



Measurement Error Report

Stanton Energy Limited

MER_CAD_223_22 Stanton BNEF

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1 Revision Control

Rev	Issue date	Description	Prep.	App.
1	31/03/2023	Issued for comment	BK	PE
1.1	04/04/2023	Issued for comment	TB	BK

2 Executive Summary

Site Name	Stanton Energy BNEF
DNO	Cadent Gas Limited
LDZ	East Midlands
Error Start Date	21 st August 2022
(Or) Last Good Date	
Error Corrected Date	19 th February 2023
Size of Error (over or under read)	450 Sm ³ under-read (following in-day corrections)
Error Description	Erroneous fiscal USM flow readings and erroneous Gemini Data
Methodology	Comparison of inlet meter and fiscal meter flow readings
Meter Type	Ultrasonic meter
MER Unique Reference Number	
Cadent Internal Reference	MER/CAD/223/22

3 Error Description

Stanton Energy BNEF has a single 2" Sick Flowsic500 ultrasonic meter stream for measurement of gas exiting the grid entry unit (GEU) and entering the distribution network (referred to in this report as 'Fiscal USM'). A second 2" Sick Flowsic500 ultrasonic meter is located on the inlet to the GEU for process control (referred to in this report as 'Inlet USM'). Propane injection is used to control the gas properties (e.g. calorific value, Wobbe number, etc.) to meet the requirements of the Gas Safety (Management) Regulations (GS(M)R). Gas that is not within specification is rejected by a diverter valve.

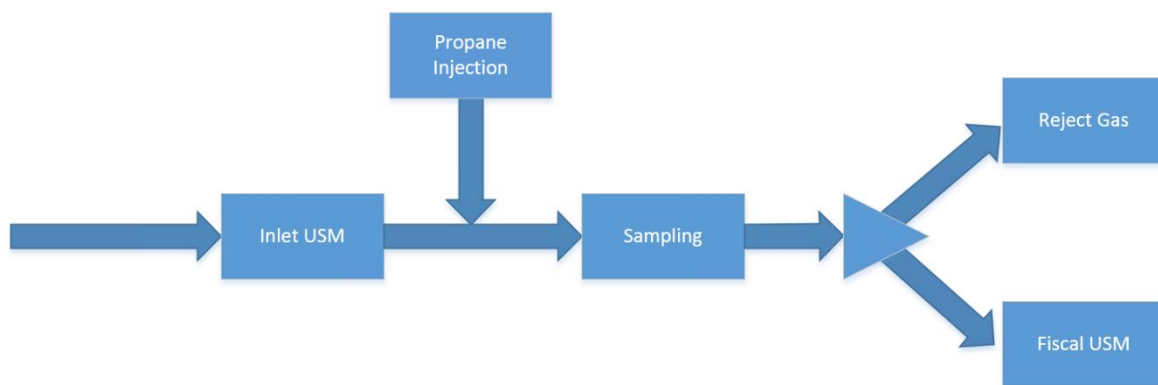


Figure 1 - Grid Entry Unit Flow Diagram

During normal operation the Fiscal USM will read slightly higher than the Inlet USM due to the addition of propane.

During the following dates, errors were noted:

- 21/08/2022 – 22/08/2022
- 15/09/2022
- 05/11/2022 – 06/11/2022
- 27/11/2022 – 30/11/2022
- 18/02/2023 – 19/02/2023

It is noted when comparing the calculated daily volume from this Measurement Error Report to the billed daily volumes retrieved from Cadent Energy Control Centre that a manual correction had already been completed for the days in error. This Null Report confirms that the manual correction already processed is accurate and no further reconciliation is required.

4 Methodology

Over the period of interest, the flowrates on the fiscal meter dropped dramatically indicating the meter system had gone into reject mode but was still recording a flow. *Note: The switch to reject mode is evident from the trends in pressure and temperature.* The error consisted of the fiscal meter reading high for a period. The calculated error is the sum of the Fiscal Meter total volume flow for the affected time period. This calculated error value was then subtracted from the calculated daily volume.

5 Error Quantification

The error for each period was corrected in the Gemini system on the day (or within D+5). The corrections made for all days are accurate with the exception of 21st August 2022. Following the submission of the correct data this report now reflects the corrections made for dates 28th to 30th November 2022 are also correct.

Gas Day	Daily Volumes (MSm ³)		
	Measured	Corrected	Gemini
21/08/2022	0.00881	0.00836	0.00790
22/08/2022	0.00668	0.00575	0.00571
15/09/2022	0.00311	0.00295	0.00304
05/11/2022	0.00372	0.00132	0.00131
06/11/2022	0.00057	0.00032	0.00033
27/11/2022	0.00602	0.00414	0.00392
28/11/2022	0.00290	0.00000	0.00000
29/11/2022	0.00289	0.00000	0.00000
30/11/2022	0.00686	0.00628	0.00631
18/02/2023	0.00404	0.00185	0.00181
19/02/2023	0.00560	0.00523	0.00523

Figure 2 - Daily Volume Data Comparison

On 21st August the original volume recorded by the flow computer was 8,799 Sm³, which is similar to the recalculated value of 8,813 Sm³. The error occurred from 01:02 on 22nd August 2022 for the remainder of the gas day and into gas day 22nd August 2022 until 13:17. The site was recording a flow of approximately 113 Sm³/h for this period.

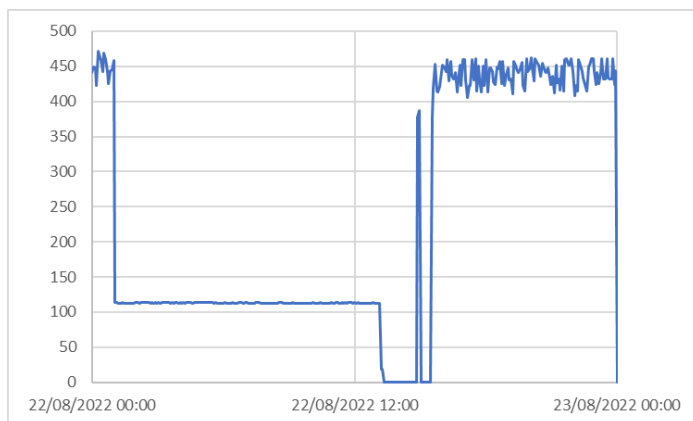


Figure 3 - Standard Volume Flow Rate 22nd August

The Gemini latest daily volume is 7,900 Sm³, however, the corrected daily volume should be 8,352 Sm³. Therefore, a daily correction factor of 1.057201 should be applied to the latest Gemini daily volume of 0.0079 MSm³.

Gas Day	Gemini Daily Volume (MSCM)	Daily Correction Factor	Corrected Daily Volume (MSCM)
21-Aug-22	0.00790	1.057081	0.00835

6 Learning

It is suspected that contamination on the ultrasonic meter transducers originating from the propane injection system has caused the meter to read erroneously. Consideration should be given to continuous monitoring, recording and time/date stamping the diverter valve position in order to ascertain if the system was recirculating or flowing to the distribution network. This would result in easier analysis if mismeasurements were to occur again.

7 References

Gemini Daily Volumes; (R1.1 including re-issued data for 28 to 30 Nov 2022)
MER_CAD_223_22_Data R1.1 calculation spreadsheet