METER ERROR REPORT

FINAL

Reconcile?	N
Safety Issue?	N
Thesis Report No.	

1. EXECUTIVE SUMMARY

SITE NAME	FARNINGHAM
LDZ	SOUTHEAST
START DATE (actual)	30/10/08
LAST GOOD DATE	
END DATE	24/6/09
SIZE OF ERROR (No reconciliation required if under 0.1%)	< 0.5%
ESTIMATE – Y/N?	N
ROOT CAUSE	CONTAMINATED ORIFICE PLATE
ANALYSIS	
METER TYPE	ORIFICE
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CHECKED BY	B Purl

2. BACKGROUND

Gas is supplied to part of the SoE network at Farningham FWACV offtake which employs an orifice plate meter to measure the volumetric flow rate in accordance with BS EN ISO 5167.

The meter system underwent its annual ME2 metering revalidation in June 2009 when it was noted that the orifice plate upstream face had heavy contamination on the lower part of the upstream face. The contamination was recorded in a digital photograph (see Appendix A fig 1).

The contaminated orifice plate was replaced in rotation with a clean plate.

3. ERROR QUANTIFICATION AND IMPACT

The error is likely to have existed for some or all of the period between orifice plate inspections ie from 30/10/08 to 24/6/09.

Size Of Error

No more than 0.5% under-registration however the actual error is unquantifiable.

Error Quantification and impact

The error has been assessed as an under-registration of less than 0.5%. Its impact upon the odourisation of gas has been defined as insignificant. The last good date has been identified as 30/10/08 when the plate was installed clean as part of an orifice plate replacement project.

The assessment of <0.5% under registration has been made with reference to PD ISO/TR 12767:2007 table 6 where the smallest error recorded during experimentation was 0.5%. The contamination pattern exhibited in Appendix A does not form part of the experimental results in the standard and it's effect is therefore unquantifiable.

4. CAUSES

The likely cause of the contamination is excess flushing agent and grease from valve maintenance upstream of the meter tube.

5. RECOMMENDATIONS AND LEARNING

Orifice plate inspections at Farningham should be carried out quarterly until such time as excessive contamination is not evident.

Maintenance and operations personnel have been reminded of the need to minimize the use of grease flushing agents and grease itself during valve maintenance work. More discussion would be beneficial to identify and eliminate the specific cause of contamination in this case.

The construction of the plate with a thicker outer ring coincident with the meter tube bore may lend itself to additional experimentation to determine actual field scenario errors.

REFERENCES

HPMIS records
PD ISO/TR 12767:2007
T/PR/ME/2 Part 3

VERSION HISTORY

Version	*Changes*	*Author*	*Date*
Rev O	*First draft*	*T Roberts*	*21/8/09*
Rev 1	*Final*	*T Roberts/B Purl*	*03/09/2010*

DISTRIBUTION

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Appendix A

Fig1