

NULL METER ERROR REPORT**FINAL**

Reconcile?	N
------------	---

Safety Issue?	N
---------------	---

Thesis Report No.	
-------------------	--

1. EXECUTIVE SUMMARY

SITE NAME	Pucklechurch	
LDZ	SW (WWU)	
START DATE (actual)		
LAST GOOD DATE	20 th April 2021	
END DATE	4 th October 2021	
SIZE OF ERROR (No reconciliation required if under 0.1%)	0.0474% under registration (half error)	
ESTIMATE – Y/N?	Y	
ROOT CAUSE	Failed validation checks for pressure ADC on meter stream A	
ANALYSIS	Recalculation of volumes using corrected pressure	
METER TYPE	Turbine	
AUTHOR	J Hill	
CHECKED BY	C Litster	
ACCEPTED BY NETWORK		
RECONCILIATION	Distribution	Transportation

2. BACKGROUND

Pucklechurch Offtake has duty/standby turbine meter streams, using a gas chromatograph for RD and CV determination and PTZ correction.

During the annual validation, the CP4a (ADC Pressure Check) test failed on 04th October 2021 for stream A. The error was corrected on the day it was discovered.

3. ERROR QUANTIFICATION AND IMPACT

The pressure measurement was corrected for 'As Found' errors from CP4a in combination with 'As Found' errors from CP10 to give a whole pressure loop error as shown in Table 1. Calculation of the mismeasurement is for when the pressure recorded exceeded the maximum acceptable loop tolerance of 0.2% in the 60 to 80 bar range.

Table 1

Pressure	CP4a % Error	CP10 % Error	Total Error %
0	0.0075	0.01	0.0175
20	0.03	0.08375	0.11375
40	0.04625	0.1	0.14625
60	0.055	0.1188	0.1738
80	0.07125	0.1875	0.25875
60	0.055	0.15625	0.21125
40	0.04625	0.1375	0.18375
20	0.03	0.1063	0.1363
0	0.0075	0.01	0.0175

The density, flow rate and volume flow were recalculated from the corrected pressure reading. The error was calculated as the difference between volume totals using measured and corrected inputs.

The overall error is an under-registration of 0.09497%.

4. CAUSES

Pressure ADC checks failed during routine validation for stream A.

5. RECOMMENDATIONS AND LEARNING

Failures of this type will occur occasionally, if the same checks fail regularly then it suggests a fundamental problem with the equipment being tested and repairs or replacements should be made.

The start of the error cannot be identified therefore the total error to be reconciled should be halved (0.0474%) in accordance with the Offtake

Arrangements Document. As the error is below the threshold for reconciliation (0.1 %) no reconciliation should be made.

REFERENCES

HPMIS Database

Pucklechurch MER Check 10_21

RBD Audit Data Report Puck

VERSION HISTORY

<i>Version</i>	<i>Changes</i>	<i>Author</i>	<i>Date</i>
<i>0</i>	<i>First Issue</i>	<i>J Hill</i>	<i>17/12/21</i>

DISTRIBUTION

Wales & West Utilities