METER ERROR REPORT

FINAL

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

1. EXECUTIVE SUMMARY

SITE NAME	Evesham	
LDZ	SW	
START DATE (actual)	16th March 2010	
LAST GOOD DATE		
END DATE	14:03 on 3rd June 2010	
SIZE OF ERROR (No reconciliation required if under 0.1%)	12.605 % over-registration	
ESTIMATE – Y/N?	N	
ROOT CAUSE	Pressure transmitter reading drifted above actual pressure	
ANALYSIS	Recalculation of volumes using fixed pressure	
METER TYPE	Turbine	
AUTHOR	B. Kirkman	
CHECKED BY	S.Kimpton	
ACCEPTED BY WWU NETWORK		
RECONCILIATION	Distribution	Transportation

2. BACKGROUND

Evesham has two turbine meter streams using a gas chromatograph for CV determination and PTZ correction. The site is controlled to a fixed pressure setpoint of 35bar.

On 2nd June 2010 a technician was called to site following a meter suspect alarm. The technician found that the pressure transmitter on Stream 2 (MT2) had locked up. He powered the transmitter down and then back up but it was still reading high. He disconnected the impulse line to the transmitter and found it still read ~30 barg. The pressure transmitter was replaced on 3rd June at 14:03 with one from Pucklechurch offtake. A pressure transmitter test (T/PR/ME/2 pt3 CP10) was carried out on 7th June 2010 with the test passing without any adjustment.

From the historical data it was discovered that the transmitter first started to drift on 16th March 2010.

3. ERROR QUANTIFICATION AND IMPACT

As the site is pressure controlled the metering pressure is almost constant. A value for the fixed pressure on the duty stream was derived from the average of the surrounding good periods. These were 1st January to 15th March and 7th June to 30th June 2010. This pressure was calculated to be 37.110 barA for stream 2.

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

The total error for the period 16th March 2010 to 3rd June 2010 was an over-registration of 12.605 %.

4. CAUSES

Faulty pressure transmitter caused false high pressure readings.

5. RECOMMENDATIONS AND LEARNING

If this mode of failure is seen in similar make and age instruments then consideration should be given to replacing these assets.

It is recommended that the error of 12.605 % over-registration be reconciled using the table in Appendix A.

REFERENCES

HPMIS Database

Evesham004_PressuresRev1.xls – Fixed pressure calculation spreadsheet

Evesham004_DataRev1.xls – calculation spreadsheet

Evesham004_SummaryRev1.xls – results spreadsheet

VERSION HISTORY

Version	*Changes*	*Author*	*Date*
O	*Original*	*B. Kirkman*	*23/09/10*
1	*Updated following NG comments*	*B. Kirkman*	*22/11/10*

DISTRIBUTION

Wales & West Utilities Plc

APPENDIX A – Daily Correction Factors

Gas Day	Daily Correction Factor
16-Mar-10	0.969953
17-Mar-10	0.961337
18-Mar-10	0.950120
19-Mar-10	0.952175
20-Mar-10	0.948668
21-Mar-10	0.944572
22-Mar-10	0.952291
23-Mar-10	0.959355
24-Mar-10	0.948530
25-Mar-10	0.936561
26-Mar-10	0.921058
27-Mar-10	0.945961
28-Mar-10	0.948868
29-Mar-10	0.948264
30-Mar-10	0.966006
31-Mar-10	0.959672
01-Apr-10	0.949611
02-Apr-10	0.903743
03-Apr-10	0.915345
04-Apr-10	0.921223
05-Apr-10	0.930003
06-Apr-10	0.911340
07-Apr-10	0.927332
08-Apr-10	0.903999
09-Apr-10	0.888205
10-Apr-10	0.882958
11-Apr-10	0.997276
12-Apr-10	1.001114
13-Apr-10	0.967400
14-Apr-10	0.942974
15-Apr-10	0.944045
16-Apr-10	0.929277
17-Apr-10	0.918806
18-Apr-10	0.913106
19-Apr-10	0.911853
20-Apr-10	0.911996
21-Apr-10	0.907549
22-Apr-10	0.896691
23-Apr-10	0.884869
24-Apr-10	0.860109
25-Apr-10	0.845587
26-Apr-10	0.835373
27-Apr-10	0.821092
28-Apr-10	0.815087
29-Apr-10	0.818278
30-Apr-10	0.832156
01-May-10	0.823051

Gas Day	Daily Correction Factor
02-May-10	0.845395
03-May-10	0.818934
04-May-10	0.776183
05-May-10	0.777404
06-May-10	0.811515
07-May-10	0.825695
08-May-10	0.807087
09-May-10	0.814475
10-May-10	0.803664
11-May-10	0.807804
12-May-10	0.791608
13-May-10	0.762066
14-May-10	0.765913
15-May-10	0.745492
16-May-10	0.765935
17-May-10	0.745698
18-May-10	0.721685
19-May-10	0.761499
20-May-10	0.780823
21-May-10	0.813561
22-May-10	0.825093
23-May-10	0.874176
24-May-10	0.807316
25-May-10	0.871829
26-May-10	0.851448
27-May-10	0.932853
28-May-10	0.908054
29-May-10	0.889105
30-May-10	0.822480
31-May-10	0.835586
01-Jun-10	0.834363
02-Jun-10	0.588981
03-Jun-10	0.795272