British Gas Comments & Question on the Independent Technical Expert's Draft Final Report and Presentation relating to the 'Braishfield B' offtake measurement error

22nd December 2010

Overview of key principle issues with the Braishfield B SMER draft report

- 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.

- To minimise the uncertainty in such calculation of errors then where possible the data must be used to maximise granularity and avert increased uncertainty arising from over simplification which can result in a simpler calculation process but with a higher uncertainty.

- 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.

Specific comments on the report and presentation

Presentation page 5 and SMER report page 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.

Presentation page 6 and SMER report page 3 paragraph 4 and page 15

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.

Presentation page 7 and SMER report page 4 paragraphs 2 and 3 and page 15

The flow rate is not that constant as shown form 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.

Presentation page 8 and SMER report page 15 figure 5.1.2

For the SMER evaluation procedures to establish the effect of the valve opening, this empirical procedure is very open to variations in flow rate during the test itself as changes in flow will affect the results.

Presentation page 9 and SMER report page 4 paragraph 5

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.

The table of results shows the effect of valve position and flow rate. It is noted that the flow rate affects the under-reading by around 1% between min and max flow which is in addition to the claimed test result spread.

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?

Presentation page 10 and SMER report page 29

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.

Presentation page 11 and SMER report page 29 table 7.2.2.

The percentage of error relationship to flow rate is not consistent. It is expected that the effect will be related to flow rate but this is not the case in the table the first and last test have a different relationship of error to flow (error reduces slightly with flow) to the middle two tests.

Presentation page 12 and SMER report page 30

Exactly how have the effects of flow stability been minimised, this is just a data fix.

Presentation page 13 and SMER report pages 29 and 31

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.

SMER report page 5 figure 3.1

It states in the error notification that the measurement error was noted by "system operator line pack checks", in which case why was it not noticed earlier. Why has this line pack data not been used to validate the derived data?

SMER report page 5

The report makes many references to the OPEN equalising value, only stating the fully open value once on page 6. Confirmation is required that the valve was indeed left fully opened on 26/1/10 and not left partly open.

SMER report page 6 figure 3.2

Figure 3.2 clearly shows a step change in flow for this ME as a decrease from 3 MSCM/day down to 2.4 MSCM/day and yet this 20% change was not noticed by the operator.

However, it is noted that no such record is shown when the valve was fully closed. This is a significant omission as this information could validate the error as determined by the ITE.

Figure 3.3 shows the site log for 26/4/10 but there is no copy of the site log for the original visit, this should also be included in the report.

It is also noted that the site log does not state that the valve is in the fully open position.

SMER report page 16 figures 5.1.3 and 5.1.4

These indicate an event at around data point 12500 which affected the readings, if the scale was based on time rather than data points it would be easier to correlate the data to actual data.

SMER report page 18 and 28

Whilst the procedure for deriving the effect of the valve is good the results obtained are flawed, the reason could be the quality and suitability of the data obtained during these tests. The one parameter which is required to be stable is flow rate and this cannot be fixed by the site. Therefore it will vary during the tests giving inconsistent results. This is not unexpected with empirical results but is does increase their uncertainty.

The results should be shown for all of the tests so a judgement can be made as to the validity of the tests.

SMER report pages 19 to 27

It was noted that whilst it is claimed that the tests are representative of actual conditions, these tests only cover the lower half of the pressure range.

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.

There is significant change in the error between 1 and 2 turns of the value yet it is not clear that this may not apply in this case resulting in an error of 13% to 40%.

SMER report pages 28 section 7.2 and page 29 paragraph 1

The derivation of flow rate may be flawed as it is based on average of the start and end flow rates, the information in Appendix B for a test from 28/9/10 shows that flow rates can increase before the end of a test period and change significantly during the period (pages B4 and B5). In addition the use of the final flow rate will increase the bias in the flow is increasing during the period. This approach can result in biased results and increased uncertainty.

SMER report page 29

How was it demonstrated that the valve was fully opened? Is this by trying to fit the valve position to the error? Which is not applicable as the error is consistent after 2 turns of the valve.

SMER report page 31

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

SMER report pages B2 to B7

This indicates the instability in the flow rate and the dangers of using just the final flow rate.

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