

**METER ERROR REPORT****FINAL**

Reconcile?	Y
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Safety Issue?	Y
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Thesis Report No.	
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**1. EXECUTIVE SUMMARY**

SITE NAME	Gosberton NTS to LDZ Offtake	
LDZ	EM	
START DATE (actual)	25 <sup>th</sup> July 2015	
LAST GOOD DATE	25 <sup>th</sup> July 2015	
END DATE	29 <sup>th</sup> July 2015	
SIZE OF ERROR (No reconciliation required if under 0.1%)	8.8% (22682scm) Over-read	
ESTIMATE – Y/N?	N	
ROOT CAUSE	Low differential pressure transmitter failure	
ANALYSIS	HPMIS RBD data	
METER TYPE	Orifice plate	
AUTHOR	Piers Eldridge	
CHECKED BY	Sarah Kimpton	
ACCEPTED BY NGGD NETWORK	Andrew Finch	

## 2. BACKGROUND

Gas is supplied to part of the East Midlands Network at Gosberton NTS to LDZ FWACV offtake. Gosberton is a single stream orifice plate meter site using a gas chromatograph for RD and CV determination and PTZ correction. The low range differential pressure transmitter started to read high at 20:12 on 25<sup>th</sup> July 2015. This over read was below the low flow cut off until 22:08 on 25<sup>th</sup> July 2015. DNCC called out a mechanical crew to look at the V25 FCV as the valve was suspected of erroneously passing gas. Attempts were made to close the valve in DVC but the integrity of the seal remained suspect. In the interest of measurement and LGT injection integrity, DNCC then applied temporary mitigation by making the site flow at 02:05 on 26<sup>th</sup> July 2015. The low-range differential pressure transmitter began to read correctly and the mechanical crew left the site.

The low-range differential pressure transmitter started to read high again at 17:39 on 26<sup>th</sup> July 2015. A meter suspect alarm was raised by the flow computer at 17:45 hours on 26<sup>th</sup> July 2015. The system operator sent an E&I technician to site who discovered the low range differential pressure transmitter fault and the site was shut down at 21:15 hours. The site was left shut down until a new low range differential pressure transmitter was fitted and commissioned on the 29<sup>th</sup> July 2015.

## 3. ERROR QUANTIFICATION AND IMPACT

RBD data and audit data from Gosberton on the 25<sup>th</sup> and 26<sup>th</sup> July 2015 have been analysed. For each Danalyzer cycle where the low range differential pressure reading has disagreed with the average of the high range and standby differential pressure readings, the flowrate has been re-calculated substituting the erroneous low range differential pressure readings with the applicable averages of the differential pressure readings of the high and standby data. A correction factor for each Danalyzer cycle has been calculated based on the difference between the incorrect reported flowrate and the recalculated flowrate. The daily correction factors are shown in table 1.

	Gemini Volume (MSCM)	Error (sm <sup>3</sup> )	Correction Factor
25/07/2015	0.0608	8139	0.866135
26/07/2015	0.1974	14543	0.926327

Table 1. Summary of the measurement error and the daily correction factors.

The error would have had only a minor effect on the odourisation injection rates.

## 4. CAUSES

A Honeywell STD120 low range differential pressure transmitter started to over read on 25<sup>th</sup> July 2015. The transmitter has been replaced with a Yokogawa EJA110A transmitter.

## 5. RECOMMENDATIONS AND LEARNING

HPMIS (RBD data) should continue to be monitored to identify any such future errors. If the error should re-occur, an assessment of the transmitter may be required to ensure its integrity.

## REFERENCES

ISO 5167  
HPMIS database  
MER.xlsm

## VERSION HISTORY

<i>Version</i>	<i>Changes</i>	<i>Author</i>	<i>Date</i>
<i>Rev 1</i>	<i>Original issue</i>	<i>Piers Eldridge</i>	<i>14/08/2015</i>
<i>Rev 2</i>	<i>The description of the error calculation method has been improved.</i>	<i>Piers Eldridge</i>	<i>25/09/2015</i>
<i>Rev 3</i>	<i>Andy Finch's comments have been included.</i>	<i>Piers Eldridge</i>	<i>9/10/2015</i>

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