

NULL METER ERROR REPORT**FINAL**

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

SITE NAME	Mickle Trafford	
LDZ		
START DATE (actual)	8 th July 2019	
LAST GOOD DATE	7 th July 2019	
END DATE	12 th September 2019	
SIZE OF ERROR (No reconciliation required if under 0.1%)	-0.002283% on original measured volume	
ESTIMATE – Y/N?	N	
ROOT CAUSE	Incorrect orifice and tube calibration temperatures	
ANALYSIS	Calculation of flowrates using incorrect and correct temperatures to determine the error.	
METER TYPE	Orifice	
AUTHOR	Will van Woerden	
CHECKED BY	Piers Eldridge	
ACCEPTED BY CADENT NETWORK		
RECONCILIATION	Distribution	Transportation

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2. BACKGROUND

Gas is supplied to part of the Cadent network at Mickle Trafford FWACV offtake. The site meter system comprises of a single stream orifice plate meter.

On the 12th September 2019 it was discovered that both orifice and tube calibration temperatures had been entered incorrectly into the site flow computer configuration, this was identified to have occurred on 8th July 2019.

3. ERROR QUANTIFICATION AND IMPACT

Table 1 details the correct and incorrect calibration temperatures for both meter tube and orifice plate. It can be seen that the calibration temperatures have been incorrectly swapped with each other on installation.

Table 1 Correct and Incorrect Calibration Temperatures

	Correct Temperature (°C)	Incorrect Temperature (°C)
Orifice Plate	19.4	20.0
Meter Tube	20.0	19.4

Flowrates were calculated using the incorrect calibration temperatures and correct calibration temperatures, across a range of operating temperatures, summarized in Table 2. A differential pressure of 1000 mbar and a pressure of 51 bara were used.

Table 2 Error in Volumetric Flowrate

Operating Temperature (°C)	0	10	20	30
Percentage Error in Flowrate %	-0.0022767	-0.0022830	-0.0022809	-0.0022801

4. CAUSES

The error was caused by the incorrect entering of both orifice and tube calibration temperatures into the site flow computer configuration.

5. RECOMMENDATIONS AND LEARNING

The configurations saved after the meter is replaced should be checked against the meter and tube calibration certificates.

REFERENCES

OrificeFlow Mickle Trafford Error.xls

VERSION HISTORY

<i>Version</i>	<i>Changes</i>	<i>Author</i>	<i>Date</i>
1	<i>First Issue</i>	W. van Woerden	19/08/2020
2	<i>Cadent comments included</i>		14/09/2020