Calculation Example

Load Increment, P1	= 590 lb.
	= 0.295 tons
Tip Reading	= 35.2 mV
Tip Area, A= 15cm^2	= 0.0161 sq. ft.
Tip Pressure	= P1/A = 0.295/0.0161
	= 18.32298 tsf
Tip Pressure Per mV	= 18.32298/35.2 mV
	= 0.520539 tsf/mv
Tip Pressure Per Volt	= 0.520539 x 1,000
	= 520.539 tsf/volt
	= 49.847 MPa/Volt
Tip Calibration Valve	~ 50 Mpa/Volt

Temperature Calibration:

Cone Penetrometers are placed in a temperature-controlled enclosure and zero readings recorded in mV at intervals between 30 degrees (F) and 115 degees (F). Temperatures and zero readings (mV) are entered into the **Calibration Verification Certificate** software which calculates the deviation between the maximum and minimum zero readings (mV) for the tip friction and pore pressure channels.

Data Recording

During the cone penetration test, the calibration numbers are automatically recorded in CPT test data files along with the following information (See attached CPT test data file, 6710.DEP):

Date of CPT test
Starting time of test
Project Number
CPT test number
Operator name
Elevation, starting depth, water depth
Cone serial number
Number of cone channels (3)
- Tip calibration (50 MPa)
- Friction calibration (0.5 MPa)
- Pore Pressure Calibration (2.5 MPa)
- Slope calibration (525)

Initial baseline (zero) readings for depth, tip, friction, pore pressure and slope.

Seismograph

Seismic data was collected using an ES-300 seismograph manufactured by Geometrics, Inc. The accuracy of the time readings of this instrument was verified before and after field work utilizing following A2LA and/or ANSI/NCSL approved verification systems.

Function Generator:	Oscilliscope with built function generator.
Manufactured by:	EZ Digital, Inc.
Model number:	OS-5020G
Serial number:	3080209
Calibrated by:	Transcat Calibration Services (ANSI/NCSL approved)

Calibration date:	February 28, 2007
Frequency Counter, 120 MHz, 1 Channel	
Manufactured by:	Insetek God Will Instruments
Model number:	GFC – 8010H
Serial number:	CF 871549
Calibrated by:	Transcat Calibration Services (A2LA/NCSL approved)
Calibration date:	February 28, 2007

Seismograph Verification Methodology

The function generator was connected to the input of the seismograph and frequency counter. Sine wave signals were generated at 10 Hz intervals from 10-100 Hz. The seismograph was manually triggered for each frequency and the data stored in standard seg2 seismic data format files, one frequency per file. Each file was opened with SeisImager software and converted to the frequency domain. The input and seismograph frequencies were entered into **Calibration Verification Certificate** software (See attached **Calibration Verification Certificate**).

Fugro appreciates the opportunity to submit our calibration verification report for your review. If you have any questions, or if we can be of further assistance, please do not hesitate to contact us.

Very truly yours,
FUGRO CONSULTANTS, INC.

Recep Yilmaz
Senior Vice President

RY/jm

1 CD Enclosed

CALIBRATION CERTIFICATES

TRANSCAT® CALIBRATION SERVICES

NVLAP®

NVLAP LAB CODE
200730-0

CERTIFICATE OF CALIBRATION

Customer: FUGRO CONSULTANTS LP
6100 HILLCROFT
HOUSTON, TX 77081

Customer Nbr: 1-525293-000

Cert/RA Nbr: 5-V2023-1-1
Manufacturer: EZ Digital, Inc
Description: OSCILLOSCOPE
Model Nbr: OS-5020G
Serial Nbr: 3080209
ID Nbr:
PO Nbr: D111

Date Received: Feb 28, 2007
Date Calibrated: Feb 28, 2007
Next Calibration: Feb 28, 2008
Calibration Proc: 1-AC10468-0
Item Received: Out Of Tolerance
Item Returned: Limited Calibration

For calibration data, see Supplemental Report for RA Nbr 5-V2023-1-1

Temperature: 72°F / 22.2°C **Relative Humidity: 47%**

Transcat Calibration Laboratories have been audited and found in compliance with ISO/IEC 17025:2005. Accredited calibrations performed within the Lab's Scope of Accreditation are indicated by the presence of the Accrediting Body's Logo and Certificate Number on this Certificate of Calibration. Any measurements on an accredited calibration not covered by this Lab's Scope are noted below.

Transcat calibrations, as applicable, are performed in compliance with the requirements of ISO 9001:2000, ISO TS16949, ANSI/NCSL Z540-1994, QS-9000 and ISO 10012-1992. Where specified contractually, the requirements of 10CFR21, 10CFR50 App. B and NQA-1 are also covered.

Transcat will maintain and demonstrate the traceability of all its standards to the National Institute of Standards and Technology (NIST) or the National Research Council of Canada (NRC), or to other recognized national or international standard bodies (NMIs), or to measurable conditions created in our laboratory, or accepted fundamental and/or natural physical constants, ratio type of calibration, or by comparison to consensus standards. The specific path of traceability for the reported measurement results is maintained at the Transcat facility and is available there for review.

Complete records of work performed are maintained by Transcat and are available for inspection. Laboratory standards used in the performance of this calibration are shown below.

The results in this report relate only to the item calibrated or tested, and the determination of in or out of tolerance is specific to the model/serial no. referenced above based on the manufacturer's published specifications.

All calibrations have been performed using processes having a test uncertainty ratio of four or more times greater than the unit calibrated, unless otherwise noted. Uncertainties have been estimated at a 95 percent confidence level (k=2). Calibration at a 4:1 TUR provides reasonable confidence that the instrument is within the manufacturer's published specifications. Limitations on the uses of this instrument are detailed in the manufacturer's operating instructions. Any number of factors can cause a unit to drift out of tolerance at any time following its calibration.

Notes: Limited Calibration: "Limitations on this calibration are: Sweep time is +/- 6%, and Frequency is +/- 10%, approved by (Brent Lawrence, 02/28/2007)." Risetime measurements are calibrated traceable, not accredited.

Assets	Manufacturer	Model	Description	Cal Date	Due Date	Traceability Numbers
5346	Fluke Corporation	5520A-SC1100	Multifunction Cal. w/ Scope Op	03/13/2006	03/31/2007	F3094007
TEMP02	Oakton Instruments	35710-10	RH/Temperature Datalogger	01/25/2007	01/31/2008	6-V10A4-1-1

Calibrated at:
1181 Brittmore
Houston, TX 77043
By: Jimmy Shipley

Facility Responsible:
1181 Brittmore
Houston, TX 77043
713-465-4399

Michael A. Sublett 2/28/07
Michael A. Sublett — Date
Lab Manager

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F0013R19 1/30/2006

To access your calibration records, log on to www.calibrationline.com
For all of your product, repair, and calibration needs, call Transcat at 1.800.828.1470.

TRANSCAT® CALIBRATION SERVICES

SUPPLEMENTAL REPORT FOR 5-V2024-2-1

CALIBRATION LAB DATA AS FOUND / AS LEFT

RA Nbr:	5-V2024-2-1	Mfg:	Instek Good Will Instruments
Description:	Frequency Counter, 120 MHz, 1 Channel	Model:	GFC-8010H
Customer:	FUGRO CONSULTANTS LP	Serial:	CF871549
Calibrated:	Feb 28, 2007	PO Nbr:	D111
Date Due:	Feb 28, 2008	ID Nbr:	NONE
Service Type:	S6	Calibration Proc:	1-AC17352-0

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	OOT	Uncertainty (k=2; ±)	TUR
Frequency Accuracy								
Frequency Accuracy	10.000000 MHz	±(12 PPM Rdg)	9.999880	10.000120	10.000007 MHz		[illegible]	[illegible]
Input Sensitivity								
10 Hz to 10 MHz < (15 mVrms)		[illegible]	P	P	P		[illegible]	[illegible]
10 MHz to 40 MHz < (20 mVrms)		[illegible]	P	P	P		[illegible]	[illegible]
40 MHz to 80 MHz < (35 mVrms)		[illegible]	P	P	P		[illegible]	[illegible]
80 MHz to 120 MHz < (50 mVrms)		[illegible]	P	P	P		[illegible]	[illegible]

When uncertainties are provided, the uncertainty only includes the measurement process and does not include uncertainty contributions of the instrument under test.

Field not applicable.

RA Nbr: 5-V2024-2-1

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CALIBRATION SERVICES • TEST & MEASUREMENT INSTRUMENTS

PICK LIST 16:05:11 02/28/07
PL Run 852503

01V202300

1181 BRITTMOORE
SUITE 600
HOUSTON TX 77043

Ship To: FUGRO CONSULTANTS LP
6100 HILLCROFT
HOUSTON TX 77081

Order 02/27/07
3/09/07
DSNYDER MSUBLETT

Co/Cust	P.O. No	Order No	Ship Via	WH
01/0000525293	D111	V2023/00	UPS GROUND	05

Item Number/Description	Ordered	Shipped	B/O	U/M	Loc Seq
Contact BRENT LAWRENCE			7133695400		
Carrier: UPS GROUND					
001 ED1801-6	1.000	1.000	.000	EA	BELOW
Cal&Data-EZ Digital, Inc Mdl:OS -5020G,OSCILLOSCOPE					
LOC: ZZ.99.99					
S/N:3080209 UNIT ID:					
1 YEAR CALIBRATION INTERVAL					
TURNAROUND TIME - 7 BUSINESS DAYS AFTER RECEIPT OF ORDER					
Thank you!! Denise Snyder 800-828-1470 x 9505					
Fax: 800-395-0543 E-Mail: dsnyder@transcat.com					

* COMPLETE *

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PICK

TRANSCAT® CALIBRATION SERVICES

NVLAP®

NVLAP LAB CODE
200730-0

CERTIFICATE OF CALIBRATION

Customer: FUGRO CONSULTANTS LP
6100 HILLCROFT
HOUSTON. TX 77081

Customer Nbr: 1-525293-000

Cert/RA Nbr: 5-V2024-2-1
Manufacturer: Instek Good Will Instruments
Description: Frequency Counter, 120 MHz, 1 Channel
Model Nbr: GFC-8010H
Serial Nbr: CF871549
ID Nbr: NONE
PO Nbr: D111

Date Received: Feb 27, 2007
Date Calibrated: Feb 28, 2007
Next Calibration: Feb 28, 2008
Calibration Proc: 1-AC17352-0
Item Received: In Tolerance
Item Returned: In Tolerance

For calibration data, see Supplemental Report for RA Nbr 5-V2024-2-1

Temperature: 72°F / 22.2°C **Relative Humidity: 47%**

Transcat Calibration Laboratories have been audited and found in compliance with ISO/IEC 17025:2005. Accredited calibrations performed within the Lab's Scope of Accreditation are indicated by the presence of the Accrediting Body's Logo and Certificate Number on this Certificate of Calibration. Any measurements or accredited calibrations not covered by that Lab's Scope are noted below.

Transcat calibrations, as applicable, are performed in compliance with the requirements of ISO 9001:2000, ISO TS16949, ANSI/NCSL Z540-1994, QS-9000 and ISO 10012-1992. When specified contractually, the requirements of 10CFR31, 10CFR50 App. B and NQA-1 are also covered.

Transcat will maintain and document the traceability of all its standards to the National Institute of Standards and Technology (NIST) or the National Research Council of Canada (NRC), or to other recognized national or international standard bodies (NMIs), or to measurable conditions created in our laboratory, or accepted fundamental and/or natural physical constants, ratio type of calibration, or by comparison to consensus standards. The specific path of traceability for the reported measurement results is maintained at the Transcat facility and is available there for review.

Complete records of work performed are maintained by Transcat and are available for inspection. Laboratory standards used in the performance of this calibration are shown below.

The results in this report relate only to the item calibrated or tested, and the determination of in or out of tolerance is specific to the model/serial no. referenced above based on the manufacturer's published specifications.

All calibrations have been performed using processes having a test uncertainty ratio of four or more times greater than the unit calibrated, unless otherwise noted. Uncertainties have been estimated at a 95 percent confidence level (k=2). Calibration as a 4:1 TUR provides reasonable confidence that the instrument is within the manufacturer's published specifications. Limitations on the use of this instrument are detailed in the manufacturer's operating instructions. Any number of factors can cause a unit to drift out of tolerance at any time following its calibration.

Notes:

Assets	Manufacturer	Model	Description	Cal Date	Due Date	Traceability Numbers
5219	Agilent/HP/Agilent Tech	8902A	Measuring Receiver	11/20/2006	11/30/2007	1-496265449-1
5346	Fluke Corporation	5520A-SC1100	Multifunction Cal. w/ Scope Op	03/13/2006	03/31/2007	F3094007
J568	Agilent/HP/Agilent Tech	11722A	Sensor Module, 100k-2.6GHz	03/30/2006	03/31/2007	1-270725701-1
TEMP02	Oakton Instruments	35710-10	RH/Temperature Datalogger	01/25/2007	01/31/2008	6-V10A4-1-1

Calibrated at:
1181 Brittmore
Houston, TX 77043
By: Jimmy Shipley

Facility Responsible:
1181 Brittmore
Houston, TX 77043
713-465-4399

Michael A. Subtett — 2/29/08
Michael A. Subtett Date
Lab Manager

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F0013R19 1/30/2006

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For all of your product, repair, and calibration needs, call Transcat at 1.800.828.1470.

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PAGE 1
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01V202400

35 VANTAGE POINT DR
ROCHESTER NY 14624

Ship To: FUGRO CONSULTANTS LP
6100 HILLCROFT
HOUSTON TX 77081

Order 02/27/07
3/02/07
DSNYDER MSUBLETT

Co/Cust	P.O. No	Order No	Ship Via	WH
01/0000525293	D111	V2024/00	DO NOT SHIP	01

Item Number/Description	Ordered	Shipped	B/O	U/M	Loc Seq
Contact BRENT LAWRENCE 7133695400					
Carrier: DO NOT SHIP					
001. GFC8010H	1.000	1.000	.000	EA	BELOW
FREQUENCY COUNTER 120MHZ					
LOC: T ,14.05					
002. ERP016	1.000	1.000	.000	EA	BELOW
Cal&Data-Instek Good Will Instruments Mdl:GFC-8010H,FREQUENCY					
LOC: OS.01.01					
********* PLEASE SHIP TO HOUSTON LAB UPS RED EARLY AM					
MIKE SUBLETT WILL CALIBRATE TOMORROW 2/28/07					
1 YEAR CALIBRATION INTERVAL					

* COMPLETE *

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PICK

THE AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

INTERFACE, INC.

Scottsdale, AZ

for technical competence in the field of **Calibration**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and any additional program requirements in the field of calibration. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 18 June 2005*).

Presented this 18th day of October 2006.

President
For the Accreditation Council
Certificate Number 1991.01
Valid to November 30, 2008

For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.

American Association for Laboratory Accreditation

SCOPE OF ACCREDITATION TO ISO 17025:2005
& ANSI/NCSL Z540-1-1994

INTERFACE, INC.
7401 E. Butherus Drive
Scottsdale, AZ 85260
LaVar Clegg Phone: 480 948 5555 ext 106

CALIBRATION

Valid To: November 30, 2008 Certificate Number: 1991.01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following calibrations[1]:

I. Mechanical

Parameter/Equipment	Range	Best Uncertainty[2] (±)	Comments
Force – Load Cells, Force Transducers	(200 to 240 000) lbf (100 to 1100) lbf (240 000 to 1 000 000) lbf	0.035 % reading 0.050 % reading 0.041 % reading	Load cells
	(1 to 500) lbf	0.040 % reading	Free weights
	(25 to 1100) lbf	0.030 % reading	Actuated weights
	(10 to 550) lbf	0.021 % reading	Actuated weights (stainless steel)
	(25 to 2000) gf	0.030 % reading	Free weights
Mass – Measure			Transfer method using load cells
Dead Weight	(1 to 25) lb (25 to 100) lb	0.0032 % 0.0085 %	

5301 Buckeystown Pike, Suite 350 • Frederick, MD 21704-8373 • Phone: 301-644 3248 • Fax: 301-662 2974

II. Electrical – DC & Low Frequency

Parameter/Equipment	Range	Best Uncertainty[2] (±)	Comments
DC Voltage – Measure	(0 to 0.14) V (0.14 to 1.4) V (1.4 to 14) V (14 to 140) V	0.0026 % + 0.2 µV 0.0024 % + 2 µV 0.0022 % + 20 µV 0.0022 % + 200 µV	Solartron 7071
DC Voltage Ratio	(0 to 0.1) V	0.0007 % rdg + 0.1 $\mu V/V_{nr}$	Kelvin-Varley divider
Resistance – Measure	(0 to 1.4) kΩ (0.14 to 1.4) kΩ (1.4 to 14) kΩ (14 to 140) kΩ (140 to 1400) kΩ	0.0026 % + 0.2 mΩ 0.0026 % + 2 mΩ 0.0026 % + 20 mΩ 0.0028 % + 0.2 Ω 0.0036 % + 2 Ω	Solartron 7071

[1] This laboratory offers commercial calibration service.

[2] "Best Uncertainty" is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards of nearly ideal measuring equipment. Best uncertainties represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The best uncertainty of a specific calibration performed by the laboratory may be greater than the best uncertainty due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

Rosanne M. Robinson

ACCREDITED
CALIBRATION CERTIFICATE 1991.01

interface
ADVANCED FORCE MEASUREMENT

LOAD CELL-INDICATOR SYSTEM CALIBRATION CERTIFICATE

Customer : FUGRO GEOSCIENCES,INC.
Address : Houston, TX 77074
Condition : AS FOUND & FINAL
Load Cell Model: 1211EX-10K-B
Capacity : 10000 lbf
Indicator Model: INTERFACE 9820-000-1
Excitation : 10 VDC

S.O. # : 71644

Procedure: C-1761
P.O. # : CREDIT CARD
Serial : 113655

Serial : M2635
Count-By : 1

TEST CONDITIONS

TEMPERATURE: 75 °F HUMIDITY: 30 %

TRACEABILITY

FORCE STANDARD : STD-18 NIST #: 822/273975-06 DUE: 15-SEP-09
STANDARD INDICATOR: BRD106 NIST #: 496182

SHUNT CALIBRATION

	Shunt KOhm	Reading		Connections
Tension		N/A	lbf	
Compression	30.1	6779	lbf	Internal

PERFORMANCE

TEST LOAD (lbf)	RECORDED READINGS lbf Tension	Compression
0		0
2000		1998
4000		3997
6000		5997
8000		7999
10000		10000
4000		4001
0		0

Interface, Inc. certifies that force measurements are traceable to primary standards at NIST. Calibration performed per Interface QA program and the requirements of ISO/IEC 17025, Mil STD-45662A & ANSI/NCSL Z540.1-1994. Estimated measurement uncertainty is 0.040% RDG, expressed as the expanded uncertainty at 95% confidence level using a coverage factor of k=2. Results relate to above serial numbers only.
DO NOT REPRODUCE THIS REPORT except in full or with Interface Inc. written approval

TECHNICIAN : Josh Smith DATE :09-MAR-07

INTERFACE INC.
7401 EAST BUTHERUS DRIVE · SCOTTSDALE, ARIZONA 85260, U.S.A.
TELEPHONE (480)948-5555 · FAX (480)948-1924

F16-1070-1206

CERTIFICATE OF CALIBRATION

Certificate Number M503691-1

Manufacturer: **Geotac**
Model No: **560K**
Customer PO No.: **L-2416**

Description: **Load Cell**
Serial No: **129739**
Customer Asset No.: **129739**

Customer:
Fugro Consultants LP
6100 Hillcroft
Houston, TX 77081

Location of Calibration:
Applied Technical Services, Inc.
1049 Triad Court
Marietta, GA 30062

Calibration Procedure: **ATS-521 Rev. 5: Calibration of Force Gages**

Date of Calibration: **November 28, 2006**
Temperature: **70° F**
Condition Received: **As Found Data Only**

*Next Calibration Due: **November 28, 2007**
Humidity: **29 %**
Condition Returned: **As Found Data Only**

This instrument has been calibrated using primary or secondary standards whose calibration is traceable to the International System of Units (SI) through the National Institute of Standards and Technology (NIST). Some measurements are traceable to natural physical constants, consensus standards or ratio type measurements.

The reported expanded measurement uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a confidence level of approximately 95%. ATS maintains, wherever possible, at least a 4:1 Test Uncertainty Ratio. Statements of compliance, where applicable, are based on test results falling within specified limits with no reduction by the uncertainty of the measurement, unless otherwise allowed by procedure.

All calibrations are performed in accordance with the ATS Quality Manual QM1, Rev. 7 dated July 7, 2006. Applied Technical Services, Inc.'s Quality System complies with the applicable requirements of ANSI/NCSL Z540-1, ISO 9001-2000, 10CFR 50 Appendix B, 10CFR Part 21 and ISO/IEC 17025. ATS is an ISO/IEC 17025 Accredited Calibration Laboratory through A2LA.

The reported data is valid only at the time of the test and related only to the item calibrated. *Calibration due dates appearing on this Certificate of Calibration and calibration label are determined by the client and do not imply continued conformance to specifications.

This certificate shall not be reproduced except in full, without the permission of Applied Technical Services, Inc.

Notes: *Gage Factor = -2.1826mV/V*

Calibration Equipment Used::

Model: **Tinius Olsen Super L** Desc.: **Universal Testing Machine** ID No.: **ATS-01226** Cal Due Date: **2/11/2007**

Calibrated by: _____ Christopher A. Gerlach
Senior Calibration Technician

APPLIED TECHNICAL SERVICES, INCORPORATED

CALIBRATION DATA SHEET

Customer: Fugro Consultants Purchase Order No.: L-2416

Item Name: Load Cell w/o Display Asset No.: 129739 ATS Reference No.: M503691-1

Manufacturer: GeoTac Model No.: 50Klbs Proc. No.: 521 Rev.: 5

Serial No.: 129739 Calibration Date: 11/28/06 Calibration Due Date: 11/28/07

Reason For Service: ☒ Initial Calibration ☐ Due For Calibration ☐ Repair and Calibration

Equipment Used:		Due:		
	ATS-01226	Due:	02/11/07	Universal Testing Machine
		Due:		
		Due:		
		Due:		
		Due:		
		Due:		

Calibrated By: CLyCH

Customer Instrument Under Test

UNCERTAINTY (SEE NOTE) g	RANGE Lbs	ATS STANDARD Lbs	TOLERANCE Lbs	AS FOUND READING mV	AS CALIBRATED READING Lbs
0.03%	50000	(Comp.) 5000.000	As Found Data Only	-2.176	Same as - As Found
0.03%		10000.000	As Found Data Only	-4.358	Same as - As Found
0.03%		20000.000	As Found Data Only	-8.722	Same as - As Found
0.03%		30000.000	As Found Data Only	-13.092	Same as - As Found
0.03%		40000.000	As Found Data Only	-17.479	Same as - As Found
0.03%		50000.000	As Found Data Only	-21.826	Same as - As Found
Excitation (Before)	10.0000VDC				
Excitation (After)	10.0000VDC				
Zero (Before)	0.000				
Zero (After)	0.000				
Gage Factor	-2.1826mV/V				

* Indicates out of tolerance readings.

Remarks: Measurement Uncertainty reported at coverage factor K = 2 or 95% confidence level.

A= + Excitation B= -Excitation C= + Output D= -Output

ACCREDITED CALIBRATION CERTIFICATE 1991.01

interface
ADVANCED FORCE MEASUREMENT

LOAD CELL CALIBRATION CERTIFICATION

CUSTOMER : FUGRO CONSULTANTS INC.
ADDRESS : Houston,TX 77081
CONDITION: AS FOUND & FINAL S.O. #: 78664 P.O. #: L-2563
MODEL: FT451-50K SERIAL: 129739 BRIDGE: A CAPACITY: 50 Klbf
PROCEDURE: C-1257

INPUT RESISTANCE: 376.3 OHM OUTPUT RESISTANCE: 354.7 OHM
ZERO BALANCE : 0.166 %RO

TEST CONDITIONS

TEMPERATURE: 74 °F HUMIDITY: 30 % EXCITATION: 10 VDC

TRACEABILITY

FORCE STANDARD : STD-14 NIST #: 822/273338-06 DUE: 15-MAR-10
STANDARD INDICATOR: BRD295 NIST #: 512727
TEST INDICATOR : BRD297 NIST #: 512727

SHUNT CALIBRATION

	Shunt (± 0.01%)	Output	Straight Line Conversion	Connections*
Tension	Kohm	.00000 mV/V	.0000 Klbf	
Compression	60 Kohm	-1.46285 mV/V	33.650 Klbf	-Out to +Exc

*For models wired with +Sense, -Sense, or -SCal leads, resistor connections are actually to these leads in place of +Exc, -Exc, or -Out respectively.

PERFORMANCE

	RATED OUTPUT	SEB OUTPUT	NONLINEARITY	HYSTERESIS		SEB
TENSION	.00000 mV/V	.00000 mV/V	.000 %FS	.000 %FS	±	.000 %FS
COMPRESSION	-2.17387 mV/V	-2.17364 mV/V	-.027 %FS	.045 %FS	±	.022 %FS

STATIC ERROR BAND (SEB) - The band of maximum deviations of the ascending and descending calibration points from a best fit straight line through zero OUTPUT. It includes the effects of NONLINEARITY, HYSTERESIS, and nonreturn to MINIMUM LOAD.

TEST LOAD APPLIED (Klbf)	RECORDED READINGS (mV/V) Tension	Compression
0		.00000
10		-.43434
20		-.86897
30		-1.30378
40		-1.73876
50		-2.17387
20		-.86994
0		-.00018

Interface, Inc. certifies that force measurements are traceable to primary standards at NIST. Calibration performed per Interface QA program and the requirements of ISO/IEC 17025, MIL-STD-45662A & ANSI/NCSL Z540-1-1994. Estimated measurement uncertainty is 0.04%, expressed as the expanded uncertainty at 95% confidence level using a coverage factor of k=2. Results relate to load cell serial 129739 only.

DO NOT REPRODUCE THIS REPORT except in full, or with Interface Inc. written approval.

TECHNICIAN : Josh Smith DATE :14-MAR-08

INTERFACE INC.
7401 EAST BUTHERUS DRIVE · SCOTTSDALE, ARIZONA 85260, U.S.A.
TELEPHONE (480)948-5555 · FAX (480)948-1924

F16-40-1206

ACCREDITED CALIBRATION CERTIFICATE 1991.01

interface
ADVANCED FORCE MEASUREMENT

LOAD CELL CALIBRATION CERTIFICATION

CUSTOMER : FUGRO CONSULTANTS INC.
ADDRESS : Houston,TX 77081
CONDITION: FINAL S.O. #: 78664 P.O. #: L-2563
MODEL: FT451-50K SERIAL: 129739 BRIDGE: A CAPACITY: 12.5 Klbf
PROCEDURE: C-1257

INPUT RESISTANCE: 374.7 OHM OUTPUT RESISTANCE: 353.0 OHM
ZERO BALANCE : -0.386 %RO

TEST CONDITIONS

TEMPERATURE: 75 °F HUMIDITY: 30 % EXCITATION: 10 VDC

TRACEABILITY

FORCE STANDARD : STD-22 NIST #: 822/275431-07 DUE: 15-SEP-11
STANDARD INDICATOR: BRD106 NIST #: 512727
TEST INDICATOR : BRD300 NIST #: 512727

SHUNT CALIBRATION

	Shunt (± 0.01%)	Output	Straight Line Conversion	Connections*
Tension	60 Kohm	1.46154 mV/V	33.590 Klbf	-Out to -Exc
Compression	Kohm	.00000 mV/V	.0000 Klbf	

*For models wired with +Sense, -Sense, or -SCal leads, resistor connections are actually to these leads in place of +Exc, -Exc, or -Out respectively.

PERFORMANCE

	RATED OUTPUT	SEB OUTPUT	NONLINEARITY	HYSTERESIS		SEB
TENSION	.54411 mV/V	.54388 mV/V	-.073 %FS	.066 %FS	±	.044 %FS
COMPRESSION	.00000 mV/V	.00000 mV/V	.000 %FS	.000 %FS	±	.000 %FS

STATIC ERROR BAND (SEB) - The band of maximum deviations of the ascending and descending calibration points from a best fit straight line through zero OUTPUT. It includes the effects of NONLINEARITY, HYSTERESIS, and nonreturn to MINIMUM LOAD.

TEST LOAD APPLIED (Klbf)	RECORDED READINGS (mV/V) Tension	Compression
0.0	.00000	
2.5	.10868	
5.0	.21743	
7.5	.32609	
10.0	.43489	
12.5	.54411	
5.0	.21779	
0.0	.00026	

Interface, Inc. certifies that force measurements are traceable to primary standards at NIST. Calibration performed per Interface QA program and the requirements of ISO/IEC 17025, MIL-STD-45662A & ANSI/NCSL Z540-1-1994. Estimated measurement uncertainty is 0.040%, expressed as the expanded uncertainty at 95% confidence level using a coverage factor of k=2. Results relate to load cell serial 129739 only.
DO NOT REPRODUCE THIS REPORT except in full or with Interface Inc. written approval

TECHNICIAN : Josh Smith DATE :14-MAR-08

INTERFACE INC.
7401 EAST BUTHERUS DRIVE · SCOTTSDALE, ARIZONA 85260, U.S.A.
TELEPHONE (480)948-5555 · FAX (480)948-1924

F16-AD-1206

GE Infrastructure
Sensing

Calibration Report 060915A0813

Digital Pressure Indicator

for

Fugro Consultants LP

6100 Hillcroft
Houston, TX 77081

Date of Issue: September 15, 2006

Manufacturer: Eaton
Sales Order: 216724

Model Number: UPS3000CC
Serial Number: A0813
ID Number: XPE-001

Preceding the calibration, the elastic element of this gauge was exercised and zero was adjusted. The horizontal plane of reference for pressure measurement is at the centerline of the test port.

The calibration and traceability of the transfer standards used in this calibration are maintained according to Quality Manual (QMS-001) Revision R (12/14/2005). The measurement results are traceable through an unbroken chain of comparisons to reference standards developed and maintained by the National Institute of Standards and Technology. The uncertainty reported with the data is the expanded uncertainty, and is based on the standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

This calibration was performed at the GE Infrastructure Sensing Houston facility. At the time of the calibration, the environmental conditions were 21 °C, 60%RH, and 101 kPa. The best estimate of gravitational acceleration at the site of calibration was 9.792778 m/s².

The calibration procedure CS-125 Revision D satisfies the requirements of ANSI/NCSL Z540-1-1994, ISO 9001, ISO/IEC 17025:1999 (E), NIST Handbook 150, and MIL-STD-45662A.

This report shall not be reproduced, except in full, without the written permission of the issuing laboratory.

Approved by: Sharon R. Ellis
Calibration Technician

Calibrated by: Joseph P. Balliew
Calibration Technician

General Electric Company
10311 Westpark Drive
Houston, TX 77042
USA

T 713 975 0547
F 713 975 6338

GE Infrastructure
Sensing

Calibration Report 060915A0813

Digital Pressure Indicator

for

Fugro Consultants LP

6100 Hillcroft
Houston, TX 77081

Date of Issue: September 15, 2006

Full Scale: 250 psi gauge

As Found Calibration Data

Calibration Date: September 15, 2006

Calibration Standard: PC-89, WS-12, and WS-27

Medium: nitrogen

Applied psi	Uncertainty psi	Displayed psi
0.00	0.0E+00	0.00
124.6680	1.4E-03	124.70
249.579	2.7E-03	249.65
124.6680	1.4E-03	124.65
0.00	0.0E+00	0.05

Note: The instrument was not adjusted prior to the above data being recorded. An asterisk denotes a point that is out of tolerance.

General Electric Company
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Houston, TX 77042
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GE Infrastructure
Sensing

Calibration Report 060915A0813

Digital Pressure Indicator

for

Fugro Consultants LP

6100 Hillcroft
Houston, TX 77081

Date of Issue: September 15, 2006

Full Scale: 100 psi gauge

As Found Calibration Data

Calibration Date: September 15, 2006

Calibration Standard: PC-67, WS-12, and WS-27

Medium: nitrogen

Applied psi	Uncertainty psi	Displayed psi
0.00	0.0E+00	0.00
49.8390	5.0E-04	49.80
99.9320	1.0E-03	99.88
49.8400	5.0E-04	49.76
0.00	0.0E+00	0.00

Note: The instrument was not adjusted prior to the above data being recorded. An asterisk denotes a point that is out of tolerance.

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10311 Westpark Drive
Houston, TX 77042
USA

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F 713 975 6338

GE Infrastructure
Sensing

Calibration Report 060915A0813

Digital Pressure Indicator

for

Fugro Consultants LP

6100 Hillcroft
Houston, TX 77081

Date of Issue: September 15, 2006

Full Scale: 500 psi gauge

As Found / As Left Calibration Data

Calibration Date: September 15, 2006

Calibration Standard: PC-89, and ,WS-12

Medium: nitrogen

Applied psi	Uncertainty psi	Displayed psi
0.0	0.0E+00	0.0
124.6700	1.4E-03	124.7
249.580	2.7E-03	249.6
374.330	4.1E-03	374.4
499.070	5.5E-03	499.2
249.580	2.7E-03	249.6
0.0	0.0E+00	0.1

Notes: The instrument was not adjusted.

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GE Infrastructure
Sensing

Calibration Report 060915A0813

Digital Pressure Indicator

for

Fugro Consultants LP

6100 Hillcroft
Houston, TX 77081

Date of Issue: September 15, 2006

Full Scale: 250 psi gauge

As Left Calibration Data

Calibration Date: September 15, 2006

Calibration Standard: PC-89, WS-12, and WS-27

Medium: nitrogen

Applied psi	Uncertainty psi	Displayed psi
0.00	0.0E+00	0.00
61.7960	6.8E-04	61.80
124.6680	1.4E-03	124.65
186.5430	2.1E-03	186.55
249.579	2.7E-03	249.60
124.6680	1.4E-03	124.65
0.00	0.0E+00	0.00

Notes: The instrument was adjusted prior to recording the above data.

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GE Infrastructure
Sensing

Calibration Report 060915A0813

Digital Pressure Indicator

for

Fugro Consultants LP

6100 Hillcroft
Houston, TX 77081

Date of Issue: September 15, 2006

Full Scale: 100 psi gauge

As Left Calibration Data

Calibration Date: September 15, 2006

Calibration Standard: PC-67, WS-12, and WS-27

Medium: nitrogen

Applied psi	Uncertainty psi	Displayed psi
0.00	0.0E+00	0.00
24.86100	2.5E-04	24.84
49.8390	5.0E-04	49.84
74.9860	7.5E-04	74.98
99.9310	1.0E-03	99.96
49.8390	5.0E-04	49.82
0.00	0.0E+00	0.00

Notes: The instrument was adjusted prior to recording the above data.

General Electric Company
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USA

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NVLAP® **National Voluntary Laboratory Accreditation Program**

SCOPE OF ACCREDITATION TO ISO/IEC 17025:1999

GE Infrastructure Sensing
10311 Westpark Drive
Houston, TX 77042-5312
Mr. Kenneth A. Kolb
Phone: 713-975-0547 Fax: 713-975-6338
E-mail: kenneth.kolb@ge.com
URL: http://www.gesening.com

CALIBRATION LABORATORIES **NVLAP LAB CODE 200491-0**

NVLAP Code: 20/A01 ANSI/NCSL Z540-1-1994; Part 1 Compliant

MECHANICAL

NVLAP Code: 20/M08
Mass

Calibration of Primary Piston Gauge Masses

Range	*Best Uncertainty (±) Relative to Indicated Value* [note 1]	*Remarks*
1 mg to 17 kg	5.0×10^{-6} but not less than 0.5 mg	Substitution – Mechanical
1 mg to 1.2 kg	5.0×10^{-6} but not less than 0.5 mg	Substitution – Electronic

Calibration of Secondary Piston Gauge Masses

1 mg to 8.0 kg	2.0×10^{-5} but not less than 0.5 mg	Substitution – Electronic
1 mg to 1.2 kg	2.0×10^{-5} but not less than 0.5 mg	Direct Reading - Electronic
1.2 kg to 8 kg	2.0×10^{-5} but not less than 43 mg	Direct Reading – Electronic

2006-01-01 through 2006-12-31

Effective dates

For the National Institute of Standards and Technology

CALIBRATION LABORATORIES **NVLAP LAB CODE 200491-0**

THERMODYNAMICS

NVLAP Code: 20/T05
Pressure

Pneumatic Pressure using Primary Piston Gauge [note 2]

Range	*Best Uncertainty (±) of Reading* [note 1]	*Remarks*
-100 kPa to -1.38 kPa	1.0×10^{-5} but not less than 0.07 Pa	Negative Gauge Mode
-16 kPa to 16 kPa	1.1×10^{-5} but not less than 0.034 Pa	Differential Mode
1.38 kPa to 1.4 MPa	1.0×10^{-5} but not less than 0.07 Pa	Gauge Mode [note 4]
1.4 MPa to 7 MPa	1.1×10^{-5} but not less than 2.8 Pa	Gauge Mode [note 4]
7 MPa to 21 MPa	$1.1 \times 10^{-5} + 1.9 \times 10^{-7}$ per MPa	Gauge Mode
21 MPa to 104 MPa	3.5×10^{-5}	Gauge Mode

Pneumatic Effective Area Determination using Primary Piston Gauge [note 2]

Range	*Best Uncertainty (±) of Reading* [notes 1, 7]	*Remarks*
1.38 kPa to 345 kPa	8.8×10^{-6}	
11.72 kPa to 1.4 MPa	8.3×10^{-6}	
14 kPa to 7 MPa	$1.0 \times 10^{-5} + 2.4 \times 10^{-7}$ per MPa [note 3]	
700 kPa to 21 MPa	$1.0 \times 10^{-5} + 4.8 \times 10^{-7}$ per MPa [note 3]	
1.17 MPa to 104 MPa	3.37×10^{-5}	

Pneumatic Pressure using Precision Transducer [note 2]

Range	*Best Uncertainty (±) of Reading* [note 1]	*Remarks*
0 Pa to 133 Pa	0.133 Pa	Absolute Mode
-16 kPa to 16 kPa	5.0×10^{-5} but not less than 0.035 Pa	Differential Mode
-100 kPa to 17 MPa	6.5×10^{-5} but not less than 0.22 Pa	Gauge Mode [note 5]

2006-01-01 through 2006-12-31

Effective dates

For the National Institute of Standards and Technology

CALIBRATION LABORATORIES **NVLAP LAB CODE 200491-0**

Pneumatic Effective Area Determination using Precision Transducer [note 2]

20 Pa to 17 MPa	7.2×10^{-5} but not less than 0.05 Pa

Pneumatic Deadweight Tester Output Pressure Conformance using Precision Transducer [note 2]

Range	*Best Uncertainty (±) of Reading* [notes 1, 8]	*Remarks*
20 Pa to 17 MPa	7.5×10^{-5} but not less than 0.053 Pa	

Hydraulic Pressure using Primary Piston Gauge [note 2]

Range	*Best Uncertainty (±) of Reading* [notes 1, 6]	*Remarks*
50 kPa to 7 MPa	2.5×10^{-5} but not less than 10 Pa	Gauge Mode
7 MPa to 140 MPa	3.5×10^{-5}	Gauge Mode
14 MPa to 280 MPa	7.5×10^{-5}	Gauge Mode
280 MPa to 500 MPa	1.0×10^{-4}	Gauge Mode

Hydraulic Effective Area Determination using Primary Piston Gauge [note 2]

Range	*Best Uncertainty (±) of Reading* [note 1]	*Remarks*
50 kPa to 7 MPa	2.31×10^{-5}	
7 MPa to 140 MPa	3.34×10^{-5}	
140 MPa to 280 MPa	7.29×10^{-5}	
280 MPa to 500 MPa	9.80×10^{-5}	

Hydraulic Effective Area Determination using Secondary Piston Gauge [note 2]

70 kPa to 140 MPa	7.2×10^{-5}

2006-01-01 through 2006-12-31

Effective dates

For the National Institute of Standards and Technology

NVLAP® **National Voluntary Laboratory Accreditation Program**

CALIBRATION LABORATORIES **NVLAP LAB CODE 200491-0**

Hydraulic Deadweight Tester Output Pressure Conformance using Secondary Piston Gauge [note 2]

70 kPa to 140 MPa	7.5×10^{-5} but not less than 50 Pa

1. Represents an expanded uncertainty using a coverage factor, k = 2, at an approximate level of confidence of 95 %.
2. This capability includes on-site calibration service, as limited by influences of operating environment.
3. Component uncertainties are combined in quadrature.
4. For absolute mode, uncertainties increase by 1.33E + 00 Pa, combined in quadrature with stated level.
5. For absolute mode, uncertainties increase by 1.88E + 00 Pa, combined in quadrature with stated level.
6. For absolute mode, uncertainties increase by 1.31E + 01 Pa, combined in quadrature with stated level.
7. Calibration process may include the use of transducers to measure small differential pressures.
8. Conformance evaluation of Deadweight Tester output pressure compared to indicated pressure.

2006-01-01 through 2006-12-31

Effective dates

For the National Institute of Standards and Technology

TRANSCAT® CALIBRATION SERVICES

NVLAP®

NVLAP LAB CODE
200730-0

CERTIFICATE OF CALIBRATION

Customer: FUGRO CONSULTANTS INC
6100 HILLCROFT
HOUSTON. TX 77081

Customer Nbr: 1-525293-000
PO Nbr: FO200708

Cert/RA Nbr: 5-V8842-1-1
Manufacturer: Cole-Parmer
Model Nbr: 8528-40
Description: Thermometer, Type K

Serial Nbr: C95005824
ID Nbr: TD 001

Date Received: Nov 16, 2007
Date Calibrated: Nov 16, 2007
Next Calibration: Nov 16, 2008
Calibration Proc: 1-AC22434-0
Item Received: In Tolerance
Item Returned: In Tolerance

For calibration data, see Supplemental Report for RA Nbr 5-V8842-1-1

Temperature: 70°F / 21.1°C **Temp/RH Asset: temp02** **Relative Humidity: 33%**

Transcat Calibration Laboratories have been audited and found in compliance with ISO/IEC 17025:2005. Accredited calibrations performed within the Lab's Scope of Accreditation are indicated by the presence of the Accrediting Body's Logo and Certificate Number on this Certificate of Calibration. Any measurements on an accredited calibration not covered by that Lab's Scope are noted below.

Transcat calibrations, as applicable, are performed in compliance with the requirements of ISO 9001:2000, ISO TS16949, ANSI/NCSL Z540-1994, QS-9000 and ISO 10012-1992. When specified contractually, the requirements of 10CFR21, 10CFR50 App. B and NQA-1 are also covered.

Transcat will maintain and document the traceability of all its standards to the National Institute of Standards and Technology (NIST) or the National Research Council of Canada (NRC), or to other recognized national or international standard bodies (NMIs), or to measurable conditions created in our laboratory, or accepted fundamental and/or natural physical constants, ratio type of calibration, or by comparison to consensus standards. The specific path of traceability for the reported measurement results is maintained at the Transcat facility and is available there for review.

Complete records of work performed are maintained by Transcat and are available for inspection. Laboratory standards used in the performance of this calibration are shown below.

The results in this report relate only to the item calibrated or tested, and the determination of in or out of tolerance is specific to the model/serial no. referenced above based on the manufacturer's published specifications.

All calibrations have been performed using processes having a test uncertainty ratio of four or more times greater than the unit calibrated, unless otherwise noted. Uncertainties have been estimated at a 95 percent confidence level (k=2). Calibration at a 4:1 TUR provides reasonable confidence that the instrument is within the manufacturer's published specifications. Limitations on the uses of this instrument are detailed in the manufacturer's operating instructions. Any number of factors can cause a unit to drift out of tolerance at any time following its calibration.

Notes: Unit meets all manufacturers specifications. When using the K type probe with the unit, the readings were: @0.0°C/ 0.1°C @50.0°C/49.8°C @100.0°C/100.2°C

Assets	Manufacturer	Model	Description	Cal Date	Due Date	Traceability Numbers
5072	Fluke Corporation	5500A	Multi-Product Calibrator	5/7/2007	5/31/2008	5-&5072-3-8
5342	Hart Scientific	1502A	Thermometer, SPRT, -200° to 96	8/21/2007	8/31/2008	15-V54VR-1-1
5343	Hart Scientific	5626	Probe, Secondary Reference, PR	8/21/2007	8/31/2008	15-V54VR-1-1
K1TCW-11	Omega Engineering, Inc.	Type-K	Thermocouple Probe, Type-K	6/11/2007	12/31/2099	6-&K1TCW-507-11

Calibrated at:
1181 Brittmore
Houston, TX 77043
By: Thomas M. Laguna

Facility Responsible:
1181 Brittmore
Houston, TX 77043
713-465-4399

Michael A. Sublett
Lab Manager
Date: 11/18/07

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TRANSCAT® CALIBRATION SERVICES

SUPPLEMENTAL REPORT FOR 5-V8842-1-1

CALIBRATION LAB DATA AS FOUND / AS LEFT

RA Nbr:	5-V8842-1-1	Mfg:	Cole-Parmer
Description:	Thermometer, Type K	Model:	8528-40
Customer:	FUGRO CONSULTANTS INC	Serial:	C95005824
Calibrated:	Nov 16, 2007	PO Nbr:	FO200708
Date Due:	Nov 16, 2008	ID Nbr:	TD 001
Service Type:	R6	Calibration Proc:	1-AC22434-0

Description	Setpoints	Accuracy	Low Limit	High Limit	As Found / As Left	OOT	Uncertainty (k=2; ±)	TUR
Temperature Measure								
Type K (ITS90)	-145.0 °C	±(0.25% Rdg + 2 °C)	-147.4	-142.6	-145.2 °C			
	0.0 °C	±(0.25% Rdg + 1 °C)	-1.0	1.0	-0.1 °C			
	450.0 °C	±(0.25% Rdg + 1 °C)	447.9	452.1	450.1 °C			
	900.0 °C	±(0.25% Rdg + 1 °C)	896.7	903.3	900.0 °C			
	1350 °C	±(0.25% Rdg + 1 °C)	1346	1354	1350 °C			
Units Conversion	2462 °F	±(0.25% Rdg + 1.8 °F)	2454	2470	2461 °F			

Remarks:

Unit meets all manufacturers specifications. When using the K type probe with the unit, the readings were: @0.0°C/ 0.1°C @50.0°C/49.8°C @100.0°C/100.2°C

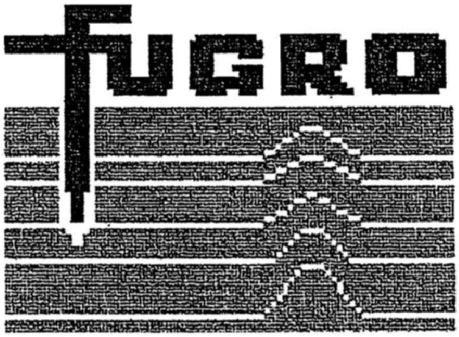
When uncertainties are provided, the uncertainty only includes the measurement process and does not include uncertainty contributions of the instrument under test.

Field not applicable.

QUALITY SYSTEM MANUAL

FOR

HOUSTON GEOTECHNICAL LABORATORY



CONTROL #: GEO-1

Fugro Consultants, Inc.
6100 Hillcroft
Houston, Texas 77081
Phone: (713) 369-5400
Fax: (713) 369-5545

Document Revised: July 07, 2007

CALIBRATION EQUIPMENT OR REFERENCE STANDARDS			
Equipment Name	Calibration Interval	Check Interval	Procedure Used
Digital Micrometer & Mechanical Micrometers	2 years		Outside Source
Force Transducers	1 year		Outside Source
Metal Specimens	Verify Before Use or After Repair		HGL-2005
Pressure Gages	2 years		Outside Source
Set of Gage Blocks	5 years		Outside Source
Thermometers	1 year		Outside Source
Torque Transducers	2 years		Outside Source
Voltmeters/Multimeters (6.5 digit)	3 years		Outside Source

***The term "calibration" is used to maintain consistency with ASTM D 3740. It is taken to mean "verification."**

```
10-02-2007
11:21:31
1907-0067
10
AL
  0.00   0.00   0.00     1
F7.5CKESW1576
3   50.00 0.500   2.500   525.0
    0 -0.00013 -0.00119  0.00013  0.00400 -0.00006
    2 -0.00013 -0.00119  0.00013  0.00400
    4 -0.00013 -0.00119  0.00013  0.00400
    6 -0.00013 -0.00119  0.00013  0.00400
    8  0.01794  0.00013  0.00013  0.00262
   10  0.03737  0.00081  0.00013  0.00244
   12  0.06181  0.00031  0.00013  0.00213
   14  0.08025  0.00050  0.00013  0.00281
   16  0.08677  0.00456  0.00013  0.00269
   18  0.09328  0.01281  0.00019  0.00231
   20  0.09980  0.02656  0.00013  0.00212
   22  0.10631  0.09099  0.00019  0.00244
   24  0.29775  0.15541  0.00038  0.00225
   26  0.48094  0.21983  0.00038  0.00356
   28  0.49413  0.28426  0.00006  0.00400
   30  0.39231  0.34868  0.00019  0.00294
   32  0.37288  0.41310  0.00031  0.00525
   34  0.35475  0.47753  0.00000  0.00538
   36  0.32225  0.54195  0.00000  0.00556
   38  0.31706  0.60637  0.00006  0.00500
   40  0.26138  0.62738  0.00006  0.00594
   42  0.23619  0.62400  0.00013  0.00538
   44  0.21856  0.60164  0.00050  0.00544
   46  0.19506  0.57929  0.00050  0.00575
   48  0.17344  0.53070  0.00019  0.00581
   50  0.15519  0.48211  0.00075  0.00587
   52  0.14296  0.43353  0.00075  0.00500
   54  0.13073  0.38716  0.00013  0.00562
   56  0.11850  0.34079  0.00050  0.00581
   58  0.11916  0.29443  0.00062  0.00588
   60  0.11981  0.24806  0.00044  0.00500
   62  0.12047  0.22700  0.00019  0.00506
   64  0.12294  0.22131  0.00006  0.00519
   66  0.12406  0.20137  0.00006  0.00525
   68  0.12094  0.19737  0.00075  0.00538
   70  0.11187  0.19319  0.00156  0.00556
```

PRE JOB CALIBRATION VERIFICATION