Uniform Network Code Validation Rules

Version 2.0

Document Control

Version	Date	Reason for Change
2.0	20 January 2011	Clause 4 amended as a result of implementation of UNC0224, introduction and Document Control added.
1.0	05 July 2006	Rules established

Development of Rules

(a) Section M5.3.3 of the Transportation Principal Document (TPD) of the Uniform Network Code (UNC). specifies that:

"The "Uniform Network Code Validation Rules" (or "Validation Rules") are the rules and procedures contained in the document issued by the Transporters at the [Nexus Implementation Date] and so entitled and governed and amended in accordance with Section V12 unless the Authority shall upon application by any User made within one month after such notice, give Condition A11(18) Disapproval to the Transporters making any amendment in accordance with the provisions of Section V12."

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(b) The requirement to publish the Uniform Network Code Validation Rules is specified in Section V12.1(b) of the TPD of the UNC. This section also provides for the document to be published and revised from time to time. The provision (TPD V12.2) reads :

"Each Document shall be kept up to date and published by the Transporters on the Joint Office of Gas Transporters' website."

(c) The Rules set out below meet the Transporters' obligation to prepare Guidelines, while the Document Control Section records changes which have been made to the Guidelines. The document is published on the Joint Office of Gas Transporters' website, www.gasgovernance.com.

(d) These Guidelines can only be modified in accordance with the requirements set out in paragraph 12 of Section V of the UNC Transportation Principal Document, which reads as follows:

UNIFORM NETWORK CODE – TRANSPORTATION PRINCIPAL DOCUMENT

SECTION V – GENERAL

12 GENERAL PROVISIONS RELATING TO UNC RELATED DOCUMENTS

12.1 Purpose

The purpose of this Section is to establish generic governance arrangements in respect of the following UNC Related Documents (each a **"Document"** and collectively the **"Documents"**):

(a) Network Code Operations Reporting Manual as referenced in Section V9.4;

(b) Network Code Validation Rules referenced in Section M5.3.3;

(c) ECQ Methodology as referenced in Section Q6.1.1(c); and

(d) Measurement Error Notification Guidelines for NTS to LDZ and LDZ to LDZ Measurement Installations as referenced in OAD Section D 3.1.5.

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12.2 Publication Requirements

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Each Document shall be kept up to date and published by the Transporters on the Joint Office of Gas Transporters' website.

12.3 Modifications

Should a User or Transporter wish to propose modifications to any of the Documents, such proposed modifications shall be submitted to the Uniform Network Code Committee and considered by the Uniform Network Committee or any relevant sub-committee where the Uniform Network Code Committee so decide by majority vote.

12.4 Approved Modifications

12.4.1 In the event that a proposed modification is approved by a majority vote of the Uniform Network Code Committee, the modification shall be implemented. Where the Uniform Network Code Committee fails to achieve majority approval the proposed modification shall be considered in accordance with the provisions set out in Section 7 of the Uniform Network Code Modification Rules unless the Uniform Network Code Committee determines otherwise.

12.4.2 Each revised version of a Document shall be version controlled and retained by the Transporters. It shall be made available on the Joint Office of Gas Transporters' website.

CONTENTS

1 Introduction

This is the document referred to in Section M 5.3 of the Uniform Network Code Transportation Principal Document. It does not form part of the Uniform Network Code.

1.1 This document describes the validation rules which will be applied to non-daily (Class 3 and 4) and daily metered (Class 1 and 2) meter and convertor readings and associated data before they are applied to System User and transporter systems. All parameterised values are subject to amendment in accordance with the procedures set out in Section M 5.3.3 of the Uniform Network Code – Transportation Principal Document. Any changes will be notified to System Users.

1.2 Reads provided to the Transporter by System Users from non-daily metered sites are to be validated by System Users – except where otherwise indicated – in accordance with the relevant rules described herein.

1.3 Reads from Class 1 daily metered sites are to be validated by the Transporter in accordance with the relevant rules described herein.

1.4 Reads from Class 2 daily metered sites are to be validated by the System Users in accordance with the relevant rules described herein.

1.5 The validation described in this paper will be in addition to that used to determine that the data is in accordance with the file specification and system requirements.

1.6 The validation refers to cyclic and non-cyclic meter readings.

1.7 These rules are the minimum requirement of validation that must be undertaken for readings applied to System User and Transporter systems.

1.8 The Transporter will undertake a 2 step validation process. First step will validate the User, Read and Asset data received. A tolerance check will then be applied.

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2 Meter Reading Agency HHT (On Site) Validation (does this need amending??)

2.1 Validation for this input will be performed at the time of data capture on the HHT.

2.2 The meter reading will be checked to ensure that it is within a specified range either side of an estimated reading. This is known as an Inner Tolerance Range (ITR). The estimated reading will be calculated using the consumption history and the AQ of the meter.

2.3 If the meter reading input is outside the ITR, the meter reader will be required to re-input the meter serial number. If this number is that on the HHT (the correct meter) then they will be required to re-input the reading. This confirms the accuracy of the first reading or corrects an error on the first attempted input. If the meter number differs a meter exchange will be initiated. Similar checks are to be performed on convertor readings.

2.4 A check will be made on the number of digits for a meter reading i.e. six digits must be input for a six dial meter. No alteration to the number of dials can be made on the HHT. Any anomalies discovered will be reported as they generally signify meter exchanges.

3 Cyclic Reading Validation

3.1 All readings supplied by System Users will be subject to tolerance checking.

3.2 All 4 dial meter readings will be subjected to a round the clock test to detect possible instances where a meter has made a complete revolution of the dials between readings. It will also check for negative consumptions if a meter reading follows an estimate.

The term Round the Clock (RTC) refers to the number of times the meter or convertor has gone "through the zero's" i.e. has moved from 9999 to 0001. The use of this indicator and the reading will permit the volume of gas to be calculated as well as detecting any reversal of readings following an earlier over-estimate. A detailed explanation of the logic is given in Appendix A.

Where the cyclic reading is submitted by the User as a 'Proposing User Read' pursuant to Uniform Network Code Transportation Principal Document M1.4.3(k), the RTC test will be performed by the Transporter.

- is this just limited to 4 dial meters?

3.3 An inner Tolerance validation will be applied to all cyclic reads as per appenix??

3.3a The User may 'override' the inner tolerance check

3.4 A wider tolerance check (Market Breaker check) will be applied, any reading that break the wider tolerance check will be rejected.

Section 6 covers all other reads?

3.5 Tolerance ranges will be based on the volume of gas passed through the meter and will be parameterised. Tolerance Ranges are shown in Appendix B. (tidy up as duplicate of 3.3)

3.6 Where a convertor is fitted an additional check will be performed.

To ensure that the convertor is reading meter pulses correctly the following calculation will be performed.

Meter Volume - Uncorrected Convertor Volume

Where this results in an out of tolerance figure the reading will be rejected.

The tolerance check applied in this test will be dependent upon the pulse value of the meter. Tolerance ranges are shown in Appendix B.

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4 Daily Read Equipment - Class 1 DM Mandatory Sites

The following tests will be performed.

4.1 A completeness test to ensure that all the readings expected have been received . A report will be issued if any expected readings are not received. In addition a report will be issued if an unsolicited reading is received.

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4.2 An instrument configuration test i.e. to ensure that the convertor and the meter reading are received where a convertor is fitted. A report will be issued if any expected readings are not received. In addition a report will be issued if an unsolicited reading is received.

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4.3 For DM Supply Meter Points with Transporter Daily Read Equipment installed, if 3 or more consecutive zero consumption readings are received a test will be performed to compare with the corresponding period in the previous year. If the consumption in the previous year was not zero then a report will be produced for investigation.

4.4 For DM Supply Meter Points with User Daily Read Equipment installed, zero consumption readings will be deemed to have been validated by the submitting user and will therefore be accepted.

4.5 An "And" test will be undertaken so that if any daily consumption is:

(a) outside the 30 day average non zero consumption by plus 3.5 Standard Deviations,

and

(b) in excess of twice the average daily consumption for that meter i.e. ((AQ/365)* 2)

the read will be rejected and reported for investigation. A D-7 estimate will be used whilst the investigation takes place. As data is acquired, test (b) will be based upon the maximum daily consumption in the previous year and the tolerance factor adjusted, accordingly.

- assume above should be replaced with the new inner and outer tolerance checks

5 Daily Read Equipment - Class 2 Sites

The following tests will be performed.

5.1 Where a convertor is fitted the read will be rejected if convertor readings are not supplied.

5.2 For Class 2 Supply Meter Points, if 3 or more consecutive zero consumption readings are received a test will be performed to compare with the corresponding period in the previous year. If the consumption in the previous year was not zero then a report will be produced for investigation. **(would we do this?)**

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5.3 For Class 2 Supply Meter Points with User Daily Read Equipment installed, zero consumption readings will be deemed to have been validated by the submitting user and will therefore be accepted.

5.4 An "And" test will be undertaken so that if any daily consumption is:

(a) outside the 30 day average non zero consumption by plus 3.5 Standard Deviations,

and

(b) in excess of twice the average daily consumption for that meter i.e. ((AQ/365)* 2)

the read will be rejected and reported for investigation. A D-7 estimate will be used whilst the investigation takes place. As data is acquired, test (b) will be based upon the maximum daily consumption in the previous year and the tolerance factor adjusted, accordingly. **(not sure would do this)?)**

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assume above will be replaced with the new inner/outer tolerance checks

is there anything else that should be captured for Class 2??

6 Non Cyclic Meter Readings

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6.1 Non cyclic meter and convertor readings will be validated by the transporter with the same rules as cyclic readings.

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6.2 The consumption tolerance limits set out in Appendix B will be used for all non cyclic readings.

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6.3 The RTC test as described in Appendix A will be applied by the transporter to non cyclic readings.

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6.4 Any previously received customer reading will be treated as an actual reading for tolerance checking purposes.

6 Calculated Gas Card Readings

6.1 The following refers to the calculation of a **Calculated Gas Card Reading** which (subject to compliance with section M3.8) can be used as an 'Opening Meter Reading' upon Supply Point Transfer.

6.2 **Formula**

6.2.1 The Calculated Gas Card Reading shall be calculated in the same units as the Gas Card Reading from the Gas Card and will be calculated using the following formula:

(((c – b) / (b – a)) * (y – x)) + y

where:

a is the Accumulative Daily Value for first date in the Applicable Sequence.
b is the Accumulative Daily Value for last date in the Applicable Sequence.
c is the Accumulative Daily Value for the Supply Point Registration Date.
x is the First Reading in the Applicable Sequence.
y is the Last Reading in the Applicable Sequence.

6.2.2 No Calculated Gas Card Reading shall be calculated where **a** = **b** or where **x = y**.

6.2.3 For Metric calculation (M3) the Calculated Gas Card Reading shall be in the Range 00000.10 to 99999.90. [Note: The least significant digit is always zero].

6.2.4 For Imperial calculation (Cubic Feet) the Calculated Gas Card Reading shall be in the Range 0000.01 to 9999.99.

6.2.5 The First Reading and Last Reading must be taken from a date within the six month period prior to the Supply Point Registration Date.

6.3 **Definitions**

6.3.1 **Accumulative Daily Value**
The value used to provide a seasonal adjustment factor within the formula. Values for the relevant date within the 'Applicable Sequence' are determined using the table in Appendix C.

6.3.2 **Applicable Sequence**
The sequence of actual Gas Card Readings used to generate the Calculated Gas Card Reading (by execution of the formula).

6.3.3 **Calculated Gas Card Reading**
As defined in Uniform Network Code – Transportation Principal Document Section M1.4.3(h).

6.3.4 **Gas Card Reading**
As defined in Uniform Network Code – Transportation Principal Document

Section M1.4.3(f).

6.3.5 **First Reading**
The first of the actual Gas Card Readings taken within the six month period prior to the Supply Point Registration Date.

6.3.6 **Last Reading**
The last of the second, third, fourth or fifth actual Gas Card Readings taken prior to the Supply Point Registration Date within the six month period prior to the Supply Point Registration Date.

6.3.7 **Supply Point Registration Date**
As defined in Uniform Network Code – Transportation Principal Document G1.1.5

APPENDIX A - 'ROUND THE CLOCK' INDICATORS

REQUIREMENTS AND DEFINITIONS

1. The term 'round the clock' will be used in a single context to denote that a meter or convertor has passed through all its zero's and will not necessarily imply that the meter or convertor has made a complete revolution of all its dials (i.e. more than 10,000 hundred cubic feet (hcf) on a four dial meter, 100,000 hcf on a five dial meter etc).

   The indicator is to be used for all meters and convertors but in the remainder of the text the term meter will be used for ease of understanding.

2. This means that in the circumstance:

2.1 Present Reading 6000

Previous Reading 5000

If the volume passing through the meter is 1,000hcf then the RTC indicator will be 0.

If the volume passing through the meter is 1 1,000hcf (because the meter has made one complete revolution of all its dials) the RTC indicator will be 1. Here the meter has gone through the zero's once.

If the volume passing through the meter is 21,000hcf (because the meter has made two complete revolutions of all its dials) the RTC indicator will be 2. Here the meter has gone through its zeros twice.

2.2 Present Reading 0999

Previous Reading 9999

If the volume passing through the meter is 1,000hcf then the RTC indicator will be 1 as the meter has gone through the zero's once.

If the volume passing through the meter is 11,000hcf (because the meter has made one complete revolution of the dials) the RTC indicator will be 2 as the meter has gone through the zero's twice.

If the volume passing through the meter is 21,000hcf (because the meter has made two complete revolutions of all the dials) the RTC indicator will be 3 as the meter has gone through the zero's three times.

3. All RTC indicators of 2 or above will be reported for investigation .

4. The test will also look for readings moving backwards because of a previous over-estimate.

4.1 Present Reading 9910 Actual

Previous Reading 0010 Estimate

If the present meter reading is lower than the previous meter reading this requires the meter to have passed backwards through the zero's the RTC indicator will be -1.

The previous estimate is clearly an over estimate if the test shows that a

volume of -100hcf is more credible than a consumption of +9900hcf

4.2 Present Reading 5900 Actual Previous Reading 6000 Estimate

If the present meter reading is lower than the previous meter reading this does not require the meter to have passed backwards through the zero's the RTC indicator will be 0.

The previous estimate is clearly an over estimate if the test shows that a volume of -100hcf is more credible than a consumption of +9900hcf

NB: A customer reading will be treated as an actual reading for the purpose of this test. The negative consumption indicator will only be used if the previous reading is an estimate.

5. The test to detect whether a meter has made more than one complete revolution of its dials will be applied only to 4 dial meters or where the previous reading is an estimate. For meters with 5 or more dials the reading will assumed to have gone forward unless the previous reading is an estimate.

APPENDIX B - TOLERANCE RANGES replace with new table

A: Consumption Tolerance Ranges

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Table 1: Inner Tolerance Range

Estimated Consumption cf	Tolerance (±%)
10,001 - 50,000	150
50,001 - 100,000	120
100,001 - 200,000	90
200,001 - 350,000	60
350,001 - 500,000	30
500,001 - 99,999,999	10

Table 2: Outer Tolerance Range

Estimated Consumption cf	Tolerance (± %)
10,001 - 50,000	300
50,001 - 100,000	240
100,001 - 200,000	180
200,001 - 350,000	150
350,001 - 500,000	150
500,001 - 99,999,999	75

B: Meter/Convertor Pulse Validation

Table 3:

Meter Pulse Value	Meter and Uncorrected Convertor Gas Consumption Difference
10cf	±400cf (40 pulses)
100cf	±800cf (8 pulses)
1000cf	±3000cf (3 pulses)

If the Meter Pulse value is unknown the default test will be on 1000cf/Pulse tolerances.

APPENDIX C – CALCULATED GAS CARD READINGS

1 The following table is used to determine the 'Accumulative Daily Value' for application within the formula

Table 4:

Month	**Date**	**Seasonal Factor**	**Seasonal Factor / 100**	Accumulative Daily Value
January	01/01/04	13.80	0.138	0.138 = 0.138 + 0
	02/01/04		0.138	0.276 = 0.138 + 0.138
	03/01/04		0.138	0.414 = 0.276 + 0.138
			"	"
February	01/02/04	13.60	0.136	4.414 = 4.278 + 0.136
	02/02/04		0.136	4.55 = 4.414 + 0.136
	03/02/04		0.136	4.686 = 4.55 + 0.136
			"	"
March	01/03/04	12.20	0.122	8.344 = 8.222 + 0.122
	02/03/04		0.122	8.466 = 8.344 + 0.122
	03/03/04		0.122	8.588 = 8.466 + 0.122
			"	"
April	01/04/04	09.80	0.098	12.102
May	01/05/04	07.10	0.071	15.015
June	01/06/04	04.20	0.042	17.187
July	01/07/04	02.40	0.024	18.429
August	01/08/04	02.40	0.024	19.173
September	01/09/04	04.20	0.042	19.935
October	01/10/04	07.30	0.073	21.226
November	01/11/04	10.30	0.103	23.519
December	01/12/04	12.70	0.127	26.633
January	01/01/05	13.80	0.138	30.581
January	01/01/06	13.80	0.138	60.888
January	01/01/07	13.80	0.138	91.195
January	01/01/08	13.80	0.138	121.502
January	01/01/09	13.80	0.138	151.945
January	01/01/10	13.80	0.138	182.252
January	01/01/11	13.80	0.138	212.559
January	01/01/12	13.80	0.138	242.866
January	01/01/13	13.80	0.138	273.309
January	01/01/14	13.80	0.138	303.616
January	01/01/15	13.80	0.138	333.923
January	01/01/16	13.80	0.138	364.230
January	01/01/17	13.80	0.138	394.673
January	01/01/18	13.80	0.138	424.980
January	01/01/19	13.80	0.138	455.287
January	01/01/20	13.80	0.138	485.594
January	01/01/21	13.80	0.138	516.037
January	01/01/22	13.80	0.138	546.344
January	01/01/23	13.80	0.138	576.651
January	01/01/24	13.80	0.138	606.958

