

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 A	
LDZ	SO	
START DATE (actual)		
LAST GOOD DATE	21 st Jan 2010	
END DATE	30 th Sep 2010	
SIZE OF ERROR (No reconciliation required if under 0.1%)	0.2111 % over-registration	
ESTIMATE – Y/N?		
ROOT CAUSE	Failed validation check for low DP transmitter	
ANALYSIS	Recalculation of volumes using corrected low DP	
METER TYPE	Orifice	
AUTHOR	H. Colbourne	
CHECKED BY	B. Kirkman	
ACCEPTED BY SGN NETWORK		
RECONCILIATION	Distribution	Transportation

2. BACKGROUND

Braishfield A 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 is provided for discrepancy checking.

During the annual validation the CP11a (Low DP Transmitter Check) test failed on 30th September 2010, both subsequently passing following re-calibration.

3. ERROR QUANTIFICATION AND IMPACT

The low DP measurement was corrected for the 'As Found' errors shown in Table 1 when the recorded measurement was in the appropriate range. The high DP measurement was not corrected.

Corrected DP (mbar)	CP11a Error (% span)	CP4b Error (% span)	Combined Error (% span)
0	0.3473	0.0012	0.3485
12.51	0.4149	0.0021	0.41702
25.02	0.42085	-0.0097	0.41115
37.53	0.42205	-0.0088	0.41327
50.04	0.43665	-0.0142	0.42241

Table 1 – As Found errors

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.

No flow was recorded from 15th June 2010 until after the low DP transmitter error was corrected on 30th September 2010.

The overall error is an over-registration of 0.2111 %.

4. CAUSES

Low DP transmitter check failed during routine validation.

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 start of the error cannot be identified therefore the total error to be reconciled should be halved in accordance with the Offtake Arrangements

Document. Appendix A shows the daily correction factors, which have already been halved. On 25th April 2010 a small daily volume was registered on Gemini but no valid DPs are shown in the RBD data and hence no daily volume has been calculated in this analysis. A correction factor has been applied to this day based on the average of the correction factors for two days before and two days after this date (i.e. average of 23rd, 24th, 26th and 27th April 2010).

REFERENCES

HPMIS Database

BraishfieldA_SO004_Data.xls – calculation spreadsheet

BraishfieldA_SO004_Summary.xls – results spreadsheet

VERSION HISTORY

<i>Version</i>	<i>Changes</i>	<i>Author</i>	<i>Date</i>
O	<i>Original</i>	<i>H.Colbourne</i>	<i>20/03/2013</i>

DISTRIBUTION

Scotia Gas Networks

APPENDIX A – Daily Correction Factors

The daily correction factors shown below have been halved in accordance with the Offtake Arrangements Document because the start date of the error is unknown.

*On 25th April 2010 a small daily volume was registered on Gemini but no valid DPs are shown in the RBD data and hence no daily volume has been calculated in this analysis. A correction factor has been applied to this day based on the average of the correction factors for two days before and two days after this date (i.e. average of 23rd, 24th, 26th and 27th April 2010).

Gas Day	Daily Correction Factor
21/01/2010	0.999354
22/01/2010	0.999483
23/01/2010	0.999544
24/01/2010	0.999902
25/01/2010	0.999792
26/01/2010	0.999767
27/01/2010	1.000000
28/01/2010	0.999890
29/01/2010	0.999854
30/01/2010	0.999826
31/01/2010	1.000000
01/02/2010	0.999770
02/02/2010	0.999705
03/02/2010	0.999835
04/02/2010	0.999857
05/02/2010	0.999371
06/02/2010	0.998448
07/02/2010	0.998121
08/02/2010	0.999959
09/02/2010	0.999937
10/02/2010	0.999611
11/02/2010	0.999931
12/02/2010	1.000000
13/02/2010	0.999955
14/02/2010	0.999939
15/02/2010	0.999995
16/02/2010	0.998745
17/02/2010	0.999140
18/02/2010	0.999097
19/02/2010	0.999994
20/02/2010	0.999581
21/02/2010	0.999726
22/02/2010	0.999704
23/02/2010	0.999973
24/02/2010	0.998672

Gas Day	Daily Correction Factor
25/02/2010	0.998518
26/02/2010	0.999527
27/02/2010	0.998398
28/02/2010	0.999991
01/03/2010	0.999524
02/03/2010	0.999604
03/03/2010	0.999637
04/03/2010	0.999663
05/03/2010	1.000000
06/03/2010	1.000000
07/03/2010	0.999995
08/03/2010	0.999910
09/03/2010	1.000000
10/03/2010	1.000000
11/03/2010	1.000000
12/03/2010	0.999510
13/03/2010	0.998553
14/03/2010	0.999168
15/03/2010	0.997774
16/03/2010	0.997486
17/03/2010	0.998608
18/03/2010	0.998029
19/03/2010	0.997718
20/03/2010	0.997299
21/03/2010	0.996697
22/03/2010	0.998189
23/03/2010	0.999094
24/03/2010	0.997000
25/03/2010	0.998398
26/03/2010	0.998043
27/03/2010	0.997820
28/03/2010	0.998076
29/03/2010	0.999727
30/03/2010	0.998701
31/03/2010	0.999805

Gas Day	Daily Correction Factor
01/04/2010	0.999194
02/04/2010	0.997913
03/04/2010	0.997792
04/04/2010	0.997359
05/04/2010	0.997323
06/04/2010	0.996245
07/04/2010	0.997766
08/04/2010	0.996637
09/04/2010	0.997579
10/04/2010	0.996447
11/04/2010	0.997884
12/04/2010	0.998271
13/04/2010	0.998050
14/04/2010	0.999367
15/04/2010	0.998784
16/04/2010	0.999204
17/04/2010	0.997322
18/04/2010	0.997219
19/04/2010	0.998016
20/04/2010	0.997636
21/04/2010	0.998222
22/04/2010	0.998226
23/04/2010	0.997470
24/04/2010	0.997087
25/04/2010	*0.996638
26/04/2010	0.996991
27/04/2010	0.995004
28/04/2010	1.000000
29/04/2010	1.000000
30/04/2010	0.996485
01/05/2010	0.996297
02/05/2010	0.998297
03/05/2010	0.998065
04/05/2010	0.998607
05/05/2010	0.998132
06/05/2010	0.996751
07/05/2010	0.998686
08/05/2010	0.999413
09/05/2010	0.999384
10/05/2010	0.998545
11/05/2010	0.999032
12/05/2010	0.998286
13/05/2010	0.997356
14/05/2010	0.997197
15/05/2010	0.997158
16/05/2010	0.998028

Gas Day	Daily Correction Factor
17/05/2010	0.996126
18/05/2010	0.996299
19/05/2010	0.996033
20/05/2010	1.000000
21/05/2010	1.000000
22/05/2010	1.000000
23/05/2010	1.000000
24/05/2010	1.000000
25/05/2010	1.000000
26/05/2010	1.000000
27/05/2010	1.000000
28/05/2010	1.000000
29/05/2010	1.000000
30/05/2010	1.000000
31/05/2010	1.000000
01/06/2010	1.000000
02/06/2010	1.000000
03/06/2010	1.000000
04/06/2010	1.000000
05/06/2010	1.000000
06/06/2010	1.000000
07/06/2010	0.995087
08/06/2010	0.996160
09/06/2010	0.997437
10/06/2010	0.997840
11/06/2010	0.997963
12/06/2010	0.997456
13/06/2010	0.997007
14/06/2010	0.996128