

**METER ERROR REPORT****FINAL**

|            |   |
|------------|---|
| Reconcile? | Y |
|------------|---|

|               |   |
|---------------|---|
| Safety Issue? | N |
|---------------|---|

|                   |  |
|-------------------|--|
| Thesis Report No. |  |
|-------------------|--|

**1. EXECUTIVE SUMMARY**

|  |                                    |                |
|--|------------------------------------|----------------|
| SITE NAME  | Ross WM                            |                |
| LDZ  | WM                                 |                |
| START DATE (actual)                                      | 7 <sup>th</sup> January 2010 08:53 |                |
| LAST GOOD DATE   | 7 <sup>th</sup> January 2010       |                |
| END DATE   | 25 <sup>th</sup> March 2010        |                |
| SIZE OF ERROR (No reconciliation required if under 0.1%) | 107650scm under read               |                |
| ESTIMATE – Y/N?  | N                                  |                |
| ROOT CAUSE   | A chromatograph fault.             |                |
| ANALYSIS   | Detailed with this report.         |                |
| METER TYPE   | Orifice plate                      |                |
| AUTHOR   | Piers Eldridge                     |                |
| CHECKED BY   | Andy Finch                         |                |
| RECONCILIATION   | Distribution                       | Transportation |
|  |                                    |                |

## 2. BACKGROUND

Gas is supplied to part of the West Midlands network, at Ross FWACV offtake. The site metering system comprises a single Orifice meter with an isolated bypass.

At 08:53 hours on 7th January 2010, the chromatograph failed to measure the correct composition for some undiscovered reason. This caused the standard flow rate to be incorrectly calculated. A circuit board in the Danalyzer was replaced and the composition was measured correctly from 18:26 hours.

Another fault occurred on the 25th March 2010 at 10:31. The Danalyzer started to measure the composition correctly from 14:33 hours.

## 3. ERROR QUANTIFICATION AND IMPACT

The RBD data was reviewed before and after the chromatograph fault. The composition measurements prior to and after the chromatograph fault were averaged to estimate the actual composition reading during the period of the fault.

Using the Orifrun with the 8 minute RBD and gas composition data, the volume flow for the period of the fault was calculated. In each instance, the volume flows for the estimated composition readings were calculated. By comparing these calculated flows with the recorded flow over the period of the fault it was estimated that orifice metering system under-registered 123751scm of gas.

The error would have had a minor affect on odourisation.

## 4. CAUSES

The cause of the chromatograph fault remains unknown.

## REFERENCES

ISO 5167

HPMIS database

## VERSION HISTORY

| <i>Version</i> | <i>Changes</i>  | <i>Author</i>         | <i>Date</i>       |
|----------------|---|-----------------------|-------------------|
| 1              | <i>Final</i>  | <i>Piers Eldridge</i> | <i>12/01/2010</i> |
| 2              | <i>The error was changed to an under read and the error from the 24<sup>th</sup> March was added.</i> | <i>Piers Eldridge</i> | <i>16/04/2010</i> |
| 3              | <i>David Scott's analysis added.</i>  | <i>Piers Eldridge</i> | <i>09/09/2010</i> |

## Appendix

Daily summary of the error.

| Gas day    | Flow (scm) | Error (scm) | Correction factor |
|------------|------------|-------------|-------------------|
| 07/01/2010 | 763101.26  | 92075       | 1.120659          |
| 25/03/2010 | 392205     | 15575.04    | 1.039711          |