NULL METER ERROR REPORT

FINAL

Reconcile?	N
Safety Issue?	N
Thesis Report No.	N/A

1. EXECUTIVE SUMMARY

SITE NAME	BATHGATE OFFTAKE
LDZ	SCOTLAND
LAST GOOD DATE	19/05/2008
START DATE	01/04/2009
END DATE	15/05/2009
SIZE OF ERROR	0.0657 GWh over registration
ESTIMATE – Y/N?	N
ROOT CAUSE	OMNI k-factor error
ANALYSIS	HPMIS rbd data
METER TYPE	Ultrasonic
AUTHOR	T Roberts / S.Stephenson
CHECKED BY	S Howells

2. BACKGROUND

Gas is supplied to part of the Scotland network at Bathgate Offtake which employs an ultrasonic meter to measure the volumetric flow rate. Site maximum flowrate is 12.876 mscm/d. An OMNI k-factor configuration check found that an error had been introduced at one frequency point on the system C meter, serial number 05-210179.

3. ERROR QUANTIFICATION AND IMPACT

The incorrect k-factor was entered on 11/06/2007 and subsequently corrected on 26/05/2010. However the meter (05-210179) only acted as duty between 20/05/2008 and 15/05/2009. Due to the close out rules we can currently only reconcile back to April 2009, therefore the revised MER dates are from 1/4/09 to 15/4/09 and all calculations are for this period.

The error was introduced at frequency point 124Hz, when the corresponding k-factor should have been changed from 1633.306 to 1636.036. 1633.036 was incorrectly entered.

Using HPMIS 4 minute data each k-factor affected by the error was recalculated to obtain the error on volume flowrate. These errors were then used to calculate daily correction factors which have been tabulated in Appendix A.

As error is now 0.017%, this report has become a NULL.

4. CAUSES

It is probable that the nature of the numbers involved ie the threes and sixes, led to the value being entered incorrectly.

5. RECOMMENDATIONS AND LEARNING

It is a recommendation of this report that the corrections detailed in Appendix A are applied to reconcile the daily errors.

REFERENCES

HPMIS data

OMNI configuration reports

Meter calibration certificates

K-factor calculation spreadsheets

VERSION HISTORY

Version	*Changes*	*Author*	*Date*
Rev 1	*Final*	*T Roberts*	*14/01/13*
Rev2	*Final*	*S.Stephenson*	*21/10/13*

DISTRIBUTION

NG UKT Data assurance and Quality Team
SGN S Skipp
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Appendix A

Gas Day	Gemini volume used (scm)	cf	Gemini volume corrected (scm)
01/04/2009	801,000	0.999865	800,892
02/04/2009	683,700	0.999589	683,419
03/04/2009	597,400	0.99998	597,388
04/04/2009	867,600	0.999959	867,564
05/04/2009	800,100	0.99987	799,996
06/04/2009	912,000	0.999819	911,835
07/04/2009	929,100	0.999822	928,935
08/04/2009	898,600	0.999844	898,460
09/04/2009	855,800	0.99976	855,595
10/04/2009	727,000	0.999923	726,944
11/04/2009	693,400	0.999828	693,280
12/04/2009	694,600	0.999889	694,523
13/04/2009	748,300	0.999914	748,236
14/04/2009	830,500	0.999938	830,449
15/04/2009	923,100	0.999862	922,972
16/04/2009	901,500	0.9999	901,410
17/04/2009	972,600	0.999806	972,412
18/04/2009	662,700	0.999842	662,596
19/04/2009	767,200	0.999577	766,876
20/04/2009	714,700	0.999735	714,510
21/04/2009	777,900	0.999883	777,809
22/04/2009	772,900	0.999823	772,763
23/04/2009	791,000	0.999927	790,943
24/04/2009	620,900	0.999878	620,825
25/04/2009	534,400	0.999854	534,322
26/04/2009	710,500	0.999741	710,316
27/04/2009	801,200	0.999901	801,120
28/04/2009	767,900	0.999915	767,835
29/04/2009	749,000	0.999877	748,908
30/04/2009	704,000	0.999833	703,882
01/05/2009	759,400	0.999947	759,360
02/05/2009	612,500	0.999676	612,302
03/05/2009	633,000	0.999667	632,789
04/05/2009	795,300	0.999956	795,265
05/05/2009	890,600	0.999927	890,535
06/05/2009	807,600	0.999963	807,570
07/05/2009	805,000	0.99985	804,880
08/05/2009	901,100	0.999967	901,070
09/05/2009	871,200	0.9999	871,113
10/05/2009	694,100	0.999924	694,047
11/05/2009	602,100	0.999878	602,027
12/05/2009	667,100	0.999955	667,070
13/05/2009	783,900	0.999956	783,866
14/05/2009	695,500	0.999902	695,432
15/05/2009	766,800	0.998231	765,443
Totals	34,495,800		34,489,784
Over read	6016 scm		
Energy Flow	234624Mj		
Error	0.017%		