LDZ SHRINKAGE ASSESSMENT

FOR GAS YEAR 2007/08

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LDZ Shrinkage Assessment for the Gas Year 2007/08

1 Executive Summary

The purpose of this document is to present the Wales & West Utilities element of the assessment of LDZ Shrinkage for the Gas Year 2007/08, in accordance with *Uniform Network Code Section N 3.3.3*. This assessment covers the gas year 2007/08 consisting of the months of October 2007 through to September 2008 inclusive.

WWU's final LDZ Shrinkage Factor proposal for the Gas Year 2007/2008 was not subject to Condition 7(4) disapproval and as a result, the proposed LDZ Shrinkage Factors were applied in accordance with *Uniform Network Code Section N 3.1.8*.

LDZ Shrinkage Factors are comprised of three main components:

- Leakage with factors applied at LDZ level.
- Operational Usage with a factor applied at a national level.
- Transporter responsible Theft of Gas with a factor applied at a national level.

The LDZ Shrinkage Factors proposed for the Gas Year 2007/08 were derived using the methodology and data sources as stated in the proposal document. Table 1 shows the date range for the information used as the basis of the proposed and assessed factors for the Gas Year 2007/08:

Table 1. Date Range of Data Used for LDZ Shrinkage Factor Proposal and Assessment 2007/2008

LDZ Shrinkage Component	Basis of Proposed LDZ Shrinkage Factor 2007/08	Basis of Assessed LDZ Shrinkage Factor 2007/08
Leakage	Assessment of actual leakage for the calendar year 2006.	Assessment of leakage for the calendar year 2007.
Operational Usage	Assessment for the calendar year 2006.	Assessment for the Gas Year 2007/08.
Theft of Gas	Assessment for the calendar year 2006.	Assessment for the Gas Year 2007/08.

Expressed as energy, the assessment of LDZ Shrinkage covering the months of October 2007 through to September 2008 is 20.6 GWh lower than the amount of Shrinkage purchased for the Gas Year 2007/08.

2 LDZ Shrinkage Factor Assessment

This section of the report provides a detailed breakdown of the assessment for the period 1 October 2007 to 30 September 2008.

2.1 Leakage

For the Gas Year 2007/08, LDZ specific Shrinkage Factors were based on an assessment of leakage for the calendar year 2006 derived from the Network Leakage Reduction Monitoring Model (NLRMM). The NLRMM utilises the following information:

- Leakage rates
- Asset profile information for both mains/service from, WWU's asset management system, Systems, Applications and Products in Data Processing (SAP)
- An assessment of network pressures within LDZs

2.1.1 Assessment of 2007/08 Leakage

In accordance with the agreement established at the LDZ Shrinkage Forum held 8 June 2004, the leakage applicable to the 2007/08 Gas Year Assessment has been calculated such that it reflects changes to Average System Pressure. All other inputs being those used for the 2006 Leakage Assessment, i.e. those used to derive the 2007/08 Gas Year applied Shrinkage Factors. LDZ specific Flow Weighted Average Calorific Values (FWACV) are applied to convert the NLRMM output from a volume to an energy value.

Estimated and assessed leakage quantities for each LDZ are shown in Table 2.

Table 2 Estimated and Assessed Leakage Energy and Leakage Factors by LDZ

LDZ	2007/2008 Assessed Energy (GWh)	2007/2008 Estimated Energy (GWh)
South West	309	316
Wales North	68	68
Wales South	156	170
Total	**533**	**554**

As shown in Table 2, the assessment of leakage has resulted in a decrease in energy of 21GWh.

Analysis of LDZ specific changes were detailed in Wales & West Utilities LDZ Shrinkage Factors Final Estimates Gas Year 2007/08, issued 31 August 2007, which also compared 2006 leakage data with 2005 leakage data.

2.2 Operational Usage

Operational Usage, also known as Own Use Gas (OUG), is gas used within the LDZ for such purposes as pre-heater fuel to counter the impact of the Joule-Thompson effect and for other minor operational purposes, e.g. venting.

Pre-heater fuel is the largest component of OUG and it is determined using the output from a model that utilises the thermodynamic principles of the Joule-Thompson effect and LDZ throughput, calorific value, pressure and temperature data. The Operational Usage has been assessed for the Gas Year 2007/08 using 0.0113% of LDZ throughput which is equivalent to 8.8 GWh.

2.3 Theft of Gas

Uniform Network Code Section N1.4.2 states that LDZ Shrinkage shall include gas lost through theft either upstream of the customer control valve or downstream where there is no shipper serving the gas consumer.

Unidentified theft was estimated to be 0.2% of throughput for 2007/2008, of which 10% was deemed to be the Transporter's responsibility. The best information available to the gas Transporters is supportive of the assumed level and proportions of Theft of Gas and as such, Wales and West Utilities do not believe that it should revise its assessment of theft of gas from 0.02% of LDZ throughput.

2.4 LDZ Specific Shrinkage Factors

Applied and assessed LDZ shrinkage factors are shown in table 3

Table 3 LDZ Specific Shrinkage Factors

LDZ	Applied Factors 2007/08 (%)	Assessed Shrinkage Factors 2007/08 (%)	Difference Between Assessed & Applied Factors (%)
South West	0.89	0.8663	-0.0237
Wales North	0.80	0.7895	-0.0105
Wales South	0.56	0.5203	-0.0397

Note: Shrinkage Factors are expressed as a percentage of LDZ throughput.

2.4.1 Reasons for Differences

WWU have introduced improved control and monitoring processes for the profile electronic controls and, combined with proactive replacement of obsolete profile equipment in the South West, this has led to a further reduction in average system pressures and hence leakage.

WWU have made a considerable investment in the South Wales closed loop system, including software and hardware upgrades. This has led to a more stable and controlled system which has brought average pressures down. Proactive replacement of obsolete profile equipment has also had an impact on the South Wales profile controlled pressures.

In North Wales the slight reduction in Shrinkage has been due to due the ability to set some of the fixed pressure networks at reduced pressures in accordance with a milder winter.

WWU have commenced a strategic 5 year AGI CAPEX program (2008/09 – 2012/13) and improvements in average systems pressures have already become evident.