

METER ERROR REPORT**FINAL**

Reconcile?	Y
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Safety Issue?	Y/N
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Thesis Report No.	
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1. EXECUTIVE SUMMARY

SITE NAME	Braishfield B	
LDZ	SO	
START DATE (actual)		
LAST GOOD DATE	30 th July 2010	
END DATE	7 th January 2011	
SIZE OF ERROR (No reconciliation required if under 0.1%)	0.9336% under-registration	
ESTIMATE – Y/N?		
ROOT CAUSE	DP discrepancy alarm identified high DP transmitter error.	
ANALYSIS	Recalculation of volumes using standby DP	
METER TYPE	Orifice	
AUTHOR	H. Colbourne	
CHECKED BY	B. Kirkman	
ACCEPTED BY SGN NETWORK		
RECONCILIATION	Distribution	Transportation

2. BACKGROUND

Braishfield B has a single orifice plate meter stream using a gas chromatograph for CV determination and PTZ correction.

The differential pressure (DP) across the orifice plate is measured using two DP transmitters. One low ranged up to 50 mbar and one high ranged up to 500 mbar. The correct transmitter is automatically selected by the flow computer, switching up at 47.5 mbar and switching down at 45 mbar. A third standby DP transmitter with the same span as the high DP transmitter is provided for discrepancy checking.

Following a DP discrepancy alarm (high DP versus standby DP) the CP11b (high DP transmitter check) failed on 2nd December 2010, subsequently passing following re-calibration. The high DP transmitter was later found to be faulty on 7th January 2011 and replaced.

3. ERROR QUANTIFICATION AND IMPACT

The Used DP measurements were corrected using the standby DP measurement when the recorded measurement was in the appropriate range. The low DP measurement was not corrected.

The flow rates and daily volumes were recalculated using the measured DP and the corrected DP. The error was calculated on a daily basis as the difference between volume totals using measured and corrected DP.

The overall error is an under-registration of 0.9336 %.

4. CAUSES

DP discrepancy alarms triggered for high DP; high DP transmitter failed subsequent checks.

5. RECOMMENDATIONS AND LEARNING

Failures of this type will occur occasionally, if the same checks fail regularly then it suggests a fundamental problem with the equipment being tested and repairs or replacements should be made.

The standby DP measurement was valid for the entire period and therefore accurately corrects any error in the high DP measurement. On this basis it is not necessary to know the exact start date of the error and therefore the total error to be reconciled has not been halved (even though the start date of the error is unknown). Appendix A shows the daily correction factors.

On 30th October 2010 a small discrepancy was found between the RBD and the Gemini data. A correction factor has been applied to this day equal to the correction factor for the 2 days previous and 2 days subsequent to the day on which flows were recorded (i.e. 28th, 29th, 31st October and 1st November 2010).

REFERENCES

HPMIS Database

BraishfieldA_SO007_Data.xls – calculation spreadsheet

BraishfieldA_SO007_Summary.xls – results spreadsheet

VERSION HISTORY

<i>Version</i>	<i>Changes</i>	<i>Author</i>	<i>Date</i>
<i>O</i>	<i>Original</i>	<i>H.Colbourne</i>	<i>08/04/2013</i>

DISTRIBUTION

Scotia Gas Networks

APPENDIX A – Daily Correction Factors

The table below shows the daily correction factors to be used to reconcile the error.

*On 30th October 2010 a small discrepancy was found between the RBD and the Gemini data. A correction factor has been applied to this day equal to the correction factor for the 2 days previous and 2 days subsequent to the day on which flows were recorded (i.e. 28th October, 29th October, 31st October and 1st November 2010).

Gas Day	Daily Correction Factor
30/07/2010	1.011374
31/07/2010	1.015507
01/08/2010	1.018993
02/08/2010	1.009713
03/08/2010	1.000000
04/08/2010	1.010304
05/08/2010	1.004548
06/08/2010	1.000000
07/08/2010	1.000000
08/08/2010	1.003278
09/08/2010	1.015226
10/08/2010	1.015870
11/08/2010	1.011358
12/08/2010	1.010996
13/08/2010	1.011496
14/08/2010	1.010928
15/08/2010	1.010717
16/08/2010	1.010819
17/08/2010	1.011754
18/08/2010	1.012879
19/08/2010	1.011225
20/08/2010	1.000000
21/08/2010	1.000000
22/08/2010	1.000000
23/08/2010	1.000000
24/08/2010	1.000000
25/08/2010	1.000000
26/08/2010	1.000000
27/08/2010	1.014568
28/08/2010	1.010138
29/08/2010	1.010318
30/08/2010	1.010288
31/08/2010	1.010017
01/09/2010	1.011416
02/09/2010	1.011343
03/09/2010	1.011947

Gas Day	Daily Correction Factor
04/09/2010	1.012511
05/09/2010	1.010549
06/09/2010	1.011408
07/09/2010	1.010526
08/09/2010	1.012197
09/09/2010	1.011445
10/09/2010	1.013422
11/09/2010	1.013415
12/09/2010	1.013949
13/09/2010	1.011041
14/09/2010	1.012023
15/09/2010	1.010445
16/09/2010	1.009736
17/09/2010	1.012788
18/09/2010	1.009861
19/09/2010	1.009786
20/09/2010	1.011692
21/09/2010	1.013743
22/09/2010	1.009352
23/09/2010	1.011668
24/09/2010	1.008954
25/09/2010	1.011472
26/09/2010	1.009275
27/09/2010	1.013952
28/09/2010	1.007526
29/09/2010	1.010129
30/09/2010	1.007251
01/10/2010	1.008224
02/10/2010	1.009032
03/10/2010	1.008678
04/10/2010	1.008544
05/10/2010	1.009686
06/10/2010	1.011028
07/10/2010	1.008849
08/10/2010	1.008955
09/10/2010	1.013224

Gas Day	Daily Correction Factor
10/10/2010	1.007598
11/10/2010	1.006359
12/10/2010	1.006614
13/10/2010	1.017349
14/10/2010	1.014229
15/10/2010	1.019494
16/10/2010	1.012445
17/10/2010	1.017534
18/10/2010	1.009465
19/10/2010	1.008962
20/10/2010	1.016611
21/10/2010	1.019160
22/10/2010	1.008976
23/10/2010	1.008852
24/10/2010	1.020566
25/10/2010	1.021693
26/10/2010	1.014593
27/10/2010	1.013676
28/10/2010	1.013283
29/10/2010	1.008786
*30/10/2010	1.012878
31/10/2010	1.014381
01/11/2010	1.015061
02/11/2010	1.013368
03/11/2010	1.016821
04/11/2010	1.016201
05/11/2010	1.016420
06/11/2010	1.014319
07/11/2010	1.013595
08/11/2010	1.015048
09/11/2010	1.017950
10/11/2010	1.013950
11/11/2010	1.013509
12/11/2010	1.013677
13/11/2010	1.013235
14/11/2010	1.011275
15/11/2010	1.012712
16/11/2010	1.014272
17/11/2010	1.014275
18/11/2010	1.013968
19/11/2010	1.013897
20/11/2010	1.016296
21/11/2010	1.009391
22/11/2010	1.010749
23/11/2010	1.010284
24/11/2010	1.012601

Gas Day	Daily Correction Factor
25/11/2010	1.010668
26/11/2010	1.012085
27/11/2010	1.011172
28/11/2010	1.010620
29/11/2010	1.010699
30/11/2010	1.011303
01/12/2010	1.009320
02/12/2010	1.004461
03/12/2010	1.004631
04/12/2010	1.004399
05/12/2010	1.004701
06/12/2010	1.004513
07/12/2010	1.004711
08/12/2010	1.004631
09/12/2010	1.004541
10/12/2010	1.004330
11/12/2010	1.004009
12/12/2010	1.004314
13/12/2010	1.004715
14/12/2010	1.004315
15/12/2010	1.004030
16/12/2010	1.004840
17/12/2010	1.004778
18/12/2010	1.004806
19/12/2010	1.005141
20/12/2010	1.004980
21/12/2010	1.004614
22/12/2010	1.004817
23/12/2010	1.004621
24/12/2010	1.004848
25/12/2010	1.005062
26/12/2010	1.004968
27/12/2010	1.004449
28/12/2010	1.003816
29/12/2010	1.003924
30/12/2010	1.004197
31/12/2010	1.004236
01/01/2011	1.004554
02/01/2011	1.004391
03/01/2011	1.004078
04/01/2011	1.003813
05/01/2011	1.004032
06/01/2011	1.004189
07/01/2011	1.001339
08/01/2011	1.000000