METER ERROR REPORT

FINAL

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

1. EXECUTIVE SUMMARY

SITE NAME	Rugby	
LDZ	WM	
START DATE (actual)	10th February 2011 22:23 hours	
LAST GOOD DATE		
END DATE	11 February 2011 20:01 hours	
SIZE OF ERROR (No reconciliation required if under 0.1%)	0.43 % over-registration	
ESTIMATE – Y/N?	N	
ROOT CAUSE	Carrier gas changeover system failed to switch from depleted cylinder of helium to full cylinder followed by chromatograph analysis failure.	
ANALYSIS	Recalculation of volumes during the affected period using phase-shifted composition data from an alternative installation off the same Feeder plus insertion of GTMS data where data missing from the RBD dataset during fault correction.	
METER TYPE	Orifice plate	
AUTHOR	A. Finch	
CHECKED BY	P. Eldridge	
ACCEPTED BY UKD NETWORK		
RECONCILIATION	Distribution	Transportation

2. BACKGROUND

Rugby offtake comprises one orifice plate with meter bypass a single Danalyzer model 500 chromatograph with 2350A controller and Omni model 6000 flow computer and a Siemens Microbox supervisory system. PTZ correction is deployed.

As a result of the failure of the autochangover system, the second cylinder of helium carrier gas was not brought on line. This depleted the first cylinder beyond that which could support the chromatograph.

A system one alarm was raised and a technician attended the incident and the fault was rectified.

3. ERROR QUANTIFICATION AND IMPACT

The start time of the degradation in chromatograph performance was determined by suitable comparison of reported CV from the Rugby chromatograph system versus that measured at an alternative installation (suitably phase-shifted to recognise the time of flight during the operating period).

Similarly the end time was also defined.

During the affected period, the RBD data captured from the Rugby system was used in conjunction with composition data from the alternative installation.

Since the alternative installation deploys a chromatograph with dissimilar cycle time to that at Rugby, the closest time-stamped composition data (suitably phase-shifted) was selected and retained against as many multiple rows of changing RBD data as necessary until the next nearest alignment was achieved at which point a new set of composition was used etc.

In order to expedite resolution at site, some RBD information was sacrificed. Where RBD data is missing therefore, suitable unaffected data sourced from GTMS was used as a substitute.

The error was calculated on a daily basis as the difference between volume totals using the corrected re-worked volume versus that originally reported via GEMINI. The total error for the period 10 February 2011 to 11 February 2011 was an over-registration of 0.4314 %.

4. CAUSES

Failure of the carrier gas autochangeover system.

5. RECOMMENDATIONS AND LEARNING

It is recommended that the error of 0.4314 % over-registration be reconciled using the table in Appendix A.

REFERENCES

HPMIS Database

Rugby.xls

VERSION HISTORY

Version	*Changes*	*Author*	*Date*
O	*Original*	*A. Finch*	*21/02/11*

DISTRIBUTION

National Grid UKD

APPENDIX A – Daily Correction Factors

Note 1: Only part of the day was in error on 10 February 2011 and 11 February 2011

Gas Day	Daily Correction Factor
10-Feb-11	0.996002518
11-Feb-11	0.995381265