

METER ERROR REPORT**FINAL**

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

SITE NAME	LANGHOLM OFFTAKE
LDZ	SCOTLAND
LAST GOOD DATE	
START DATE	7.11.05
END DATE	10.11.09
SIZE OF ERROR (No reconciliation required if under 0.1%)	1.3% under registration
ESTIMATE – Y/N?	Y
ROOT CAUSE	Turbine meter calibration shift
ANALYSIS	
METER TYPE	Turbine
AUTHOR	T Roberts
CHECKED BY	S Howells

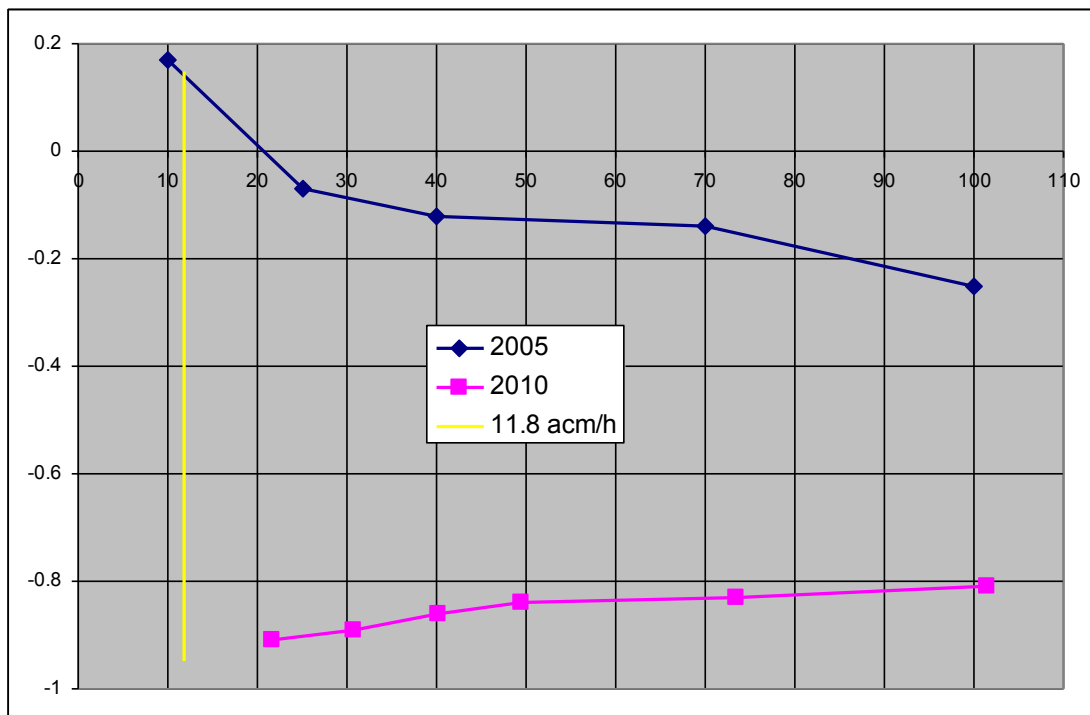
2. BACKGROUND

Gas is supplied to part of the Scotland network at Langholm Offtake which employs a turbine meter to measure the volumetric flow rate (2" Elster-Instromet Q-75-X-K, serial number 10504086 2005). Site maximum flowrate is 0.034mscm/d.

The meter was installed in 2005 and following replacement in 2009 was calibrated at high pressure at the GL facility in Bishop Auckland.

3. ERROR QUANTIFICATION AND IMPACT

The calibration curves applicable before meter installation in 2005 (NMI) and after replacement in 2009 (GL) are plotted below. The additional line at 11.8 acm/h is based on the maximum frequency from the meter recorded in HPMIS over the period in question, with typical flowrates being well below 10acm/h.



As the operational flowrate is substantially below the minimum points of both 2005 and 2010 calibrations, it is not possible to accurately calculate a correction for errors resulting from the shift in calibration.

4. CAUSES

During a combined ME2 and metering audit in November 2008 a slight mechanical noise from the meter was noted during spin-down testing, although the turbine ran freely with no sign of damage. Consequently the audit report recommended replacement of the meter which was carried out in November 2009. It is likely that deterioration of the turbine bearings caused the shift in calibration.

5. RECOMMENDATIONS AND LEARNING

It is not recommended that any reconciliation is attempted as the site operates below the calibrated range of the meter.

A review is required to establish a closer match between the range of site operational flowrates and meter capacity. Availability of a spare meter would also allow possibly faulty meters to be removed for service and calibration.

REFERENCES

HPMIS data

ME2 reports for 2008 and 2009

Audit report from 2008

VERSION HISTORY

<i>Version</i>	<i>Changes</i>	<i>Author</i>	<i>Date</i>
<i>Rev 1</i>	<i>First draft</i>	<i>T Roberts</i>	<i>2/8/12</i>

DISTRIBUTION

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