TransCanada Calibrations Ltd.
Box 880
Ile des Chenes, Manitoba, Canada
R0A 0T0
(204) 878-4373

ISO/IEC 17025 Accredited
CLAS Certification No. 2005-04
SCC Accredited Lab No.: 591

Certificate of Calibration

Customer:	Lakeside Process Controls	**Certificate Number:**	3051
	5250 Orbitor Drive	**Work Order:**	08-101-227-01
	Mississauga, ON	**Date of Calibration:**	November 17, 2008
	L4W 5G7	**Units**	Metric
End User:	Enbridge Gas		

Meter Under Test

Type:	Ultrasonic	**Medium:**		Natural Gas
Manufacturer:	Daniel	**Pressure:**	(kPa)	6152.95
Model:	Senior Sonic	**Temperature:**	(°C)	27.35
Serial Number:	08-400217	**Density:**	(kg/m3)	45.35
Meter ID (m)	0.2545	**Compressibility:**		0.90135
Year of Manufacture:	2008	**Direction:**		Unidirectional

Meter Details

CPU Board S/N:	6659	**Pulses/m3:**	3178.32
CPU Software Ver:	1.61	**Meter output tested:**	Frequency

Tag Number:	N/A
Pipe Spool S/N:	N/A
Run Configuration:	UST 1270mm, CPA 50E, UST 2540mm, METER, DST 1120.9mm
Flow Conditioning:	CPA 50E Type A
Flow Conditioner S/N:	17032012
Witness:	None
Comments:	None

Test Method: All calibrations are performed as outlined in TCC calibration procedure GC1-5
The actual flow of the gas meter is established with the aid of standard gas meters, pressure and temperature transmitters. In determination of this flow rate the pressure measurement point noted with Pr, is normatively established.

Results: The measurement results are stated on page 2 of 2. The type A uncertainty in the measurement is based on 2x the standard deviation (2XSTDEV). The total expanded uncertainty (U_{tot}) can be calculated as: $U_{tot}=SQRT[(U_{facility})^2 + (2XSTDEV)^2]$

Traceability: The Calibration Laboratory Assessment Service (CLAS) of the National Research Council of Canada (NRC) has assessed and certified specific calibration capabilities of this laboratory and traceability to the International System of Units (SI) or to standards acceptable to the CLAS program.The flow meter under test was calibrated in comparison with TransCanada Calibrations flow primary standards which are traceable to the SI and to recognized national metrology institutes. This certificate of calibration is issued in accordance with the conditions of certification granted by CLAS and the conditions of accreditation granted by the Standards Council of Canada (SCC). Neither CLAS nor SCC guarantee the accuracy of individual calibrations by accredited laboratories.

Facility Expanded Uncertainty, k=2:	Flow Rate				$U_{facility}$ [% of reading]	
	1,000	to	55,000	m3/h	0.20	%
	200	to	1,000	m3/h	0.24	%
	60	to	200	m3/h	0.30	%

Calibration Date: November 17, 2008 **Tested By:** Jeff Dahlin

Date of Issue: November 17, 2008 **Reviewed:** Wayne Haner

Certificate of Calibration

Certificate Number: 3051
Serial Number: 08-400217

Measurement Results

Qmax = 5583 m3/h
Qmin = 140 m3/h

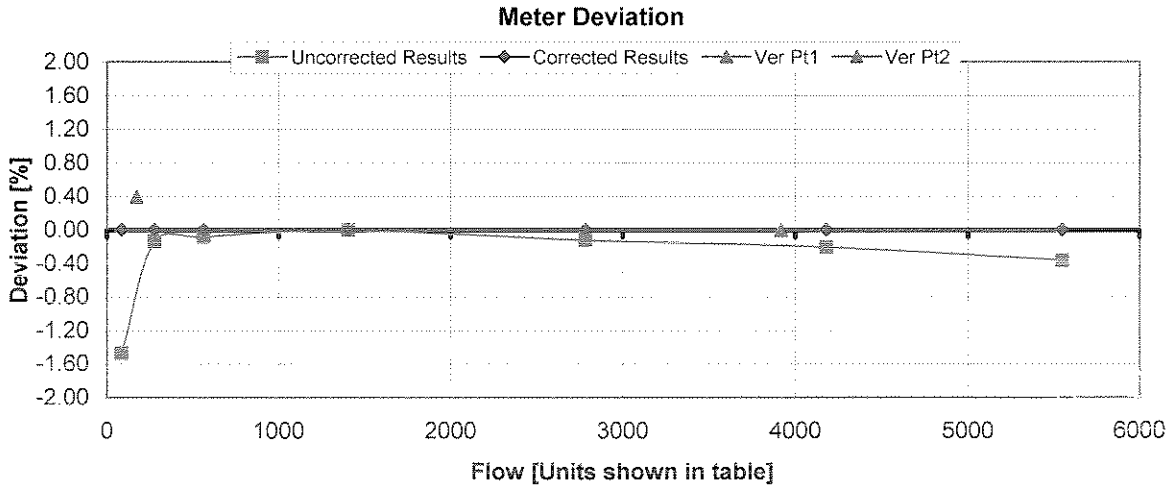
Average Error -0.18
Adjusting N/A

Adjust Fact.(found) 1.0000
Adjust Fact.(left) see table

Uncorrected Results					Corrected Results			
MUT Flow (m3/hr)	Ref. Flow (m3/hr)	Velocity (m/s)	Deviation (%)	2xStDev (%)	Deviation (%)	Adj. Factor	Verification Pt. (%)	
5529.66	5549.81	30.31	-0.36	0.03	0.00	1.0036		
4169.89	4178.55	22.82	-0.21	0.03	0.00	1.0021		
2777.14	2780.58	15.19	-0.12	0.04	0.00	1.0012		
1401.61	1401.64	7.65	0.00	0.05	0.00	1.0000		
565.11	565.58	3.09	-0.08	0.06	0.00	1.0008		
274.32	274.70	1.50	-0.14	0.09	0.00	1.0014		
84.47	85.73	0.47	-1.47	0.22	0.00	1.0149		
172.18	171.51	0.94					0.39	Ver Pt1
3913.72	3914.08	21.38					-0.01	Ver Pt2

MUT is the abreviation for Meter Under Test,
Deviations and Stdev are shown in % of reference reading
Deviation [%] = (Qmeter - Qreference)/Qreference*100

Adjustment Method: **Piece-wise linearization**



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Measurement Canada Accredited

Certificate of Calibration

Customer:	Lakeside Process Controls/EGD	**Certificate Number:**	3457
	5250 Orbitor Drive	**Work Order:**	09-101-274-01
	Mississauga, ON	**Date of Calibration:**	August 25, 2009
	L4W 5G7	**Units:**	Metric
Project:	Gatineau	**End User MC Registration:**	N/A

Meter Under Test

Type:	Ultrasonic	**Medium:**		Natural Gas
Manufacturer:	Daniel	**Pressure:**	(kPa)	6188.48
Model:	Senior Sonic	**Temperature:**	(°C)	29.50
Serial Number:	09-260038	**Density:**	(kg/m3)	45.17
Meter ID (m)	0.2545	**Compressibility:**		0.90385
Year of Manufacture:	2009	**Direction:**		Unidirectional

Meter Details

CPU Board S/N:	9341	**Pulses/m3:**	3178.32
CPU Software Ver:	1.63	**Meter output tested:**	Frequency

Tag/Inspection Number:	N/A
Pipe Spool S/N:	N/A
Run Configuration:	UST 1670.05mm, CPA 50E, UST 2794mm, METER, DST 1670.05mm
Flow Conditioning:	CPA 50E Type A
Flow Conditioner S/N:	1466203
Witness:	None
Comments:	None

Test Method: All calibrations are performed as outlined in TCC calibration procedure GC1-5
The actual flow of the gas meter is established with the aid of standard gas meters, pressure and temperature transmitters. In determination of this flow rate the pressure measurement point noted with Pr, is normatively established.

Results: The measurement results are stated on page 2 of 2. The type A uncertainty in the measurement is based on 2x the standard deviation (2XSTDEV). The total expanded uncertainty (U_{tot}) can be calculated as: $U_{tot}=SQRT[(U_{facility})^2 + (2XSTDEV)^2]$

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Facility Expanded Uncertainty, k=2:	**Flow Rate**				$U_{facility}$ **[% of reading]**	
	1,000	to	55,000	m3/h	0.20	%
	200	to	1,000	m3/h	0.24	%
	60	to	200	m3/h	0.30	%

Calibration Date: August 25, 2009

Tested By: Jeff Dahlin

Date of Issue: August 25, 2009

Reviewed: Wayne Haner

Certificate of Calibration

Certificate Number:	**3457**
Serial Number:	**09-260038**

Measurement Results

Qmax =	**5583**	m3/h
Qmin =	**140**	m3/h

Average Error	**-0.55**	**Adjust Fact.(found)**	**1.0000**
Adjusting	**N/A**	**Adjust Fact.(left)**	**see table**

Uncorrected Results					Corrected Results			
MUT Flow (m3/hr)	Ref. Flow (m3/hr)	Velocity (m/s)	Deviation (%)	2xStDev (%)	Deviation (%)	Adj. Factor	Verification Pt. (%)	
5468.43	5501.47	30.04	-0.60	0.03	0.00	1.0060		
4114.30	4136.70	22.59	-0.54	0.03	0.00	1.0054		
2732.97	2747.30	15.00	-0.52	0.04	0.00	1.0052		
1377.00	1382.48	7.55	-0.40	0.05	0.00	1.0040		
549.45	552.82	3.02	-0.61	0.05	0.00	1.0061		
364.79	367.61	2.01	-0.77	0.06	0.00	1.0077		
188.14	190.18	1.04	-1.07	0.10	0.00	1.0109		
276.22	276.18	1.51					0.01	Ver Pt1
914.57	914.52	4.99					0.00	Ver Pt2

MUT is the abreviation for Meter Under Test,
Deviations and Stdev are shown in % of reference reading
Deviation [%] = (Qmeter - Qreference)/Qreference*100

Adjustment Method: **Piece-wise linearization**