP, UNITED KINGDOM

Registered in England and Wales 1898734

CERTIFICATION OF CALIBRATION



Date Of Calibration: 23-Mar-2021

Certificate Number: G501314_2/27736

Issued by: QED Environmental Systems Ltd.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Calibrations marked 'Non-UKAS Accredited results' on this certificate have been included for completeness.

Non-UKAS accredited results after adjustment:

Barometer (mbar)	
Reference	Instrument Reading
1013	1013

Additional Gas Cells		
Gas	Certified Gas (ppm)	Instrument Reading (ppm)
CO	486	486
H ₂ S	250	250

Internal Flow	
Applied (l/hr)	Instrument Reading (l/hr)
5.0	5.1
10.0	10.0

Date of Issue : 29-Mar-2021

Approved by Signatory

Dawn Hemings

Laboratory Inspection

End of Certificate

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to the SI system of units and/or to units of measurement realised at the National Physical Laboratory or other recognised national metrology institutes. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

Calibration Instance:111 IGC Instance:111

Page 2 of 2 | LP015GIUKAS-2.5

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SERVICE REPORT



Issued by: QED Environmental Systems Ltd.

Customer Name: Coopers

Model: GA5000

Part Number: GA5KB0C0-101

Serial Number: G501314

Date of Service: 29-Mar-2021

Service Engineer: Mustafa Ghalaboun

Calibration Engineer: Suk Balrey

Verification / Approved By: Dawn Hemings

Signature: 

Reason for Return (inc. Customer Comments):

Returned for full service and calibration

Service Comments/Feedback:

Thank you for returning your gas analyser to the QED Service Centre for full service and calibration. We are pleased to inform you that the analyser was received and fully assessed by one of our experienced Service Engineers and no significant faults or issues were observed during the assessment. Our extensive service was carried out, and any necessary components replaced. The analyser has successfully passed all of our rigorous testing and quality checks and has been calibrated using our bespoke, state of the art calibration facility.

For further information about how to get the best use from your instrument please visit our YouTube channel <http://www.youtube.com/GeotechTV> and on our Website <https://qedenv.com>

If you require any further assistance with your instrument please email our Technical Support Team at technical@qedenv.co.uk or call us on +44 (0) 333 800 0088 (Monday to Thursday 08.30 - 17.00 & Friday 08.30 - 15.30) UK time zone.

Next Service Due: 23-Sep-2021

17025

Our ISO accreditation for our customised auto-calibration facilities

5

Number of days we aim to complete your service within

50

Number of checks instruments are subject to when serviced

65

Number of countries from which we service instruments /accessories each year

7,384

Number of calibrations completed in last 12 months

340

Minimum number of service instruments we process each month

25

Cost (in £) of fully insured analyser collection for our UK customers

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