Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 06680 Page 1 of 4 Pages

Customer : Lam Geotechnics Limited

Address : 11/F, Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong.

Order No. : Q02553 **Date of receipt :** 18-Nov-10

Item Tested

Description : Precision Integrating Sound Level Meter

Manufacturer : ACO

Model : Type 6224 **Serial No. :** 050112

Test Conditions

Date of Test : 19-Nov-10 **Supply Voltage :** --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01.

Test Results

All results were within the IEC 651 Type 1 & 804 Type I Specification.

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S017A	Multi-Function Generator	00804	SCL-HKSAR
S024	Sound Level Calibrator	04062	NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).
The test results apply to the above Unit-Under-Test only

Calibrated by : P. F. Wong

Approved by : Dorothy Cheuk

Date: 23-Nov-10

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 66, 24/F., Wall Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Results :

1. SPL Accuracy

UUT Setting			Applied Value (dB)	UUT Reading (dB)
Level Range (dB)	Weight	Time Const.		
20 – 100	L_A	Fast	94.0	94.3
		Slow		94.3
	L_C	Fast		94.3
30 – 120	L_A	Fast	94.0	94.4
		Slow		94.4
	L_C	Fast		94.4
30 – 120	L_A	Fast	114.0	94.3
		Slow		94.3
	L_C	Fast		94.3

IEC 651 Type 1 Spec. : ± 0.7 dB
Uncertainty : ± 0.1 dB

2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. : ± 0.3 dB
Uncertainty : ± 0.01 dB

3. Linearity

3.1 Level Linearity

UUT Range (dB)	Applied Value (dB)	UUT Rdg (dB)	Variation (dB)	IEC 651 Type 1 Spec. (Primary Indicator Range)
140	114.0	114.5	+0.1	± 0.7 dB
130	104.0	104.4	0.0	
120	94.0	94.4 (Ref.)	- -	
110	84.0	84.1	-0.3	
100	74.0	74.2	-0.2	
90	64.0	64.1	-0.3	
80	54.0	54.1	-0.3	

Uncertainty : ± 0.1 dB

Calibration Certificate

3.2 Differential level linearity

UUT Range (dB)	Applied Value (dB)	UUT Rdg (dB)	Variation (dB)	IEC 651 Type 1 Spec.
120	84.0	84.1	-0.3	± 0.4
	94.0	94.4 (Ref.)	- -	
	95.0	95.4	0.0	± 0.2

Uncertainty : ± 0.1 dB

4. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	-39.3	- 39.4 dB, ± 1.5 dB
63 Hz	-26.2	- 26.2 dB, ± 1.5 dB
125 Hz	-16.1	- 16.1 dB, ± 1 dB
250 Hz	-8.7	- 8.6 dB, ± 1 dB
500 Hz	-3.3	- 3.2 dB, ± 1 dB
1 kHz	0.0 (Ref)	0 dB, ± 1 dB
2 kHz	+1.3	+ 1.2 dB, ± 1 dB
4 kHz	+0.9	+ 1.0 dB, ± 1 dB
8 kHz	-1.2	- 1.1 dB, + 1.5 dB ~ -3 dB
16 kHz	-5.8	- 6.6 dB, + 3 dB ~ - ∞

Uncertainty : ± 0.1 dB

Calibration Certificate

4. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0	40.0	--
1/10	40.0	39.9	± 0.5 dB
$1/10^2$	40.0	39.9	
$1/10^3$	40.0	40.3	± 1.0 dB
$1/10^4$	40.0	40.3	

Uncertainty : ± 0.1 dB

Remark : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1 009 hPa.

---------- END ----------

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 06681

Customer : Lam Geotechnics Limited

Address : 11/F, Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong.

Order No. : Q02553 **Date of receipt :** 18-Nov-10

Item Tested

Description : Sound Level Calibrator (EL469)

Manufacturer : ACO

Model : -- **Serial No. :** 050213

Test Conditions

Date of Test : 19-Nov-10 **Supply Voltage :** --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: F21, Z02.

Test Results

All results were within the IEC 942 Class 1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S014	Spectrum Analyzer	03926	NIM-PRC & SCL-HKSAR
S024	Sound Level Calibrator	04062	NIM-PRC & SCL-HKSAR
S041	Universal Counter	04461	SCL-HKSAR
S206	Sound Level Meter	04462	SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).
The test results apply to the above Unit-Under-Test only

Calibrated by : _____
P. F. Wong

Approved by : _____
Dorothy Cheuk

Date: 23-Nov-10

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 6B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Results :

1. Level

UUT Nominal Value (dB)	Measured Value (dB)	IEC 942 Class 1 Spec.
94	94.22	± 0.3 dB

The above measured values are the mean of 3 measurements.
Uncertainty : ± 0.1 dB

2. Frequency

UUT Nominal Value	Measured Value		IEC 942 Class 1 Spec.
1 kHz	0.9834	kHz	± 2 %

Uncertainty : $\pm 3.6 \times 10^{-6}$

3. Level Stability : 0.0 dB
IEC 942 Class 1 Spec. : ± 0.1 dB
Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 0.2 %
IEC 942 Class 1 Spec. : < 3 %
Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1 009 hPa.

---------- END ----------

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 03250A

Customer : Lam Geotechnics Limited

Address : 11/F., Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong

Order No. : Q01282 **Date of receipt :** 14-Jun-10

Item Tested

Description : Precision Integrating Sound Level Meter

Manufacturer : ONO SOKKI

Model : LA-5110 **Serial No. :** 72302293

Test Conditions

Date of Test : 21-Jun-10 **Supply Voltage :** --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01.

Test Results

All results were within the IEC 651 Type 1 & IEC 804 Class 1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S017	Multi-Function Generator	C101623	SCL-HKSAR
S024	Sound Level Calibrator	93758	NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).
The test results apply to the above Unit-Under-Test only

Calibrated by : P. F. Wong

Approved by : Dorothy Cheuk

Date: 8-Oct-10

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Results :

1. SPL Accuracy

UUT Setting				Applied Value (dB)	UUT Reading (dB)
Level Range	Filter	Frequency Weighting	Dynamic Characteristic		
40 - 100 dB	OFF	A	FAST	94.03	94.0
			SLOW		94.0
		C	FAST		94.0
60 - 120 dB	OFF	A	FAST	94.03	94.0
			SLOW		94.0
		C	FAST		94.0
60 - 120 dB	OFF	A	FAST	113.97	113.9
			SLOW		113.9
		C	FAST		113.9

IEC 651 Type 1 Spec. : ± 0.7 dB
Uncertainty : ± 0.1 dB

2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. : ± 0.3 dB
Uncertainty : ± 0.01 dB

3. Linearity

3.1 Level Linearity

UUT Range (dB)	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec. (Primary Indicator Range)
130	114.0	114.1	+0.1	± 0.7 dB
130	104.0	104.1	+0.1	
120	94.0	94.0 (Ref.)	- -	
110	84.0	84.0	0.0	
100	74.0	74.1	+0.1	
90	64.0	64.1	+0.1	
80	54.0	54.0	0.0	

Uncertainty : ± 0.1 dB

Calibration Certificate

3.2 Differential level linearity

UUT Range (dB)	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec.
120	84.0	84.0	0.0	± 0.4
	94.0	94.0 (Ref.)	- -	
	95.0	95.0	0.0	± 0.2

Uncertainty : ± 0.1 dB

4. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	-40.5	- 39.4 dB, ± 1.5 dB
63 Hz	-26.9	- 26.2 dB, ± 1.5 dB
125 Hz	-16.9	- 16.1 dB, ± 1 dB
250 Hz	-9.1	- 8.6 dB, ± 1 dB
500 Hz	-3.5	- 3.2 dB, ± 1 dB
1 kHz	0.0 (Ref.)	0 dB, ± 1 dB
2 kHz	+1.5	+ 1.2 dB, ± 1 dB
5 kHz	+1.2	+ 1.0 dB ,± 1 dB
8 kHz	-1.0	- 1.1 dB, + 1.5 dB ~ - 3 dB
16 kHz	-7.0	- 6.6 dB, + 3 dB ~ ∞

Uncertainty : ± 0.1 dB

5. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0	40.0	---
1/10	40.0	40.0	± 0.5 dB
$1/10^2$	40.0	40.0	
$1/10^3$	40.0	40.1	± 1.0 dB
$1/10^4$	40.0	39.9	

Uncertainty : ± 0.1 dB

Remarks : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1 000 hPa.
4. This certificate is supersede our former certificate no. 03250.

---------- END ----------

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 03445

Customer : Lam Geotechnics Limited

Address : 11/F., Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong

Order No. : Q01282 **Date of receipt :** 14-Jun-10

Item Tested

Description : Sound Level Calibrator (EL078)

Manufacturer : ONO SOKKI

Model : SC-2110 **Serial No. :** 00393

Test Conditions

Date of Test : 21-Jun-10 **Supply Voltage :** --

Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z02.

Test Results

All results were within the IEC 942 Class 2 specification.

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Due Date	Traceable to
S024	Sound Level Calibrator	93758	16-Jul-10	NIM-PRC & SCL-HKSAR
S041	Universal Counter	94005	6-Aug-10	SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).
The test results apply to the above Unit-Under-Test only.

Calibrated by : P. F. Wong

Approved by : Dorothy Cheuk

Date: 25-Jun-10

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Results :

1. **Level Accuracy (at 1 kHz)**

UUT Nominal Value (dB)	Measured Value (dB)	IEC 942 Class 2 Spec.
94	94.05	± 0.5 dB

Uncertainty : ± 0.2 dB

2. **Frequency Accuracy**

UUT Nominal Value (kHz)	Measured Value (kHz)	IEC 942 Class 2 Spec.
1	0.998	± 4 %

Uncertainty : ± 0.1 %

3. **Level Stability** : 0.0 dB
IEC 942 Class 2 Spec. : ± 1.2 dB
Uncertainty : ± 0.01 dB

4. **Total Harmonic Distortion** : < 1.2 %
IEC 942 Class 1 Spec. : < 3 %
Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test
2. The above measured values are the mean of 3 measurements.
3. The uncertainty claimed is for a confidence probability of not less than 95%.
4. Atmospheric Pressure : 1 000 hPa.

--------- END ---------

Brüel & Kjær

SPECTRIS CHINA LIMITED
思百吉中國有限公司

CERTIFICATE OF CALIBRATION

Certificate No. : 2KS100612-7 **Page** 1 **of** 2

Calibration of :

Description	:	Sound Level Meter	,	Microphone
Manufacture	:	Brüel & Kjær		
Type No.	:	2250	,	4950
Serial No.	:	2722310		2698702

Client :

Lam Geotechnics Limited
11/F, Centre Point
181-185 Gloucester Road
Wanchai
Hong Kong

Calibration Conditions :

Air Temperature	:	23	**°C**
Air Pressure	:	101.9	**kPa**
Relative Humidity	:	62	**%**

Test Specifications :

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC 60651 and IEC 60804 type 1, and vendor specific procedures.

The measurements has been performed with the assistance of :
Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999
The standard(s) and instrument(s) used in the calibration are traceable to international standard and are calibrated on a schedule which is adjusted to maintain the required accuracy level.

Test Result :

A list of the performed (sub) tests is stated on page 2 of this certificate. Actual Measurement are documented on worksheet.

Date of Calibration : 22 July, 2010
Calibrated By :

Dai Bin

Certificate issued : 22 July, 2010
Approved signatory :

Jacky Leung

Unit 706 7/F., Miramar Tower, 132 Nathan Road, Tsim Sha Tsui, Kowloon, Hong Kong
香港九龍尖沙咀彌敦道132號美麗華大廈7樓706室

Tel : (852) 2548 7486
Fax : (852) 2858 1168

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CERTIFICATE OF CALIBRATION

Certificate No. : 2KS100612-7 **Page 2 of 2**

Results :

List of performed (sub) test with test status:

"OK" Means the result of the (sub)test is Inside the tolerances stated in the test specifications.

" - " Means the result of the (sub)test is Outside these tolerances.

Test :	Subtest :	Status :
Noise	A	OK
Noise	C	OK
Noise	Lin	OK
Frequency Weighting	A	OK
Frequency Weighting	C	OK
Frequency Weighting	Lin	OK
Level Range Control	1000 Hz	OK
Linearity Range	SPL 10dB 4000 Hz	OK
Linearity Range	SPL 1dB 1000 Hz	OK
Linearity Range	Leq	OK
Linearity Range	SEL	OK
RMS Detector	CF 3	OK
RMS Detector	CF 5	OK
RMS Detector	CF 10	OK
RMS Detector	Symmetry	OK
Time Weighting	Difference Indication	OK
Time Weighting	Single Burst FAST	OK
Time Weighting	Single Burst SLOW	OK
Time Weighting	Single Burst IMPULSE	OK
Time Weighting	Repetitive Burst	OK
Time Weighting	Peak	OK
Time Averaging		OK
Pulse Range		OK
Overload	SPL	OK
Overload	SEL	OK
Acoustic Response	A	OK
Acoustic Response	Lin	OK

Calibration Equipment :

Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999

Description :	Make & Model :	Serial No. :	Last Cal. Date :	Traceable to:
Digital Multi-meter	Datron 1281	27361	30 Sept, 2009	HKSCL (HOKLAS)
Sine/Noise Generator	B&K 1049	1314978	Test	B&K Conformance
Test Waveform Generator	B&K 5918	1482949	Test	B&K Conformance
Acoustical Calibrator	B&K 4226	1843103	11 Aug 2009	NPL via B&K (DANAK)

Calibrated By : Date : 22 July 2010

Checked By : Date : 22 July, 2010

CERTIFICATE OF CALIBRATION

Certificate No. : 2KS100705-2 **Page 1 of 2**

Calibration of :

Description	:	Sound Level Meter	,	Microphone
Manufacture	:	Brüel & Kjær		
Type No.	:	2250	,	4950
Serial No.	:	2722311		2698703

Client :

Lam Geotechnics Limited
11/F, Centre Point
181-185 Gloucester Road
Wanchai
Hong Kong

Calibration Conditions :

Air Temperature	:	23	**°C**
Air Pressure	:	101.9	**kPa**
Relative Humidity	:	62	**%**

Test Specifications :

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC 60651 and IEC 60804 type 1, and vendor specific procedures.

The measurements has been performed with the assistance of :
Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999
The standard(s) and instrument(s) used in the calibration are traceable to international standard and are calibrated on a schedule which is adjusted to maintain the required accuracy level.

Test Result :

A list of the performed (sub) tests is stated on page 2 of this certificate. Actual Measurement are documented on worksheet.

Date of Calibration : 03 Aug, 2010
Calibrated By :

Dai Bin

Certificate issued : 03 Aug, 2010
Approved signatory :

Jacky Leung

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CERTIFICATE OF CALIBRATION

Certificate No. : 2KS100705-2

Results :

List of performed (sub) test with test status:
"OK" Means the result of the (sub)test is Inside the tolerances stated in the test specifications.
" - " Means the result of the (sub)test is Outside these tolerances.

Test :	Subtest :	Status :
Noise	A	OK
Noise	C	OK
Noise	Lin	OK
Frequency Weighting	A	OK
Frequency Weighting	C	OK
Frequency Weighting	Lin	OK
Level Range Control	1000 Hz	OK
Linearity Range	SPL 10dB 4000 Hz	OK
Linearity Range	SPL 1dB 1000 Hz	OK
Linearity Range	Leq	OK
Linearity Range	SEL	OK
RMS Detector	CF 3	OK
RMS Detector	CF 5	OK
RMS Detector	CF 10	OK
RMS Detector	Symmetry	OK
Time Weighting	Difference Indication	OK
Time Weighting	Single Burst FAST	OK
Time Weighting	Single Burst SLOW	OK
Time Weighting	Single Burst IMPULSE	OK
Time Weighting	Repetitive Burst	OK
Time Weighting	Peak	OK
Time Averaging		OK
Pulse Range		OK
Overload	SPL	OK
Overload	SEL	OK
Acoustic Response	A	OK
Acoustic Response	Lin	OK

Calibration Equipment :

Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999

Description :	Make & Model :	Serial No. :	Last Cal. Date :	Traceable to:
Digital Multi-meter	Datron 1281	27361	30 Sept, 2009	HKSCL (HOKLAS)
Sine/Noise Generator	B&K 1049	1314978	Test	B&K Conformance
Test Waveform Generator	B&K 5918	1482949	Test	B&K Conformance
Acoustical Calibrator	B&K 4226	1843103	11 Aug 2009	NPL via B&K (DANAK)

Calibrated By : Date : 03 Aug 2010

Checked By : Date : 03 Aug, 2010

ALS Technichem (HK) Pty Ltd

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MS CHERRY MAK	**WORK ORDER:**	HK1107641
CLIENT:	LAM GEOTECHNICS LIMITED	**LABORATORY:**	HONG KONG
ADDRESS:	11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG.	**DATE RECEIVED:**	04/04/2011
		DATE OF ISSUE:	08/04/2011
PROJECT:	--		

COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.
Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal aceptance criteria of ALS will be followed.

Scope of Test:	Dissolved Oxygen, Salinity and Temperature
Description:	Sonde
Brand Name:	YSI
Model No.:	YSI 600XL
Serial No.:	05C1607
Equipment No.:	EL424
Date of Calibration:	06 April, 2011

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

Address

ALS Technichem (HK) Pty Ltd

11/F Chung Shun Knitting Centre
1-3 Wing Yip Street
Kwai Chung
HONG KONG

Phone: 852-2610 1044
Fax: 852-2610 2021
Email: hongkong@alsglobal.com

Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1107641
Date of Issue: 08/04/2011
Client: LAM GEOTECHNICS LIMITED
Reference: --

Description: Sonde
Brand Name: YSI
Model No.: YSI 600XL
Serial No.: 05C1607
Equipment No.: EL424
Date of Calibration: 06 April, 2011 Date of next Calibration: 06 July, 2011

Parameters:

Temperature **Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.**

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
16.0	16.1	0.1
23.0	22.5	-0.6
39.5	39.5	0.0
	Tolerance Limit (°C)	2.0

Dissolved Oxygen **Method Ref: APHA (21st edition), 4500O: G**

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
4.88	4.94	0.06
6.06	5.90	-0.16
8.23	8.40	0.17
	Tolerance Limit (±mg/L)	0.20

Salinity **Method Ref: APHA (21st edition), 2520B**

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0.0	0.20	--
10.0	9.96	-0.4
20.0	19.98	-0.1
30.0	30.05	0.2
	Tolerance Limit (±%)	10.0

Mr Chan Kwok Fai, Godfrey
Laboratory Manager – Hong Kong

ALS Technichem (HK) Pty Ltd

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MS CHERRY MAK	**WORK ORDER:**	HK1107886
CLIENT:	LAM GEOTECHNICS LIMITED	**LABORATORY:**	HONG KONG
ADDRESS:	11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG.	**DATE RECEIVED:**	07/04/2011
		DATE OF ISSUE:	09/04/2011
PROJECT:	--		

COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.
Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal aceptance criteria of ALS will be followed.

Scope of Test:	pH, Dissolved Oxygen, Salinity and Temperature
Description:	Sonde
Brand Name:	YSI
Model No.:	YSI Professional Plus
Serial No.:	10E100385
Equipment No.:	N/A
Date of Calibration:	08 April, 2011

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

Address

ALS Technichem (HK) Pty Ltd
11/F Chung Shun Knitting Centre
1-3 Wing Yip Street
Kwai Chung
HONG KONG

Phone: 852-2610 1044
Fax: 852-2610 2021
Email: hongkong@alsglobal.com

Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1107886
Date of Issue: 09/04/2011
Client: LAM GEOTECHNICS LIMITED
Reference: --

Description: Sonde
Brand Name: YSI
Model No.: YSI Professional Plus
Serial No.: 10E100385
Equipment No.: N/A
Date of Calibration: 08 April, 2011 Date of next Calibration: 08 July, 2011

Parameters:

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
16.0	15.0	-1.0
23.5	22.8	-0.7
30.7	30.0	-0.7
	Tolerance Limit (°C)	2.0

pH Value

Method Ref: ALPHA (21st edition), 4500H:B

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	4.04	0.04
7.0	6.93	-0.07
10.0	9.85	-0.15
	Tolerance Limit (±unit)	0.2

Dissolved Oxygen

Method Ref: APHA (21st edition), 4500O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
6.76	6.90	0.14
7.97	8.06	0.09
8.76	8.76	0.00
	Tolerance Limit (±mg/L)	0.20

Salinity

Method Ref: APHA (21st edition), 2520B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0.0	0.00	--
10.0	10.25	2.5
20.0	20.15	0.7
30.0	30.48	1.6
	Tolerance Limit (±%)	10.0

Mr Chan Kwok Fai, Godfrey
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ALS Technichem (HK) Pty Ltd

CERTIFICATE OF ANALYSIS

CONTACT:	MS CHERRY MAK	**WORK ORDER:**	HK1105017
CLIENT:	LAM GEOTECHNICS LIMITED	**LABORATORY:**	HONG KONG
ADDRESS:	11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG	**DATE RECEIVED:**	03/03/2011
		DATE OF ISSUE:	10/03/2011
PROJECT:	--	**SAMPLE TYPE:**	EQUIPMENT
		No. of SAMPLES:	1

COMMENTS

The calibration procedure used for the analysis has been applied for the calibration of the above instrument.

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

Address

ALS Technichem (HK) Pty Ltd

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Phone: 852-2610 1044
Fax: 852-2610 2021
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Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

Abbreviations: *% SPK REC denotes percentage spike recovery*
CHK denotes duplicate check sample
LOR denotes limit of reporting
LCS % REC denotes Laboratory Control Sample percentage recovery

CERTIFICATE OF ANALYSIS

Work Order: HK1105017
Date of Issue: 10/03/2011
Client: LAM GEOTECHNICS LIMITED
Client Reference:

Calibration of Multimeter

Item : HACH Turbidimeter
ALS Lab ID: HK1105017 -001
Date of Calibration: 08 March, 2011

Model No.: 2100P
Equipment No.: EL148
Serial No.: 931000003861

Testing Results :

Turbidity

Expected Reading	Recording Reading
0.00 NTU	0.35 NTU
4.00 NTU	3.82 NTU
40.0 NTU	41.5 NTU
80.0 NTU	78.8 NTU
400 NTU	416 NTU
Allowing Deviation	± 10%

Testing Method:

APHA (19th edition), 2130B

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ALS Technichem (HK) Pty Ltd

CERTIFICATE OF ANALYSIS

CONTACT:	MS CHERRY MAK	**WORK ORDER:**	HK1104129
CLIENT:	LAM GEOTECHNICS LIMITED	**LABORATORY:**	HONG KONG
ADDRESS:	11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG	**DATE RECEIVED:**	21/02/2011
		DATE OF ISSUE:	25/02/2011
		SAMPLE TYPE:	EQUIPMENT
PROJECT:	--	**No. of SAMPLES:**	1

COMMENTS

The calibration procedure used for the analysis has been applied for the calibration of the above instrument.

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

Address

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Laboratory Manager - Hong Kong

Abbreviations: *% SPK REC denotes percentage spike recovery*
CHK denotes duplicate check sample
LOR denotes limit of reporting
LCS % REC denotes Laboratory Control Sample percentage recovery

CERTIFICATE OF ANALYSIS

Work Order: HK1104129
Date of Issue: 25/02/2011
Client: LAM GEOTECHNICS LIMITED
Client Reference:

Calibration of Multimeter

Item : HACH Turbidimeter
ALS Lab ID: HK1104129-001
Date of Calibration: 25 February, 2011

Model No.: 2100P
Equipment No.: --
Serial No.: 930300002705

Testing Results :

Turbidity

Expected Reading	Recording Reading
0.00 NTU	0.27 NTU
4.00 NTU	4.35 NTU
40.0 NTU	37.0 NTU
80.0 NTU	81.9 NTU
400 NTU	432 NTU
Allowing Deviation	± 10%

Testing Method:

APHA (19th edition), 2130B

Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

ALS Technichem (HK) Pty Ltd

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MS CHERRY MAK	**WORK ORDER:**	HK1110550
CLIENT:	LAM GEOTECHNICS LIMITED	**LABORATORY:**	HONG KONG
ADDRESS:	11/F., CENTRE POINT, 181-185 GLOUCESTER ROAD, WAN CHAI, HONG KONG	**DATE RECEIVED:**	11/05/2011
		DATE OF ISSUE:	20/05/2011
PROJECT:	--		

COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.
Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal aceptance criteria of ALS will be followed.

Scope of Test:	Turbidity
Description:	Turbidimeter
Brand Name:	HACH
Model No.:	2100P
Serial No.:	1000032935
Equipment No.:	EN06
Date of Calibration:	20 May, 2011

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1110550
Date of Issue: 20/05/2011
Client: LAM GEOTECHNICS LIMITED

Description: Turbidimeter
Brand Name: HACH
Model No.: 2100P
Serial No.: 1000032935
Equipment No.: EN06
Date of Calibration: 20 May, 2011 Date of next Calibration: 16 August, 2011

Parameters:

Turbidity **Method Ref: APHA (21st edition), 2130B**

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0.0	0.0	--
4.0	3.9	-2.0
40.0	36.3	-9.3
80.0	76.0	-5.0
400.0	376.0	-6.0
800.0	778.0	-2.8
	Tolerance Limit (±%)	10.0

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TISCH ENVIROMENTAL, INC.
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WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jun 28, 2010 Rootsmeter S/N 9833620 Ta (K) - 298
Operator Tisch Orifice I.D. - 0005 Pa (mm) - 745.49

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3860	3.2	2.00
2	NA	NA	1.00	0.9740	6.4	4.00
3	NA	NA	1.00	0.8730	7.9	5.00
4	NA	NA	1.00	0.8320	8.8	5.50
5	NA	NA	1.00	0.6850	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9767	0.7047	1.4006		0.9957	0.7184	0.8941
0.9725	0.9985	1.9808		0.9914	1.0179	1.2645
0.9704	1.1116	2.2146		0.9893	1.1332	1.4137
0.9693	1.1650	2.3227		0.9882	1.1877	1.4828
0.9641	1.4075	2.8013		0.9829	1.4349	1.7883
Qstd slope (m) =		1.99628		Qa slope (m) =		1.25003
intercept (b) =		-0.00699		intercept (b) =		-0.00446
coefficient (r) =		0.99995		coefficient (r) =		0.99995
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{[SQRT(H2O(Pa/760)(298/Ta))]- b}
Qa = 1/m{[SQRT H2O(Ta/Pa)]- b}

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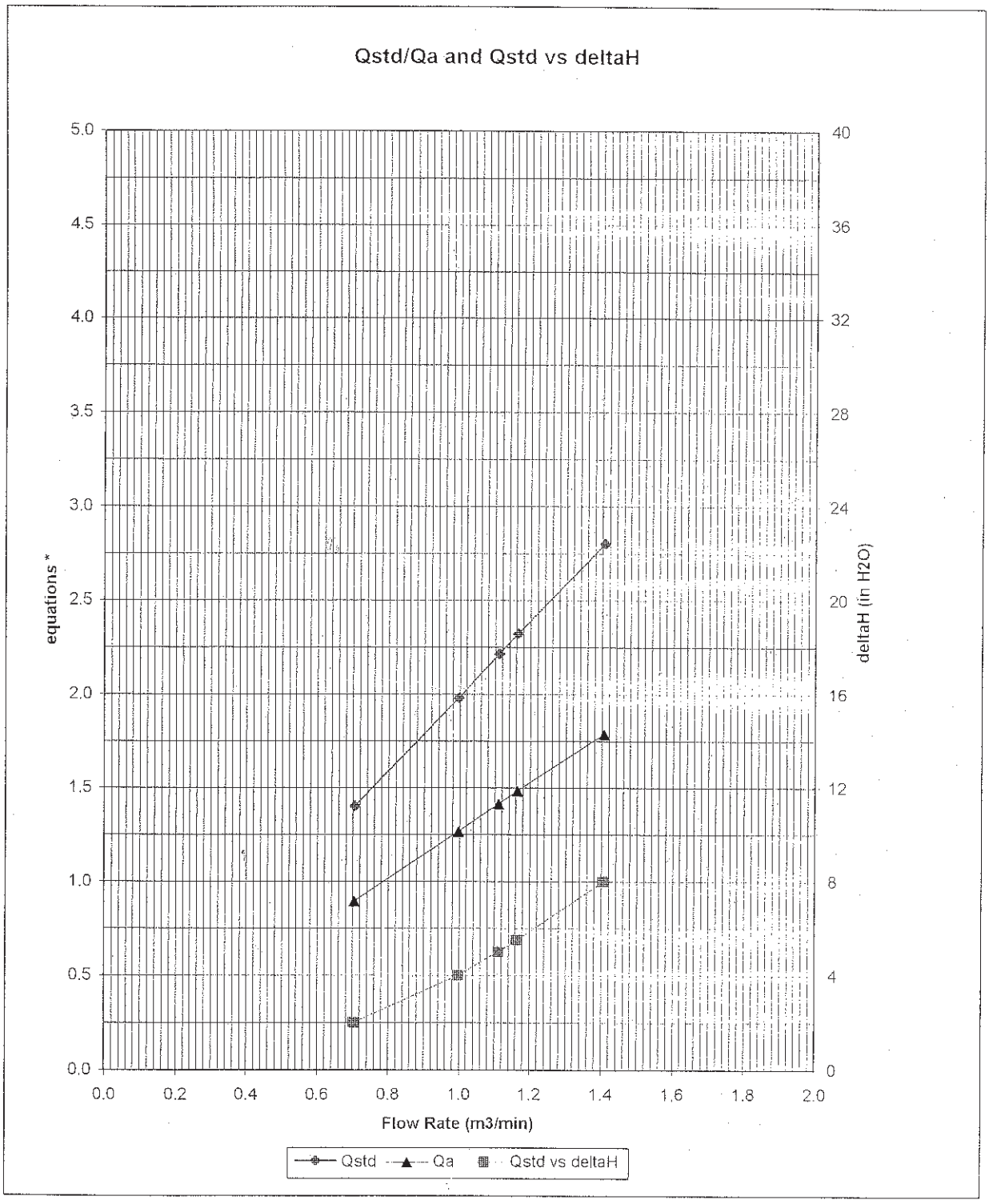
AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

Qstd series: $\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$

Qa series: $\sqrt{(\Delta H\ (Ta\ /\ Pa))}$

#0005

Lam Geotechincs Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA1b	**Calbration Date**	:	05-Mar-11
Equipment no.	:	EL452	**Calbration Due Date**	:	05-May-11

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	290	Kelvin	**Pressure, P_a**	1019	mmHg

Orifice Transfer Standard Information					
Equipment No.	**EL086**	**Slope, m_c**	2.00300	**Intercept, bc**	-0.00500
Last Calibration Date	28-Jun-10	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	28-Jun-11	$= m_c \times Q_{std} + b_c$			

Calibration of RSP

Calibration Point	**Manometer Reading H (inches of water)** (up)	(down)	(difference)	**Q_{std}** (m^3 / min.) **X-axis**	**Continuous Flow Recorder, W** (CFM)	**IC** $(W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31)$ **Y-axis**
1	6.3	6.2	12.5	1.7968	60	60.9928
2	5.1	5.4	10.5	1.6470	53	53.8770
3	4.6	4.3	8.9	1.5165	47	47.7777
4	2.5	2.4	4.9	1.1259	36	36.5957
5	1.5	1.7	3.2	0.9104	26	26.4302

By Linear Regression of Y on X

Slope, m	=	37.0414	Intercept, b	=	-6.6987
Correlation Coefficient*	=	0.9952			
Calibration Accepted	=	Yes/~~No~~**			

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks :

Calibrated by	:	Derek Lo	**Checked by**	:	Cherry Mak
Date	:	05-Mar-11	**Date**	:	06-Mar-11

Lam Geotechincs Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA1b	**Calbration Date**	:	04-May-11
Equipment no.	:	EL452	**Calbration Due Date**	:	04-Jul-11

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	290	Kelvin	**Pressure, P_a**	1019	mmHg

Orifice Transfer Standard Information					
Equipment No.	**EL086**	**Slope, m_c**	2.00300	**Intercept, bc**	-0.00500
Last Calibration Date	28-Jun-10	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	28-Jun-11	$= m_c \times Q_{std} + b_c$			

Calibration of RSP

Calibration Point	**Manometer Reading H (inches of water)** (up)	(down)	(difference)	**Q_{std}** (m^3 / min.) **X-axis**	**Continuous Flow Recorder, W** (CFM)	**IC** $(W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31)$ **Y-axis**
1	6.4	6.4	12.8	1.8182	62	63.0259
2	5.0	5.0	10.0	1.6074	53	53.8770
3	3.9	3.9	7.8	1.4199	46	46.7611
4	2.5	2.5	5	1.1373	35	35.5791
5	1.6	1.6	3.2	0.9104	25	25.4137

By Linear Regression of Y on X

Slope, m	=	40.9169	Intercept, b	=	-11.4784
Correlation Coefficient*	=	0.9997			
Calibration Accepted	=	Yes/~~No~~**			

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks :

Calibrated by	:	Derek Lo	**Checked by**	:	Cherry Mak
Date	:	04-May-11	**Date**	:	04-May-11

Lam Geotechincs Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA2a	**Calbration Date**	:	29-Apr-11
Equipment no.	:	EL449	**Calbration Due Date**	:	29-Jun-11

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	290	Kelvin	**Pressure, P_a**	1019	mmHg

Orifice Transfer Standard Information					
Equipment No.	**EL086**	**Slope, m_c**	2.00300	**Intercept, bc**	-0.00500
Last Calibration Date	28-Jun-10	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	28-Jun-11	$= m_c \times Q_{std} + b_c$			

Calibration of RSP

Calibration Point	**Manometer Reading H (inches of water)** (up)	(down)	(difference)	**Q_{std}** (m^3 / min.) **X-axis**	**Continuous Flow Recorder, W** (CFM)	**IC** $(W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31)$ **Y-axis**
1	6.5	6.5	13	1.8324	51	51.8439
2	5.3	5.3	10.6	1.6548	45	45.7446
3	4.1	4.1	8.2	1.4558	38	38.6288
4	2.6	2.6	5.2	1.1598	27	27.4468
5	1.7	1.7	3.4	0.9383	15	15.2482

By Linear Regression of Y on X

Slope, m	=	40.1984	Intercept, b	=	-20.8256
Correlation Coefficient*	=	0.9957			
Calibration Accepted	=	Yes/~~No~~**			

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks :

Calibrated by	:	Derek Lo	**Checked by**	:	Cherry Mak
Date	:	29-Apr-11	**Date**	:	29-Apr-11

Lam Geotechincs Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA3a	**Calbration Date**	:	14-Mar-11
Equipment no.	:	EL888	**Calbration Due Date**	:	14-May-11

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	295	Kelvin	**Pressure, P_a**	1009	mmHg

Orifice Transfer Standard Information					
Equipment No.	**EL086**	**Slope, m_c**	2.00300	**Intercept, bc**	-0.00500
Last Calibration Date	28-Jun-10	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	28-Jun-11	$= m_c \times Q_{std} + b_c$			

Calibration of RSP

Calibration Point	**Manometer Reading H (inches of water)** (up)	(down)	(difference)	**Q_{std}** (m^3 / min.) **X-axis**	**Continuous Flow Recorder, W** (CFM)	**IC** $(W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31)$ **Y-axis**
1	5.9	5.9	11.8	1.7225	41	41.1204
2	4.8	4.8	9.6	1.5539	36	36.1057
3	3.6	3.6	7.2	1.3461	33	33.0969
4	2.4	2.4	4.8	1.0995	27	27.0793
5	1.5	1.5	3.0	0.8698	21	21.0617

By Linear Regression of Y on X

Slope, m	=	22.7581	Intercept, b	=	1.6896
Correlation Coefficient*	=	0.9962			
Calibration Accepted	=	Yes/~~No~~**			

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks :

Calibrated by	:	Derek Lo	**Checked by**	:	Cherry Mak
Date	:	14-Mar-11	**Date**	:	14-Mar-11

Lam Geotechincs Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA3a	**Calbration Date**	:	04-May-11
Equipment no.	:	EL888	**Calbration Due Date**	:	04-Jul-11

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	295	Kelvin	**Pressure, P_a**	1009	mmHg

Orifice Transfer Standard Information					
Equipment No.	**EL086**	**Slope, m_c**	2.00300	**Intercept, bc**	-0.00500
Last Calibration Date	28-Jun-10	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	28-Jun-11	$= m_c \times Q_{std} + b_c$			

Calibration of RSP						
Calibration Point	**Manometer Reading H (inches of water)**			**Q_{std}** (m^3 / min.)	**Continuous Flow Recorder, W**	**IC** $(W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31)$
	(up)	(down)	(difference)	**X-axis**	(CFM)	**Y-axis**
1	5.9	5.9	11.8	1.7225	48	48.1410
2	4.7	4.7	9.4	1.5377	42	42.1234
3	3.6	3.6	7.2	1.3461	36	36.1057
4	2.4	2.8	5.2	1.1443	28	28.0822
5	1.6	1.4	3.0	0.8698	14	14.0411

By Linear Regression of Y on X

Slope, m	=	39.5583	Intercept, b	=	-18.6790
Correlation Coefficient*	=	0.9935			
Calibration Accepted	=	Yes/~~No~~**			

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks :

Calibrated by	:	Derek Lo	**Checked by**	:	Cherry Mak
Date	:	04-May-11	**Date**	:	04-May-11

Lam Geotechincs Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA4a	**Calbration Date**	:	11-Mar-11
Equipment no.	:	EL390	**Calbration Due Date**	:	11-May-11

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	293	Kelvin	**Pressure, P_a**	1016	mmHg

Orifice Transfer Standard Information					
Equipment No.	**EL086**	**Slope, m_c**	2.00300	**Intercept, bc**	-0.00500
Last Calibration Date	28-Jun-10	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	28-Jun-11	$= m_c \times Q_{std} + b_c$			

Calibration of RSP

Calibration Point	**Manometer Reading H (inches of water)** (up)	(down)	(difference)	**Q_{std}** (m^3 / min.) **X-axis**	**Continuous Flow Recorder, W** (CFM)	**IC** $(W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31)$ **Y-axis**
1	5.8	5.8	11.6	1.7196	57	57.5608
2	4.7	4.7	9.4	1.5482	50	50.4920
3	3.6	3.6	7.2	1.3553	43	43.4231
4	2.4	2.4	4.8	1.1071	31	31.3050
5	1.4	1.4	2.8	0.8461	21	21.2066

By Linear Regression of Y on X

Slope, m	=	42.0637	Intercept, b	=	-14.5276
Correlation Coefficient*	=	0.9991			
Calibration Accepted	=	Yes/~~No~~**			

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks :

Calibrated by	:	Derek Lo	**Checked by**	:	Cherry Mak
Date	:	11-Mar-11	**Date**	:	11-Mar-11

Lam Geotechincs Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA4a	**Calbration Date**	:	04-May-11
Equipment no.	:	EL390	**Calbration Due Date**	:	04-Jul-11

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	293	Kelvin	**Pressure, P_a**	1016	mmHg

Orifice Transfer Standard Information					
Equipment No.	**EL086**	**Slope, m_c**	2.00300	**Intercept, bc**	-0.00500
Last Calibration Date	28-Jun-10	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	28-Jun-11	$= m_c \times Q_{std} + b_c$			

Calibration of RSP

Calibration Point	**Manometer Reading H (inches of water)** (up)	(down)	(difference)	**Q_{std}** (m^3 / min.) **X-axis**	**Continuous Flow Recorder, W** (CFM)	**IC** $(W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31)$ **Y-axis**
1	6	6	12	1.7490	56	56.5510
2	4.7	4.7	9.4	1.5482	49	49.4821
3	3.7	3.7	7.4	1.3740	42	42.4132
4	2.4	2.4	4.8	1.1071	34	34.3345
5	1.5	1.5	3.0	0.8757	23	23.2263

By Linear Regression of Y on X

Slope, m	=	37.3850	Intercept, b	=	-8.5502
Correlation Coefficient*	=	0.9975			
Calibration Accepted	=	Yes/~~No~~**			

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks :

Calibrated by	:	Derek Lo	**Checked by**	:	Cherry Mak
Date	:	04-May-11	**Date**	:	04-May-11

Lam Geotechincs Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA5a	**Calbration Date**	:	09-Apr-11
Equipment no.	:	EL380	**Calbration Due Date**	:	09-Jun-11

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	290	Kelvin	**Pressure, P_a**	1019	mmHg

Orifice Transfer Standard Information					
Equipment No.	**EL086**	**Slope, m_c**	2.00300	**Intercept, bc**	-0.00500
Last Calibration Date	28-Jun-10	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	28-Jun-11	$= m_c \times Q_{std} + b_c$			

Calibration of RSP						
Calibration Point	**Manometer Reading H (inches of water)**			**Q_{std}** (m^3 / min.) **X-axis**	**Continuous Flow Recorder, W** (CFM)	**IC** $(W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31)$ **Y-axis**
	(up)	(down)	(difference)			
1	5.9	5.9	11.8	1.7459	56	56.9266
2	4.8	4.8	9.6	1.5750	50	50.8273
3	3.7	3.7	7.4	1.3831	44	44.7280
4	2.3	2.3	4.6	1.0910	33	33.5460
5	1.4	1.4	2.8	0.8517	22	22.3640

By Linear Regression of Y on X

Slope, m	=	38.1982	Intercept, b	=	-9.0993
Correlation Coefficient*	=	0.9977			
Calibration Accepted	=	Yes/~~No~~**			

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks :

Calibrated by	:	Derek Lo	**Checked by**	:	Cherry Mak
Date	:	09-Apr-11	**Date**	:	11-Apr-11

Lam Geotechincs Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location	:	CMA6a	**Calbration Date**	:	09-Apr-11
Equipment no.	:	EL448	**Calbration Due Date**	:	09-Jun-11

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition					
Temperature, T_a	290	Kelvin	**Pressure, P_a**	1019	mmHg

Orifice Transfer Standard Information					
Equipment No.	**EL086**	**Slope, m_c**	2.00300	**Intercept, bc**	-0.00500
Last Calibration Date	28-Jun-10	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	28-Jun-11	$= m_c \times Q_{std} + b_c$			

Calibration of RSP						
Calibration Point	**Manometer Reading H (inches of water)**			**Q_{std}** (m^3 / min.) **X-axis**	**Continuous Flow Recorder, W** (CFM)	**IC** $(W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31)$ **Y-axis**
	(up)	(down)	(difference)			
1	5.9	5.9	11.8	1.7459	56	56.9266
2	4.8	4.8	9.6	1.5750	50	50.8273
3	3.7	3.7	7.4	1.3831	44	44.7280
4	2.3	2.3	4.6	1.0910	33	33.5460
5	1.4	1.4	2.8	0.8517	22	22.3640

By Linear Regression of Y on X

Slope, m	=	38.1982	Intercept, b	=	-9.0993
Correlation Coefficient*	=	0.9977			
Calibration Accepted	=	Yes/~~No~~**			

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks :

Calibrated by	:	Derek Lo	**Checked by**	:	Cherry Mak
Date	:	09-Apr-11	**Date**	:	11-Apr-11