

TIER 2

ENVIRONMENTAL RISK ASSESSMENT

APPENDIX H

**CALIBRATION CERTIFICATES
FOR
GA 2000 LANDFILL GAS ANALYSER**



CERTIFICATION OF CALIBRATION



ISSUED BY: GEOTECH LABORATORY

Date Of Calibration: 31 March, 2011

Certificate Number: GA05382_1/7174

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Approved by Signatory

Phil Handy

Phil Handy

Laboratory Inspection

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Customer: *Commissioning Services Limited*
 Deerpark Business Complex
 Dublin Road
 Carlow
 IRELAND

Description: Gas Analyser

Model: GA2000

Serial Number: GA05382

Methane (CH ₄)	
Certified Gas (%)	Instrument Reading (%)
50.01	49.00
15.01	14.78
5.01	4.80

Carbon Dioxide (CO ₂)	
Certified Gas (%)	Instrument Reading (%)
49.99	49.98
14.97	14.80
5.00	4.90

Oxygen (O ₂)	
Certified Gas (%)	Instrument Reading (%)
21.00	21.05

Barometer (mb)	
Reference	Reading
1000mb	0999mb

Additional Gas Cells		
Gas	Instrument Reading (ppm)	Certified Gas (ppm)
CO	515.0	515.0
H ₂ S	50.9	50.7

All concentrations are molar.

CH₄, CO₂ readings recorded at: 27.6°C

O₂ readings recorded at : 16.9°C

Barometric Pressure : 1000mb


Method of Test: The analyser is calibrated in a temperature controlled chamber using reference gases.

End of Certificate

Instrument Service Report

<u>Unit Type:</u> GA2000	<u>Part Number:</u> GA2000PODXXX	<u>Date:</u> 31-Mar-2011	<u>Next Service Due:</u> 01-Apr-2014	<u>Customer Name:</u> Commissioning Services Limited
<u>Serial Number:</u> GA05382				

Actions/Investigation Description	Result	Comments
Inwards Assessment Complete	Yes	
Serial Number Check	Yes	
Serial Comms Test	Pass	
Unit Updated To Latest Hardware Status	Yes	
Latest Firmware (Software)	Yes	Upgraded Software To V2.40
O2 Sensor Require Replacing	Yes	O2 sensor replaced
Chemical Sensor Require Replacing	Yes	CO and H2S sensors replaced
Battery Requires Replacing	Yes	Battery replaced
Filters Replaced	Yes	
Memory Cleared	Yes	
Backlight Operation	Yes	
Instrument Charges Correctly	Yes	
Relevant Accessory Recognition	Yes	Anemometer channel calibrated
Pump Flow Test	Pass	Pump flow greater than 300ml/min
Pump Vacuum Test	Pass	Pump vacuum greater than -350mBar
Instrument Flow Fails Correctly	Yes	Flow fail point calibrated to less than 30 seconds
Pressure Systems Test	Pass	

<u>Service Details:</u> Service Scheme <input type="checkbox"/>	<u>Service Engineer:</u> Matthew Welch	<u>Calibration Engineer:</u> Graham Ingles	<u>Approved By:</u> Philip Handy
Standard Service <input checked="" type="checkbox"/>			<u>Signature:</u> 

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Instrument Service Report

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<u>Serial Number:</u> GA05382				
Actions/Investigation Description	Result	Comments		
Pressure Transducer Tests	Pass	Recalibrated transducer		
Chemical Sensor Calibration	Pass	Chemical sensor(s) calibrated - Please reference Calibration certificate		
Internal Flow Calibrated	N/A			
Event Log Enabled	N/A			
Drop Test	Pass	Stability proven from 100mm		
Full Automatic Calibration	Pass			
Reported faults acknowledged	N/A	No faults/issues reported by client		
External Visual Inspection	Pass			
MCERTS Enabled	N/A			
Internal Visual Inspection	Pass			
Diagnostic Check	Pass			
Customer Comments Addressed	No	No faults/issues reported by client		

<u>Service Details:</u> Service Scheme <input type="checkbox"/>	<u>Service Engineer:</u> Matthew Welch	<u>Calibration Engineer:</u> Graham Ingles	<u>Approved By:</u> Philip Handy	<u>Signature:</u> 
Standard Service <input checked="" type="checkbox"/>				