

British Gas Response to the ITE written response issued on 31st January 2011

9th February 2011

Further to the written response provided by the Independent Technical Expert to the questions and observations we had previously posed.

Due to the significance of the measurement error and the resultant financial impact upon Shippers it is essential that there is complete transparency of the process and sufficient ability for Shippers to scrutinise and challenge. Whilst we acknowledge that the report has been undertaken independently there are still areas where we require the provision of further data and information, which we have detailed below. To ensure that the whole process is completed in a fully open and transparent manner, we would expect reasonable responses to be provided to any reasonable requests made by Shippers.

To ensure that we are able to complete validation of the ensuing invoice it is important that we have complete confidence in the findings of the report. We remain concerned that corroborative data has not been utilised to validate the findings of the report.

Until we are satisfied that all of our concerns and questions have been addressed and appropriately answered we are not in a position to agree to the finalisation of the report and do not consider this matter closed.

1. *"From these discussions it appeared that a key issue was the way in which the results set seen for the low flow testing had been incorporated within the results table and whether the "potential" of a small bias of -0.4% in this low flow region should be recognised and assigned its dedicated correction factor."*

Comment: In our opinion the bias is actual because it can be determined. We would like the ITE to recognise that this approach can introduce biases and request that for future errors more precise and accurate methodology is applied.

2. *"In the opinion of the ITE, whilst there may be a potential for a small bias on the low flow results, the combined tests results of all flow rates (high, medium and low) fall within the limits of the test environment uncertainty expectations ($\pm 2\%$ for flows between 30-100% of design range and $\pm 3.5\%$ for flows $>30\%$). For this reason, the ITE recommends that a single correction factor is applied to the SMER period quantities as stated within the draft report."*

Comment: In this instance we accept that the impact is small, however we note that there is a difference between uncertainty of $\pm 2\%$ where you do not know the outcome and a bias which can be determined.

3. *"As a point of note (and to highlight the significance), if the low flow results were to be treated separately, this would actually increase the correction factor applied to the high and medium flow bands (which contribute to typically $>90\%$ of the SMER) to 1.693 (an increase of 0.36%) and decrease the correction factor applied to the low flow band to 1.676 (a decrease of 0.66%). This would therefore result in a slight "increase" in the overall SMER quantities."*

Comment: We believe that this bias is in part due to the poor statistical coherence of the recorded data where maybe more readings should have been taken, the comments at the meeting of "it is what is it" does not defend this principle. In future it is essential that sufficient data is collected to support results.

4. *"Due to the magnitude and value of the error it is expected that **all** of data used to derive the data would be presented to ensure transparency. Instead only some of the information is presented and other information is not.*

ITE RESPONSE; WITH RESPECT, IT IS IMPOSSIBLE FOR ME INCLUDE ALL OF THE DATA I HAVE REVISED DURING THIS INVESTIGATION WITHIN A REPORT – I HAVE SPENT MANY, MANY DAYS EXAMINING SPREADSHEETS, SITE REPORTS & MUCH SUPPORTING DATA PROVIDED BY THE TRANSPORTER(S).

I HAVE (IN MY OPINION) INCLUDED THE RELEVANT DATA FROM (AND LET'S BE HONEST - A VERY SIMPLE RECREATION OF THE ERROR) TO PROVIDE TRANSPARENCY TO MY TECHNICAL INVESTIGATIONS IN ACCORDANCE WITH THE ITE GUIDELINES."

Comment: It should be remembered that the ITE is working on behalf of the committee and that to ensure transparency all the data made available to the expert should be made available to all parties upon request. We consider that this matter is not closed until all of the data requested is provided, as our own analysis shows that the size of the error is potentially overstated by a significant amount.

5. *"Although an empirical method is used to derive the error no attempt has been made to validate this method against the actual data held prior to, during and post the event. This lack of comparisons and cross checking means the evaluation of the SMER is not as robust as it could be.*

ITE RESPONSE; WITH THE GREATEST OF RESPECT THIS COULDN'T BE FURTHER FROM THE TRUTH. I FULLY RECOGNISE THE IMPORTANCE TO "CROSS CHECK" MY CONCLUSIONS WHICH I SPENT MUCH TIME IN DOING. FROM THE MASSES OF SPREADSHEETS GENERATED BY THE TRANSPORTER(S), I SAW ENOUGH SUPPORTING DATA TO SATISFY MY CONCLUSIONS WHICH WERE ACCEPTED ACCORDINGLY BY THE TRANSPORTER REPRESENTATIVES DURING THE WORKGROUP MEETING."

Comment: We note that there is no mention of extensive checking versus the network data, this was only verbally implied at the meeting. There needs to be a clear statement of what has been used to verify the presented results and the level of agreement achieved.

6. *"The information presented is inconsistent. For both the start and stop of the SMER period but the data log as shown for the SMER start should be presented for the SMER Finish. The technician's log as shown for the SMER finish should also be shown for the start of the SMER period.*

ITE RESPONSE; IN MY OPINION, THE EXAMPLES CHOSEN DEMONSTRATE BEYOND DOUBT WHEN THE SMER WAS FIRST CREATED & WHEN IT WAS FINALLY CLEARED. A MIXTURE OF GRAPHICAL & LOG BOOK ENTRIES REMOVES ANY COMMON MODE RECORD ISSUES."

Comment: The ITE has chosen what to show and would appear to refuse to show all of the information. We do not believe that there is any reason not to provide this data upon request to aid transparency and increase Shipper confidence. The graph for the end of the SMER period is key as this alone would re-confirm the error when the SMER period finished. Its omission does ask the questions, why exclude one more supporting graph?

Again, until this information is provided we do not accept that this matter is closed.

7. *“Whilst the approach used by the ITE is a practical approach, this as a result carries a higher uncertainty. However, the opportunity has not been taken to validate the outcome against the actual data and information which is independent. The empirical findings must be validated against existing network data records including any information available from shippers, this approach will result in a truly robust evaluation.*”

ITE RESPONSE; AGAIN, I CONFIRM THAT I HAVE SPENT MUCH TIME IN REVIEWING NETWORK DATA & FROM THE “MANY” SPREADSHEETS & MONITORING DATA REVIEWED, I AM HAPPY THAT THEY SUPPORT THE MAGNITUDE OF MY CONCLUSIONS.”

Comment: Please refer to our comments provided under comment 5. detailed above with regards to validation. We note that our question has not been answered and remains open.

8. *“The flow rate is not that constant as shown from the data points, this information should also be shown as time based rather than just the data point count of 16000, details on time span per data point or number of points over a day. The pressure is also erratic so this may lead to preferential flow changes through the open valve which may be erratic as the line pressure is balanced by flow changes.*”

**ITE RESPONSE;
FLOW RATE;
YES THE FLOW RATE IS NOT CONSTANT AS IT IS THE OPERATING FLOW RATE SEEN DURING THE TIME OF THE SMER. THIS IS WHY EACH OF THE 4 SITE VISIT TESTS WERE DONE AT 3 DIFFERENT FLOW RATES (SEE DRAFT REPORT PAGE 16) TO ENSURE THAT THE ERROR WAS NOT FLOW RATE DEPENDENT AND AS CAN BE SEEN FROM THE TEST GRAPHS (POTENTIAL OF A SMALL BIAS AT LOW FLOW RATES EXCLUDED). IT ISN'T.....!!
GRAPH AXIS;
THE GRAPHS ARE TIME BASED – FOR 0 THINK 26TH JANUARY 7 FOR 16000 THINK 26TH APRIL.....!!”**

Comment: We note that from a presentation perspective this is not helpful at all if a reviewer of the report is checking against specific days for events on the distribution system.

9. *“The report should show all of the results for each of the tests so a comparison can be made by shippers and demonstrates that the tests selected for the correction are suitable.*”

ITE RESPONSE; IN MY OPINION, THE TEST RESULTS ARE SHOWN FOR ALL THE TESTS WITHIN THE DRAFT REPORT (PAGES 19-27). A SAMPLE OF THE TEST RESULT SPREADSHEET IS ADDITIONALLY INCLUDED WITHIN REPORT APPENDIX B FOR THE TEST COMPLETED DURING 28TH SEPTEMBER.”

Comment: Again, we have concerns from a data presentation perspective. We believe that data should be included in a spreadsheet in future and not in a pdf report format from which it is difficult to extract and would be grateful if this information could be provided.

10. *"The results presented should be of the lowest uncertainty and free from any bias arising from assumptions made on in the derivation of the errors. In such cases the correction applied to be that with the lowest uncertainty or at the lowest end of the spread otherwise a correction could be applied which has a higher uncertainty and consequently is not equitable. Is there a minimum requirement for the derivation of a SMER correction? What is the estimated uncertainty of this derivation, the data spread error is stated as 1% but what about the other assumptions made such as flow rates?"*

ITE RESPONSE; LET ME MAKE IT CLEAR – NO ASSUMPTIONS HAVE BEEN MADE WITHIN THIS REVIEW ONLY THE RESULTS OBTAINED DURING THE TESTING HAVE BEEN USED. THERE IS NO DERIVATION USED OTHER THAN TAKING 2 NUMBERS AWAY FROM EACH OTHER TO CALCULATE A % DIFFERENCE.....!!"

Comment: We note that the error is 43% to +/-1% according to the spread of errors, however we believe that the empirical data could be better. It is not the subtraction of two numbers we have concerns with but the confidence in the two numbers that are being subtracted from each other. If the SMER was 1.5% then +/-1% is significant.

11. *"This is another potential mis-measurement and an over reading for the low range differential pressure cell of 1.8 mbar over its operating range. Error will be in the range of 2-4% (very approximate) for flows of less than approximately 60kSm³/hr, this needs further investigation."*

ITE RESPONSE; MY FIRST IMPRESSIONS WERE THAT THIS DID SEEM TO BE A POTENTIAL ISSUE.

HOWEVER, ALL FIELD TRANSMITTERS WERE SUBJECT TO ME2 CALIBRATION CHECKS IN EARLY JANUARY (2010) – AS WE KNOW THE CAUSE OF THIS SMER WAS WHEN THE LOW DP TRANSMITTER WAS REPLACED ON 26TH JANUARY HAVING FAILED THE ME2 REQUIREMENTS. ALL TRANSMITTERS WERE SUBSEQUENTLY REPORTED AS A PASS AND A PRE-TEST (2ND AUGUST) REPEAT ALSO PASSED.

WE NEED TO BE CAREFUL HERE BECAUSE 2 READINGS PRODUCED FROM 2 SEPARATE TRANSMITTERS WILL NEVER READ THE SAME SO, WE NEED TO EXAMINE WHAT LEVEL WE CAN REASONABLY EXPECT THE READINGS TO AGREE TO;

AS THE TRANSMITTERS ARE CALIBRATED TO 0.2% OF THEIR CALIBRATED SPAN (FOR THE HI RANGE = 0-500 mbar) THERE IS STRAIGHT AWAY THE POSSIBILITY THAT THERE WOULD BE A DIFFERENCE OF ±1 mbar. INCLUDE THE ADC CALIBRATION REQUIREMENTS & THE UNCERTAINTY OF THE HIGH DP TX DOWN AT >50 mbar (typically 3-4%) etc. etc.....!!"

Comment: We note the small materiality of this issue however we believe, for completeness, it is important to address this issue. As we understand it, the low DP was reading higher within its calibrated range but the HP reading was used. Therefore we question why is it assumed that the high DP was correct at 20 mbar when this is not its operating range? In normal operation the low DP reading would have been used. Surely the DP instruments which would be in use should be used? Is the "offline calculation" just using the high DP reading?

12. *“Why is an average of the error being applied to each day, as the results have shown that the error varies slightly with flow rate the application of the correction should be based in minimising the uncertainty and reducing bias.*

ITE RESPONSE; MY UNDERSTANDING FROM THE ITE GUIDELINES (AS SPECIFIED ON PRESENTATION SLIDE 3 & DRAFT REPORT PAGE 3) IS THAT DAILY CORRECTION IS THE REQUIRED DELIVERABLE.”

Comment: Unfortunately the response does not answer the question and we would appreciate an answer. A factor related to daily flow can be derived, it does not direct to using an average for the whole SMER period.

13. *“The test result tables do not show consistent behaviour for the change in flow rate to high, medium and low flow rates. It is expected that there would be a consistent pattern in these results in that respect.*

ITE RESPONSE; AS I’VE COVERED EARLIER - IN MY OPINION (AND THE TABULATED RESULTS & RESPONSE GRAPHS WITHIN THE REPORT DEMONSTATE) – THE % ERROR versus FLOW RATE IS VERY MUCH CONSISTENT AND IS SHOWN TO BE SO WITHIN A RESULTS SPREAD OF 1% AT TEST FLOWS BETWEEN 72 & 160 Ksm³/h AND PRESSURES OF BETWEEN 50.7 & 64.3 BarG (+ AT 4 DIFFERENT TEST DATES.....!!”

Comment: We note that the error does not show consistent behaviour, the inconsistency is more pronounced with mid and high flows, but surprisingly less so with low flow where there is a greater uncertainty. We accept is small, however we would have expected more data to have been collected to better inform the decision.

14. *“The correction should be based on actual flow rates, rather than a single value, the uncertainty on the corrections should be stated.*

ITE RESPONSE; THERE IS NO SIGNIFICANT CORRELATION THAT DEMONSTRATES THERE IS AN ERROR VALUE ASSOCIATED WITH A PARTICULAR FLOW RATE – THE SPREAD OF RESULTS ARE WITHIN 1% FOR ALL FLOW RATES & THE UNCERTAINTY IS THAT OF THE METER STREAM.”

Comment: This is a correlation and a difference and a bias. Albeit small, we note that if there was more empirical data their effect would be clearer to see, again it is down to the amount of data collected.

15. *“It is noted that the standby DP shows a slightly different reading, so what evidence is there to justify using the high DP reading?”*

ITE RESPONSE; THE HIGH DP TRANSMITTER IS ALWAYS USED DURING NORMAL OPERATION AND THEREFORE TO REPLICATE THIS DURING TESTING, THE HIGH DP TRANSMITTER OUTPUT WAS USED.”

Comment: There is a duty High DP and Standby High DP cell together with a Low DP cell. With the discrepancy at Low DP, surely priority should be given to the Low DP when it is operating in its range. The DP at low flows is given and will be within the range of the Low DP cell with recorded DPs of 20 to 60 mbar and the Low DP cell range of 0 – 50 mbar. Can you please advise what reason is there for using the High DP cell for such low readings? It was stated that as there are two readings it is not known which is correct. The fact that the Low DP cell gave a step change in the error should not be dismissed as being incorrect, especially if the DP cell was within its ME2 tolerance. It could be that the high DP cell was in error over its whole range. We would appreciate your view on this.