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**Client : SCOTIA GAS NETWORKS**

**Project Title : MEASUREMENT ERROR REPORTS**

**Document Title : MER SC011 PITCAIRNGREEN OFFTAKE**

  

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**1.0 EXECUTIVE SUMMARY**

<b>Site Name</b>	<b>Pitcairngreen Offtake</b>
<b>DNO</b>	Scotia Gas Networks
<b>LDZ</b>	Scotland
<b>Error Start Date</b>	
<b>(Or) Last Good Date</b>	1 <sup>st</sup> April 2009
<b>Error Corrected Date</b>	15 <sup>th</sup> June 2012
<b>Size of Error (over or under read)</b>	0.6386 % under-registration (0.6711 Mscm)
<b>Error Description</b>	'As Found' errors during recalibration of turbine meters
<b>Methodology</b>	Correction of flow rates for 'As Found' errors
<b>Meter Type</b>	Turbine
<b>MER Unique Reference Number</b>	SC011

**2.0 ERROR DESCRIPTION**

Pitcairngreen Offtake has two turbine meter streams with a gas tracker for volume correction. The 3" Elster Instromet turbine meters (s/n: 80044223 and 80044224) were installed in 1999 and removed in 2011/12. The meters were originally high pressure calibrated at Pigsar in Germany. The meters were recalibrated following removal to determine the change in performance ('drift') for streams 1 and 2, which are shown in Table 1 and Table 2 respectively.

<b>Nominal Flow Rate (m<sup>3</sup>/h)</b>	<b>Original Error (%)</b>	<b>New Error (%)</b>	<b>Drift (%)</b>
20	0.21	-1.08	-1.29
40	0.06	-0.82	-0.88
100	0.01	-0.86	-0.87
160	0.04	-0.87	-0.91
280	0.01	-0.92	-0.93
400	-0.03	-0.96	-0.93

**Table 1 – Stream 1 (s/n: 80044224) Calibration Errors**

<b>Nominal Flow Rate (m<sup>3</sup>/h)</b>	<b>Original Error (%)</b>	<b>New Error (%)</b>	<b>Drift (%)</b>
20	0.08	-0.36	-0.44
40	0.00	-0.13	-0.13
100	0.03	-0.21	-0.24
160	0.02	-0.36	-0.38
280	-0.07	-0.34	-0.27
400	-0.20	-0.44	-0.24

**Table 2 – Stream 2 (s/n: 80044223) Calibration Errors**

### ***3.0 METHODOLOGY***

The calibration errors for each meter were used to correct the recorded flow rates. The frequency corresponding to each calibration point was calculated and the errors were interpolated between these points based on the recorded frequency. The data was recalculated on a 4-minutely basis to give a daily volume. Two sets of calculations were made one using the recorded data (original calibration) and another using corrected data (recalibration), the error being the difference between the two.

The point at which the turbine meter performance changed cannot be established with any certainty and therefore the errors may have been present since installation. This analysis considers that the errors could have been present for the maximum reconcilable period from 1<sup>st</sup> April 2009 until the meters were replaced. The turbine meter in stream 2 was taken out of service on 28<sup>h</sup> June 2011. The turbine meter in stream 1 was then taken out of service on 15<sup>h</sup> June 2012.

The daily volumes calculated from the recorded data were compared to the Gemini billed volumes to establish significant discrepancies between the results. The calculated errors on days which showed significant discrepancies have been excluded and assigned a default daily correction factor.

### ***4.0 ERROR QUANTIFICATION***

The error is calculated to be an under-registration of 0.6386 % for the period. As the start of the error cannot be determined half of the error should be reconciled in accordance with the Measurement Error Guidelines. The error should be corrected using the daily correction factors in Appendix A, which have been halved to reflect the unknown start date.

### ***5.0 REFERENCES***

HPMIS Database  
MER\_SC011\_Data.xls – Calculation spreadsheet  
MER\_SC011\_Summary.xls – Summary spreadsheet

**APPENDIX – DAILY CORRECTION FACTORS**

The daily volumes calculated from the recorded data were compared to the Gemini billed volumes. There were significant discrepancies between the results on various dates marked '\*'. There were gaps in the RBD data in all instances. The daily correction factor for these days has been calculated from the mean of the surrounding period. Where the daily flow rates have changed significantly or the streams have been changed the preference is to use only days with similar characteristics.

Gas Date	Daily Correction Factor
01/04/2009	1.006020
02/04/2009	1.005856
03/04/2009	1.005931
04/04/2009	1.006471
05/04/2009	1.006310
06/04/2009	1.005762
07/04/2009	1.005971
08/04/2009	1.006035
09/04/2009	1.005966
10/04/2009	1.006415
11/04/2009	1.006411
12/04/2009	1.006437
13/04/2009	1.006123
14/04/2009	1.006062
15/04/2009	1.006113
16/04/2009	1.006363
17/04/2009	1.006061
18/04/2009	1.006442
19/04/2009	1.006432
20/04/2009	1.006110
21/04/2009	1.006486
22/04/2009	1.006098
23/04/2009	1.006393
24/04/2009	1.006517
25/04/2009	1.006517
26/04/2009	1.006517
27/04/2009	1.006462
28/04/2009	1.006303
29/04/2009	1.006322
30/04/2009	1.006374
01/05/2009	1.006393
02/05/2009	1.006517
03/05/2009	1.006517
04/05/2009	1.006492
05/05/2009	1.006431
06/05/2009	1.006395
07/05/2009	1.006130
08/05/2009	1.006052
09/05/2009	1.006515
10/05/2009	1.006517
11/05/2009	1.006142
12/05/2009	1.006408
13/05/2009	1.006513
14/05/2009	1.006517
15/05/2009	1.004533

Gas Date	Daily Correction Factor
16/05/2009	1.004447
17/05/2009	1.004453
18/05/2009	1.004467
19/05/2009	1.004457
20/05/2009	1.004470
21/05/2009	1.004459
22/05/2009	1.004545
23/05/2009	1.004456
24/05/2009	1.004472
25/05/2009	1.004511
26/05/2009	1.004469
27/05/2009	1.004498
28/05/2009	1.004550
29/05/2009	1.004656*
30/05/2009	1.004660
31/05/2009	1.004661
01/06/2009	1.004646
02/06/2009	1.004626
03/06/2009	1.004574
04/06/2009	1.004490
05/06/2009	1.004458
06/06/2009	1.004442
07/06/2009	1.004456
08/06/2009	1.004458
09/06/2009	1.004464
10/06/2009	1.004438
11/06/2009	1.004445
12/06/2009	1.004529
13/06/2009	1.004636
14/06/2009	1.004596
15/06/2009	1.004541
16/06/2009	1.004568
17/06/2009	1.004490
18/06/2009	1.004433
19/06/2009	1.004526
20/06/2009	1.004583
21/06/2009	1.004633
22/06/2009	1.004672
23/06/2009	1.004629*
24/06/2009	1.002826*
25/06/2009	1.001022*
26/06/2009	1.001057
27/06/2009	1.001000
28/06/2009	1.001008
29/06/2009	1.001056

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Gas Date	Daily Correction Factor
30/06/2009	1.001055
01/07/2009	1.001029
02/07/2009	1.000999
03/07/2009	1.001038
04/07/2009	1.001002
05/07/2009	1.000946
06/07/2009	1.001009
07/07/2009	1.001011
08/07/2009	1.001069
09/07/2009	1.001037
10/07/2009	1.001023
11/07/2009	1.000956
12/07/2009	1.000944
13/07/2009	1.001047
14/07/2009	1.001011
15/07/2009	1.000984
16/07/2009	1.001065
17/07/2009	1.001085
18/07/2009	1.001003
19/07/2009	1.000984
20/07/2009	1.001026
21/07/2009	1.001096
22/07/2009	1.001062
23/07/2009	1.000999
24/07/2009	1.001006
25/07/2009	1.001005
26/07/2009	1.000977
27/07/2009	1.001010
28/07/2009	1.001046*
29/07/2009	1.001026
30/07/2009	1.001074
31/07/2009	1.001145
01/08/2009	1.001047
02/08/2009	1.000769
03/08/2009	1.001046*
04/08/2009	1.001059
05/08/2009	1.001046
06/08/2009	1.001032
07/08/2009	1.001068
08/08/2009	1.001010
09/08/2009	1.000965
10/08/2009	1.001029
11/08/2009	1.001076
12/08/2009	1.001066
13/08/2009	1.001081
14/08/2009	1.001204
15/08/2009	1.001029
16/08/2009	1.001012
17/08/2009	1.001092
18/08/2009	1.001162
19/08/2009	1.001089
20/08/2009	1.001082
21/08/2009	1.001118
22/08/2009	1.001062
23/08/2009	1.001071
24/08/2009	1.001083

Gas Date	Daily Correction Factor
25/08/2009	1.001092
26/08/2009	1.001160
27/08/2009	1.001127
28/08/2009	1.001210
29/08/2009	1.001102
30/08/2009	1.001098
31/08/2009	1.001120
01/09/2009	1.001106
02/09/2009	1.001128
03/09/2009	1.001199
04/09/2009	1.001189
05/09/2009	1.001114
06/09/2009	1.001113
07/09/2009	1.001140
08/09/2009	1.001103
09/09/2009	1.001099
10/09/2009	1.001129
11/09/2009	1.001114
12/09/2009	1.001089
13/09/2009	1.001025
14/09/2009	1.001118
15/09/2009	1.001078
16/09/2009	1.001109
17/09/2009	1.001123
18/09/2009	1.001187
19/09/2009	1.001115
20/09/2009	1.001163
21/09/2009	1.001196
22/09/2009	1.001130
23/09/2009	1.001190
24/09/2009	1.001201
25/09/2009	1.001169
26/09/2009	1.001121
27/09/2009	1.001101
28/09/2009	1.001153
29/09/2009	1.001199
30/09/2009	1.001162
01/10/2009	1.001217
02/10/2009	1.001283
03/10/2009	1.001220
04/10/2009	1.001293
05/10/2009	1.001403
06/10/2009	1.001405
07/10/2009	1.001545
08/10/2009	1.002180
09/10/2009	1.002193
10/10/2009	1.002201
11/10/2009	1.002203
12/10/2009	1.002174
13/10/2009	1.002196
14/10/2009	1.002203
15/10/2009	1.002201
16/10/2009	1.002154
17/10/2009	1.002126
18/10/2009	1.002201
19/10/2009	1.002052

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Gas Date	Daily Correction Factor
20/10/2009	1.002042
21/10/2009	1.002193
22/10/2009	1.001167
23/10/2009	1.001143
24/10/2009	1.000974
25/10/2009	1.001103
26/10/2009	1.001145
27/10/2009	1.001070
28/10/2009	1.001217
29/10/2009	1.001147
30/10/2009	1.001126
31/10/2009	1.001124
01/11/2009	1.001095
02/11/2009	1.001199
03/11/2009	1.001165
04/11/2009	1.001198
05/11/2009	1.001242
06/11/2009	1.001227
07/11/2009	1.001162
08/11/2009	1.001162
09/11/2009	1.001355
10/11/2009	1.001332
11/11/2009	1.001360
12/11/2009	1.001297
13/11/2009	1.001255
14/11/2009	1.001132
15/11/2009	1.001152
16/11/2009	1.001197
17/11/2009	1.001207
18/11/2009	1.001256
19/11/2009	1.001072
20/11/2009	1.001156
21/11/2009	1.001117
22/11/2009	1.001075
23/11/2009	1.001223
24/11/2009	1.001232
25/11/2009	1.001301
26/11/2009	1.001360
27/11/2009	1.001332
28/11/2009	1.001364
29/11/2009	1.001358
30/11/2009	1.001373
01/12/2009	1.001542
02/12/2009	1.001422
03/12/2009	1.001371
04/12/2009	1.001548
05/12/2009	1.001439
06/12/2009	1.001283
07/12/2009	1.001356
08/12/2009	1.001526
09/12/2009	1.001322
10/12/2009	1.001517
11/12/2009	1.001566
12/12/2009	1.001522
13/12/2009	1.001540
14/12/2009	1.001531

Gas Date	Daily Correction Factor
15/12/2009	1.001477
16/12/2009	1.001305
17/12/2009	1.001590
18/12/2009	1.001501
19/12/2009	1.001503
20/12/2009	1.001389
21/12/2009	1.001368
22/12/2009	1.001388
23/12/2009	1.001388
24/12/2009	1.001489
25/12/2009	1.001359
26/12/2009	1.001485
27/12/2009	1.001478
28/12/2009	1.001502
29/12/2009	1.001498
30/12/2009	1.001425
31/12/2009	1.001522
01/01/2010	1.001560
02/01/2010	1.001490
03/01/2010	1.001665
04/01/2010	1.001566
05/01/2010	1.001489
06/01/2010	1.001439
07/01/2010	1.001571
08/01/2010	1.001519
09/01/2010	1.001456
10/01/2010	1.001351
11/01/2010	1.001386
12/01/2010	1.001341
13/01/2010	1.001535
14/01/2010	1.001563
15/01/2010	1.001549
16/01/2010	1.001415
17/01/2010	1.001422
18/01/2010	1.001461
19/01/2010	1.001609
20/01/2010	1.001387
21/01/2010	1.001361
22/01/2010	1.001325
23/01/2010	1.001259
24/01/2010	1.001239
25/01/2010	1.001408
26/01/2010	1.001552
27/01/2010	1.001372
28/01/2010	1.001382
29/01/2010	1.001404
30/01/2010	1.001408
31/01/2010	1.001468
01/02/2010	1.001566
02/02/2010	1.001551
03/02/2010	1.001567
04/02/2010	1.001548
05/02/2010	1.001406
06/02/2010	1.001456
07/02/2010	1.001377
08/02/2010	1.001468

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Gas Date	Daily Correction Factor
09/02/2010	1.001471
10/02/2010	1.001520
11/02/2010	1.001493
12/02/2010	1.001404
13/02/2010	1.001434
14/02/2010	1.001348
15/02/2010	1.001451
16/02/2010	1.001590
17/02/2010	1.001587
18/02/2010	1.001566
19/02/2010	1.001519
20/02/2010	1.001401
21/02/2010	1.001453
22/02/2010	1.001515
23/02/2010	1.001504
24/02/2010	1.001552
25/02/2010	1.001525
26/02/2010	1.001427
27/02/2010	1.001472
28/02/2010	1.001415
01/03/2010	1.001441
02/03/2010	1.001508
03/03/2010	1.001615
04/03/2010	1.001493
05/03/2010	1.001508
06/03/2010	1.001349
07/03/2010	1.001336
08/03/2010	1.001441
09/03/2010	1.001406
10/03/2010	1.001459
11/03/2010	1.001430
12/03/2010	1.001348
13/03/2010	1.001284
14/03/2010	1.001279
15/03/2010	1.001235
16/03/2010	1.001364
17/03/2010	1.001328
18/03/2010	1.001324
19/03/2010	1.001263
20/03/2010	1.001185
21/03/2010	1.001209
22/03/2010	1.001277
23/03/2010	1.001245
24/03/2010	1.001222
25/03/2010	1.001438
26/03/2010	1.001406
27/03/2010	1.001273
28/03/2010	1.001133
29/03/2010	1.001286
30/03/2010	1.001525
31/03/2010	1.001474
01/04/2010	1.001321
02/04/2010	1.001506
03/04/2010	1.001391
04/04/2010	1.001266
05/04/2010	1.001433

Gas Date	Daily Correction Factor
06/04/2010	1.001411
07/04/2010	1.001341
08/04/2010	1.001302
09/04/2010	1.001264
10/04/2010	1.001261
11/04/2010	1.001178
12/04/2010	1.001299
13/04/2010	1.001180
14/04/2010	1.001285
15/04/2010	1.001227
16/04/2010	1.001275
17/04/2010	1.001202
18/04/2010	1.001128
19/04/2010	1.001310
20/04/2010	1.001266
21/04/2010	1.001273
22/04/2010	1.001292
23/04/2010	1.001399
24/04/2010	1.001258
25/04/2010	1.001123
26/04/2010	1.001276
27/04/2010	1.001218
28/04/2010	1.001162
29/04/2010	1.001115
30/04/2010	1.001184
01/05/2010	1.001093
02/05/2010	1.001017
03/05/2010	1.001232
04/05/2010	1.001227
05/05/2010	1.001287
06/05/2010	1.001173
07/05/2010	1.001058
08/05/2010	1.001173
09/05/2010	1.001156
10/05/2010	1.001074
11/05/2010	1.001219
12/05/2010	1.001134
13/05/2010	1.001251
14/05/2010	1.001230
15/05/2010	1.001191
16/05/2010	1.001080
17/05/2010	1.001242
18/05/2010	1.001239
19/05/2010	1.001191
20/05/2010	1.001060
21/05/2010	1.001081
22/05/2010	1.001026
23/05/2010	1.001006
24/05/2010	1.001011
25/05/2010	1.001061
26/05/2010	1.001069
27/05/2010	1.000999
28/05/2010	1.001017
29/05/2010	1.001020
30/05/2010	1.000971
31/05/2010	1.001017

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Gas Date	Daily Correction Factor
01/06/2010	1.001084
02/06/2010	1.000982
03/06/2010	1.001034
04/06/2010	1.001025*
05/06/2010	1.001025*
06/06/2010	1.001025*
07/06/2010	1.001025*
08/06/2010	1.001006
09/06/2010	1.001020
10/06/2010	1.001013*
11/06/2010	1.003735
12/06/2010	1.004692
13/06/2010	1.004588
14/06/2010	1.004602
15/06/2010	1.004644
16/06/2010	1.004656
17/06/2010	1.004683
18/06/2010	1.004685
19/06/2010	1.004755
20/06/2010	1.004777
21/06/2010	1.004705
22/06/2010	1.004696
23/06/2010	1.004691
24/06/2010	1.004693
25/06/2010	1.004715
26/06/2010	1.004775
27/06/2010	1.004752
28/06/2010	1.004697
29/06/2010	1.004672
30/06/2010	1.004741
01/07/2010	1.004707
02/07/2010	1.004739
03/07/2010	1.004804
04/07/2010	1.004689
05/07/2010	1.004668
06/07/2010	1.004656
07/07/2010	1.004674
08/07/2010	1.004667
09/07/2010	1.004728
10/07/2010	1.004715
11/07/2010	1.004786
12/07/2010	1.004661
13/07/2010	1.004659
14/07/2010	1.004632
15/07/2010	1.004651
16/07/2010	1.004648
17/07/2010	1.004713
18/07/2010	1.004751
19/07/2010	1.004649
20/07/2010	1.004676
21/07/2010	1.004624
22/07/2010	1.004649
23/07/2010	1.004683
24/07/2010	1.004709
25/07/2010	1.004732
26/07/2010	1.004674

Gas Date	Daily Correction Factor
27/07/2010	1.004692
28/07/2010	1.004667
29/07/2010	1.004682
30/07/2010	1.004689
31/07/2010	1.004723
01/08/2010	1.004710
02/08/2010	1.004665
03/08/2010	1.004653
04/08/2010	1.004662
05/08/2010	1.004650
06/08/2010	1.004665
07/08/2010	1.004725
08/08/2010	1.004747
09/08/2010	1.004646
10/08/2010	1.004644
11/08/2010	1.004617
12/08/2010	1.004642
13/08/2010	1.004688
14/08/2010	1.004715
15/08/2010	1.004701
16/08/2010	1.004655
17/08/2010	1.004644
18/08/2010	1.004636
19/08/2010	1.004660
20/08/2010	1.004698
21/08/2010	1.004720
22/08/2010	1.004829
23/08/2010	1.004631
24/08/2010	1.004628*
25/08/2010	1.004628*
26/08/2010	1.004620
27/08/2010	1.004633
28/08/2010	1.004691
29/08/2010	1.004608
30/08/2010	1.004542
31/08/2010	1.004530
01/09/2010	1.004590
02/09/2010	1.004583
03/09/2010	1.004666
04/09/2010	1.004722
05/09/2010	1.004623
06/09/2010	1.004603
07/09/2010	1.004518
08/09/2010	1.004591
09/09/2010	1.004585
10/09/2010	1.004638
11/09/2010	1.004634
12/09/2010	1.004623
13/09/2010	1.004571
14/09/2010	1.004476
15/09/2010	1.004487
16/09/2010	1.004448
17/09/2010	1.004488
18/09/2010	1.004488
19/09/2010	1.004499
20/09/2010	1.004487



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Gas Date	Daily Correction Factor
21/09/2010	1.004517
22/09/2010	1.004503
23/09/2010	1.004466
24/09/2010	1.004462
25/09/2010	1.004457
26/09/2010	1.004467
27/09/2010	1.004479
28/09/2010	1.004498
29/09/2010	1.004453
30/09/2010	1.004815
01/10/2010	1.005831
02/10/2010	1.006507
03/10/2010	1.006517
04/10/2010	1.006326
05/10/2010	1.006391*
06/10/2010	1.006391*
07/10/2010	1.006314
08/10/2010	1.006517
09/10/2010	1.006517
10/10/2010	1.006517
11/10/2010	1.006473
12/10/2010	1.005745
13/10/2010	1.005799
14/10/2010	1.006272
15/10/2010	1.006432
16/10/2010	1.006449
17/10/2010	1.006442
18/10/2010	1.006007
19/10/2010	1.005341
20/10/2010	1.005106
21/10/2010	1.005319
22/10/2010	1.005190
23/10/2010	1.005369
24/10/2010	1.005235
25/10/2010	1.004942
26/10/2010	1.005265*
27/10/2010	1.005442
28/10/2010	1.005360
29/10/2010	1.006066
30/10/2010	1.006226
31/10/2010	1.006133
01/11/2010	1.005406
02/11/2010	1.005417
03/11/2010	1.006427
04/11/2010	1.006370
05/11/2010	1.006241
06/11/2010	1.006499
07/11/2010	1.006431
08/11/2010	1.005871
09/11/2010	1.005897
10/11/2010	1.005646
11/11/2010	1.005975
12/11/2010	1.006151
13/11/2010	1.006372
14/11/2010	1.006329
15/11/2010	1.005584

Gas Date	Daily Correction Factor
16/11/2010	1.005598
17/11/2010	1.005792
18/11/2010	1.005879
19/11/2010	1.005966
20/11/2010	1.006408
21/11/2010	1.006335
22/11/2010	1.005854
23/11/2010	1.005796
24/11/2010	1.005634
25/11/2010	1.005725
26/11/2010	1.005613
27/11/2010	1.006265
28/11/2010	1.005867
29/11/2010	1.005720
30/11/2010	1.005436
01/12/2010	1.005124
02/12/2010	1.005094
03/12/2010	1.004944
04/12/2010	1.005697
05/12/2010	1.005628
06/12/2010	1.005177
07/12/2010	1.004892
08/12/2010	1.005079
09/12/2010	1.006063
10/12/2010	1.006349
11/12/2010	1.006499
12/12/2010	1.006460
13/12/2010	1.005405
14/12/2010	1.005686
15/12/2010	1.006010
16/12/2010	1.006180
17/12/2010	1.005501
18/12/2010	1.005392
19/12/2010	1.005421
20/12/2010	1.005093
21/12/2010	1.004867
22/12/2010	1.004718
23/12/2010	1.004873
24/12/2010	1.005761*
25/12/2010	1.005761*
26/12/2010	1.005761*
27/12/2010	1.005761*
28/12/2010	1.005761*
29/12/2010	1.006362
30/12/2010	1.006314
31/12/2010	1.006387
01/01/2011	1.006443
02/01/2011	1.006468
03/01/2011	1.006411
04/01/2011	1.006399
05/01/2011	1.006329
06/01/2011	1.005929
07/01/2011	1.005223
08/01/2011	1.006142
09/01/2011	1.006099
10/01/2011	1.006227

**SCOTIA GAS NETWORKS  
MEASUREMENT ERROR REPORTS**



Gas Date	Daily Correction Factor
11/01/2011	1.005985
12/01/2011	1.006149
13/01/2011	1.006285
14/01/2011	1.006214
15/01/2011	1.006516
16/01/2011	1.006517
17/01/2011	1.006465
18/01/2011	1.006003
19/01/2011	1.005972
20/01/2011	1.005486
21/01/2011	1.005458
22/01/2011	1.005974
23/01/2011	1.006149
24/01/2011	1.006054
25/01/2011	1.006210
26/01/2011	1.006169
27/01/2011	1.005880
28/01/2011	1.005882
29/01/2011	1.006265
30/01/2011	1.006175*
31/01/2011	1.006227
01/02/2011	1.006329
02/02/2011	1.006404
03/02/2011	1.006041
04/02/2011	1.006341
05/02/2011	1.006452
06/02/2011	1.006415
07/02/2011	1.006079
08/02/2011	1.005899
09/02/2011	1.005934
10/02/2011	1.006015
11/02/2011	1.006110
12/02/2011	1.006384
13/02/2011	1.006486
14/02/2011	1.006295
15/02/2011	1.005951
16/02/2011	1.006239
17/02/2011	1.006098
18/02/2011	1.006238
19/02/2011	1.006444
20/02/2011	1.006441
21/02/2011	1.005995
22/02/2011	1.005978
23/02/2011	1.006182
24/02/2011	1.006266
25/02/2011	1.006394
26/02/2011	1.006476
27/02/2011	1.006463
28/02/2011	1.006123
01/03/2011	1.006189
02/03/2011	1.006183
03/03/2011	1.006169
04/03/2011	1.006312
05/03/2011	1.006507
06/03/2011	1.006517
07/03/2011	1.006327

Gas Date	Daily Correction Factor
08/03/2011	1.006202
09/03/2011	1.006220
10/03/2011	1.006267
11/03/2011	1.005946
12/03/2011	1.006368
13/03/2011	1.006402
14/03/2011	1.006151
15/03/2011	1.005996
16/03/2011	1.006001
17/03/2011	1.006234
18/03/2011	1.006140
19/03/2011	1.006352
20/03/2011	1.006489
21/03/2011	1.006419
22/03/2011	1.006442
23/03/2011	1.006379
24/03/2011	1.006394
25/03/2011	1.006356
26/03/2011	1.006504
27/03/2011	1.006513
28/03/2011	1.006366
29/03/2011	1.006360
30/03/2011	1.006426
31/03/2011	1.006394
01/04/2011	1.006429
02/04/2011	1.006516
03/04/2011	1.006517
04/04/2011	1.006446
05/04/2011	1.006476
06/04/2011	1.006516
07/04/2011	1.006493
08/04/2011	1.006407
09/04/2011	1.006517
10/04/2011	1.006517
11/04/2011	1.006517
12/04/2011	1.006498
13/04/2011	1.006487
14/04/2011	1.006495
15/04/2011	1.006475
16/04/2011	1.006517
17/04/2011	1.006516
18/04/2011	1.006511
19/04/2011	1.006512
20/04/2011	1.006517
21/04/2011	1.006511
22/04/2011	1.006517
23/04/2011	1.006517
24/04/2011	1.006517
25/04/2011	1.006517
26/04/2011	1.006506
27/04/2011	1.006513
28/04/2011	1.006514
29/04/2011	1.006508
30/04/2011	1.006517
01/05/2011	1.006494
02/05/2011	1.006516*

**SCOTIA GAS NETWORKS  
MEASUREMENT ERROR REPORTS**



Gas Date	Daily Correction Factor
03/05/2011	1.006517
04/05/2011	1.006516
05/05/2011	1.006514
06/05/2011	1.006467
07/05/2011	1.006364
08/05/2011	1.006482
09/05/2011	1.006517
10/05/2011	1.006511
11/05/2011	1.006506
12/05/2011	1.004553
13/05/2011	1.004467
14/05/2011	1.004472
15/05/2011	1.004491
16/05/2011	1.004473
17/05/2011	1.004481
18/05/2011	1.004445
19/05/2011	1.004444
20/05/2011	1.004475
21/05/2011	1.004454
22/05/2011	1.004473
23/05/2011	1.004462
24/05/2011	1.004437
25/05/2011	1.004450
26/05/2011	1.004436
27/05/2011	1.004448
28/05/2011	1.004471
29/05/2011	1.004476
30/05/2011	1.004486
31/05/2011	1.004509
01/06/2011	1.004535
02/06/2011	1.004602
03/06/2011	1.004715
04/06/2011	1.004524
05/06/2011	1.004487
06/06/2011	1.004485
07/06/2011	1.004481
08/06/2011	1.004491
09/06/2011	1.004444
10/06/2011	1.004506
11/06/2011	1.004460
12/06/2011	1.004500
13/06/2011	1.004483
14/06/2011	1.002422
15/06/2011	1.001110
16/06/2011	1.001098
17/06/2011	1.001170
18/06/2011	1.001185
19/06/2011	1.001063
20/06/2011	1.001116
21/06/2011	1.001256
22/06/2011	1.001174
23/06/2011	1.001108
24/06/2011	1.001108
25/06/2011	1.001070
26/06/2011	1.001040
27/06/2011	1.001063

Gas Date	Daily Correction Factor
28/06/2011	1.004007
29/06/2011	1.004575
30/06/2011	1.004572
01/07/2011	1.004618
02/07/2011	1.004675
03/07/2011	1.004771
04/07/2011	1.004690
05/07/2011	1.004666
06/07/2011	1.004600
07/07/2011	1.004597
08/07/2011	1.004661
09/07/2011	1.004717
10/07/2011	1.004681
11/07/2011	1.004615
12/07/2011	1.004594
13/07/2011	1.004611
14/07/2011	1.004668
15/07/2011	1.004730
16/07/2011	1.004730
17/07/2011	1.004715
18/07/2011	1.004641
19/07/2011	1.004624
20/07/2011	1.004598
21/07/2011	1.004559
22/07/2011	1.004620
23/07/2011	1.004678
24/07/2011	1.004691
25/07/2011	1.004642
26/07/2011	1.004678
27/07/2011	1.004681
28/07/2011	1.004650
29/07/2011	1.004717
30/07/2011	1.004769
31/07/2011	1.004695
01/08/2011	1.004658
02/08/2011	1.004648
03/08/2011	1.004659
04/08/2011	1.004648
05/08/2011	1.004707
06/08/2011	1.004685
07/08/2011	1.004597
08/08/2011	1.004556
09/08/2011	1.004571
10/08/2011	1.004505
11/08/2011	1.004487
12/08/2011	1.004568
13/08/2011	1.004657
14/08/2011	1.004620
15/08/2011	1.004569
16/08/2011	1.004507
17/08/2011	1.004542
18/08/2011	1.004512
19/08/2011	1.004574
20/08/2011	1.004649
21/08/2011	1.004608
22/08/2011	1.004570

**SCOTIA GAS NETWORKS  
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Gas Date	Daily Correction Factor
23/08/2011	1.004529
24/08/2011	1.004534
25/08/2011	1.004561*
26/08/2011	1.004620
27/08/2011	1.004609
28/08/2011	1.004486
29/08/2011	1.004510
30/08/2011	1.004511
31/08/2011	1.004529
01/09/2011	1.004516
02/09/2011	1.004591
03/09/2011	1.004647
04/09/2011	1.004616
05/09/2011	1.004628
06/09/2011	1.004534
07/09/2011	1.004508
08/09/2011	1.004550
09/09/2011	1.004558
10/09/2011	1.004640
11/09/2011	1.004597
12/09/2011	1.004540
13/09/2011	1.004515
14/09/2011	1.004485
15/09/2011	1.004488
16/09/2011	1.004484
17/09/2011	1.004538
18/09/2011	1.004493
19/09/2011	1.004508
20/09/2011	1.004501
21/09/2011	1.004458
22/09/2011	1.004494
23/09/2011	1.004527
24/09/2011	1.004547
25/09/2011	1.004511
26/09/2011	1.004518
27/09/2011	1.004537
28/09/2011	1.004627
29/09/2011	1.004624
30/09/2011	1.004675
01/10/2011	1.004680
02/10/2011	1.004558
03/10/2011	1.004494
04/10/2011	1.004505
05/10/2011	1.004479
06/10/2011	1.005211
07/10/2011	1.006506
08/10/2011	1.006515
09/10/2011	1.006517
10/10/2011	1.006510
11/10/2011	1.006513
12/10/2011	1.006492
13/10/2011	1.006511
14/10/2011	1.006514
15/10/2011	1.006517
16/10/2011	1.006517
17/10/2011	1.006209

Gas Date	Daily Correction Factor
18/10/2011	1.005810
19/10/2011	1.005477
20/10/2011	1.005343
21/10/2011	1.006366
22/10/2011	1.006517
23/10/2011	1.006517
24/10/2011	1.006512
25/10/2011	1.006440
26/10/2011	1.006335
27/10/2011	1.006139
28/10/2011	1.005861
29/10/2011	1.006515
30/10/2011	1.006517
31/10/2011	1.006517
01/11/2011	1.006483
02/11/2011	1.006114
03/11/2011	1.006513
04/11/2011	1.006515
05/11/2011	1.005814
06/11/2011	1.005346
07/11/2011	1.005008
08/11/2011	1.005468
09/11/2011	1.005743
10/11/2011	1.006031
11/11/2011	1.005832
12/11/2011	1.006289
13/11/2011	1.006402
14/11/2011	1.005894
15/11/2011	1.005727
16/11/2011	1.005707
17/11/2011	1.005694
18/11/2011	1.006460
19/11/2011	1.006517
20/11/2011	1.006517
21/11/2011	1.006294
22/11/2011	1.005589
23/11/2011	1.005871
24/11/2011	1.005753
25/11/2011	1.005133
26/11/2011	1.005952
27/11/2011	1.005713
28/11/2011	1.005395
29/11/2011	1.005410
30/11/2011	1.005212
01/12/2011	1.005030
02/12/2011	1.004824
03/12/2011	1.005064
04/12/2011	1.004819
05/12/2011	1.004623
06/12/2011	1.004595
07/12/2011	1.004716
08/12/2011	1.004651
09/12/2011	1.004824
10/12/2011	1.004643
11/12/2011	1.005079
12/12/2011	1.004841

**SCOTIA GAS NETWORKS  
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Gas Date	Daily Correction Factor
13/12/2011	1.004657
14/12/2011	1.004704
15/12/2011	1.004732
16/12/2011	1.004586
17/12/2011	1.004612
18/12/2011	1.004604
19/12/2011	1.004606
20/12/2011	1.004616
21/12/2011	1.004776
22/12/2011	1.005435
23/12/2011	1.005027
24/12/2011	1.005149
25/12/2011	1.006052
26/12/2011	1.006423
27/12/2011	1.005240
28/12/2011	1.004777
29/12/2011	1.004729
30/12/2011	1.004617
31/12/2011	1.005340
01/01/2012	1.005461
02/01/2012	1.004660
03/01/2012	1.004704*
04/01/2012	1.004704*
05/01/2012	1.004779
06/01/2012	1.004672
07/01/2012	1.005065
08/01/2012	1.005342
09/01/2012	1.005128
10/01/2012	1.005135
11/01/2012	1.005114
12/01/2012	1.005126*
13/01/2012	1.004798
14/01/2012	1.004653
15/01/2012	1.004621
16/01/2012	1.004604
17/01/2012	1.004604
18/01/2012	1.004958
19/01/2012	1.004730
20/01/2012	1.004666
21/01/2012	1.004994
22/01/2012	1.005079
23/01/2012	1.004849
24/01/2012	1.004656
25/01/2012	1.005077
26/01/2012	1.004854
27/01/2012	1.004751
28/01/2012	1.004616
29/01/2012	1.004662
30/01/2012	1.004631
31/01/2012	1.004637
01/02/2012	1.004635
02/02/2012	1.004614
03/02/2012	1.004630
04/02/2012	1.004604
05/02/2012	1.004641
06/02/2012	1.004708

Gas Date	Daily Correction Factor
07/02/2012	1.004612
08/02/2012	1.004615
09/02/2012	1.004737
10/02/2012	1.005042*
11/02/2012	1.005042*
12/02/2012	1.005042*
13/02/2012	1.005042*
14/02/2012	1.005042*
15/02/2012	1.005042*
16/02/2012	1.005042*
17/02/2012	1.005042*
18/02/2012	1.005042*
19/02/2012	1.005042*
20/02/2012	1.005042*
21/02/2012	1.005042*
22/02/2012	1.005042*
23/02/2012	1.005766
24/02/2012	1.005238
25/02/2012	1.005501
26/02/2012	1.005559
27/02/2012	1.005810*
28/02/2012	1.005810*
29/02/2012	1.005810*
01/03/2012	1.005810*
02/03/2012	1.005810*
03/03/2012	1.005810*
04/03/2012	1.005810*
05/03/2012	1.005810*
06/03/2012	1.005810*
07/03/2012	1.005810*
08/03/2012	1.005810*
09/03/2012	1.005810*
10/03/2012	1.005810*
11/03/2012	1.005810*
12/03/2012	1.005810*
13/03/2012	1.005810*
14/03/2012	1.005810*
15/03/2012	1.005810*
16/03/2012	1.005810*
17/03/2012	1.005810*
18/03/2012	1.005810*
19/03/2012	1.005810*
20/03/2012	1.005810*
21/03/2012	1.005810*
22/03/2012	1.005810*
23/03/2012	1.005810*
24/03/2012	1.005810*
25/03/2012	1.005810*
26/03/2012	1.005810*
27/03/2012	1.005810*
28/03/2012	1.005810*
29/03/2012	1.006517
30/03/2012	1.006517
31/03/2012	1.006517
01/04/2012	1.006460
02/04/2012	1.006092

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Gas Date	Daily Correction Factor
03/04/2012	1.004834
04/04/2012	1.004909
05/04/2012	1.005030
06/04/2012	1.005817
07/04/2012	1.005645*
08/04/2012	1.005645*
09/04/2012	1.005645*
10/04/2012	1.005645*
11/04/2012	1.005645*
12/04/2012	1.005645*
13/04/2012	1.005645*
14/04/2012	1.005912
15/04/2012	1.005833
16/04/2012	1.005281
17/04/2012	1.005526
18/04/2012	1.005815
19/04/2012	1.005406
20/04/2012	1.005605
21/04/2012	1.006098
22/04/2012	1.006442
23/04/2012	1.005725
24/04/2012	1.005601
25/04/2012	1.005231
26/04/2012	1.005551
27/04/2012	1.005485
28/04/2012	1.005927
29/04/2012	1.005985
30/04/2012	1.005533
01/05/2012	1.005938
02/05/2012	1.004609
03/05/2012	1.004464
04/05/2012	1.004422
05/05/2012	1.004472*
06/05/2012	1.004472*
07/05/2012	1.004472*
08/05/2012	1.004472*
09/05/2012	1.004472*
10/05/2012	1.004507
11/05/2012	1.004495
12/05/2012	1.004468
13/05/2012	1.004465
14/05/2012	1.004471
15/05/2012	1.004473
16/05/2012	1.004486
17/05/2012	1.004492
18/05/2012	1.004480
19/05/2012	1.004463
20/05/2012	1.004458
21/05/2012	1.004466
22/05/2012	1.004544
23/05/2012	1.004595
24/05/2012	1.004642
25/05/2012	1.004742
26/05/2012	1.004853
27/05/2012	1.004767
28/05/2012	1.004656

Gas Date	Daily Correction Factor
29/05/2012	1.004588
30/05/2012	1.004508
31/05/2012	1.004482
01/06/2012	1.004575
02/06/2012	1.004481
03/06/2012	1.004453
04/06/2012	1.004480
05/06/2012	1.004522
06/06/2012	1.004506
07/06/2012	1.004493
08/06/2012	1.004536
09/06/2012	1.004617
10/06/2012	1.004493
11/06/2012	1.004456
12/06/2012	1.004486
13/06/2012	1.004483
14/06/2012	1.004471
15/06/2012	1.001022