

**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	Maelor	
LDZ	WN (WWU)	
START DATE (actual)	15 <sup>th</sup> March 2021	
LAST GOOD DATE		
END DATE	27 <sup>th</sup> April 2023	
SIZE OF ERROR (No reconciliation required if under 0.1%)	0.035% over registration (half error)	
ESTIMATE – Y/N?	N	
ROOT CAUSE	Incorrect K Factors used in the Omni flow computer	
ANALYSIS	Application of Meter Calibration Curve	
METER TYPE	USM	
AUTHOR	J Hill	
CHECKED BY	C Litster	
ACCEPTED BY NETWORK		
RECONCILIATION	Distribution	Transportation

## 2. BACKGROUND

Maelor Offtake has duty/standby ultrasonic meter streams, using a gas chromatograph for RD and CV determination and PTZ correction. Following the identification of the same issue during a metering audit at another site and subsequent checks of all WWU sites, it was identified that the k-factors had been entered in reverse order to the frequencies entered in the Omni. It has been found the error occurred during the reinstatement of meters 20041020 and 20041021 after their removal and re-calibration, and that the k-factors and associated frequencies from the calibration certificates were entered into the Omni flow computer in the reverse order. The error was corrected in the flow computer shortly after discovery of the issue on 27<sup>th</sup> April 2023.

## 3. ERROR QUANTIFICATION AND IMPACT

Using the meter calibration curve, the k-factors for the incorrect frequencies used were calculated. The applied and corrected k factors were then used to determine the applied and corrected volume and hence percentage volume error for each incorrect frequency used.

The volumetric error was calculated as the difference between the recorded and corrected volumes.

The overall error is an over-registration of 0.035%.

## 4. CAUSES

Human error in reading and entering values from the calibration certificate to the Omni flow computer.

## 5. RECOMMENDATIONS AND LEARNING

Peer review of k-factor and frequency entries for existing and new USM/turbine installations.

## REFERENCES

HPMIS Database

Meter 20041020 calibration certificate

Meter 20041021 calibration certificate

## 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>26/06/2023</i>

**DISTRIBUTION**

*Wales & West Utilities*