Null Report

Cadent Gas Ltd

EA025 (MER/CAD/262/23) Gt Wilbraham

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Document Author: Patrick Keenan

Contact: patrick.keenan@kelton.co.uk

Kelton Engineering Ltd
The Mackenzie Building, 168 Skene Street
Aberdeen, AB10 1PE, Scotland, UK
t: +44 (0) 1224 630000 | f: +44 (0) 1224 630004
e: info@kelton.co.uk | w: www.kelton.co.uk

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1 Revision Control

Rev	Issue date	Description	Prep.	App.
1	20/12/2023	Issued for comment	PK	KW

2 Executive Summary

Site Name	Gt Wilbraham NTS to LDZ Offtake
DNO	Cadent Gas Limited
LDZ	East Anglia
Error Start Date	
(Or) Last Good Date	28th September 2022
Error Corrected Date	12th September 2023
Size of Error (over or under read)	<0.1% (37,086 Sm^3 under registration)
Error Description	Low differential pressure cell and Low differential pressure ADC failed calibration.
Methodology	Recalculation of data using corrected differential pressure when low cell in use.
Meter Type	Orifice plate
MER Unique Reference Number	EA025
Cadent Internal Reference	MER/CAD/262/23

3 Error Description

During annual T/PR/ME/2 maintenance on the 15th September 2023 the CP11a Low differential pressure transmitter calibration failed. As well as this the CP4b Low differential pressure ADC input check failed on the 11th September 2023. Both ADC and transmitter were trimmed and As Left calibrations carried out.

4 Methodology

The low DP cell calibration only failed at the 75% and 100% cardinal points, equating to 37.5 and 50 mbar. The low DP ADC also failed at the 75% and 100% cardinal points. As the increase in error is generally linear with respect to DP for both the transmitter and ADC, a correction has been applied only to those points where the measured DP was in the range of failure. This equates to a band between ~29.24 to 50 mbar for the transmitter correction, and ~35.29 to 50 mbar for the ADC correction. As it cannot be ascertained when the found errors began, half of the full correction has been applied to the daily corrections so as not to introduce any bias to the corrected values.

'Reported' mass has been calculated from the below reported data.

$$reported\ mass = reported\ Svol * reported\ RD * standard\ density\ of\ air$$

Corrected mass has been calculated as below.

$$corrected\ mass = reported\ mass * \sqrt{\frac{corrected\ DP}{reported\ DP}}$$

Corrected standard volume has been calculated as below.

$$corrected\ Svol = corrected\ mass/(reported\ RD * standard\ density\ of\ air)$$

The correction factors to be applied to the daily reported standard volumes, listed in Appendix A, are calculated as below.

$$standard\ volume\ correction\ factor = \frac{corrected\ Svol}{reported\ Svol}$$

5 Error Quantification

The error is an overall under-registration of 0.013 % or 37,086 Sm^3. The error for each day is less than 0.1% which is below the reconciliation threshold therefore no correction is required.

6 References

MER_EA025_Gt_Wilbraham_Data.xlsx	Error calculation spreadsheet