

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

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

SITE NAME	Hydes Pastures	
LDZ	WM	
START DATE (actual)		
LAST GOOD DATE	18 <sup>th</sup> February 2011	
END DATE	20 <sup>th</sup> July 2012	
SIZE OF ERROR (No reconciliation required if under 0.1%)	No Reconciliation (0.03 % under-registration)	
ESTIMATE – Y/N?	Y	
ROOT CAUSE	Multiple faults in temperature measurement loop	
ANALYSIS	Estimation of error from validation data	
METER TYPE	Orifice	
AUTHOR	B. Kirkman	
CHECKED BY	S. Kimpton	
ACCEPTED BY NETWORK	A. Finch	
RECONCILIATION	Distribution	Transportation

## 2. BACKGROUND

Hydes Pastures is an East Midlands to West Midlands Inter-LDZ transfer station comprising a single orifice plate meter stream. A Tracker device is deployed for relative density and calorific value determination and PTZ correction is used.

During an annual validation, the CP5 (RTD Input Check) test failed on 24<sup>th</sup> January 2012 subsequently passing following re-calibration on the same day. The CP13 (Temperature Spot Check) test then failed on 1<sup>st</sup> February 2012. Following extensive fault finding, the barriers, cable runs and junction boxes were all replaced and the problem was resolved, successfully passing the CP13 test on 20<sup>th</sup> July 2012.

## 3. ERROR QUANTIFICATION AND IMPACT

The temperature measurement error was -0.7 °C between 1<sup>st</sup> February 2012 and 20<sup>th</sup> July 2012. This was assumed to have extended back to the 24<sup>th</sup> January 2012 when the CP5 tests were performed.

On 24<sup>th</sup> January 2012 the error from the CP5 test was corrected from +1.23 °C to -0.1 °C. This indicates that the overall temperature measurement would have been approximately +0.63 °C on 24<sup>th</sup> January 2012, calculated as follows:

Overall temperature error (+0.63 °C) = ADC correction (+1.33 °C) + Spot check error (-0.7 °C)

The overall volume error has been estimated based on the temperature errors at 15°C. The HPMIS recorded station integrator readings were used to determine the volume of gas in each period.

Date	Temperature Error (°C)	Flow Error (%)	Volume Recorded (scm)	Error (scm)
18/02/11 to 24/01/12	+0.63°C	+0.14 %	16,875,903	23,626
24/01/12 to 20/07/12	-0.7°C	-0.15 %	10,483,526	-15,725
Total Period		+0.03 %	27,359,429	7,901

The overall error is an under-registration of approximately 0.03 %.

## 4. CAUSES

Multiple temperature loop-related issues.

## 5. RECOMMENDATIONS AND LEARNING

The exact start of the first error period cannot be identified therefore the error for this period should be halved in accordance with the Offtake Arrangements Document. This would further reduce the overall error which remains well below the threshold for reconciliation.

## REFERENCES

HPMIS Database

## VERSION HISTORY

<i>Version</i>	<i>Changes</i>	<i>Author</i>	<i>Date</i>
<i>0</i>	<i>Original</i>	<i>B. Kirkman</i>	<i>11/02/13</i>

## DISTRIBUTION

*National Grid Gas Distribution*