

IGT METER READING VALIDATION RULES AND REJECTION CODES

TO BE APPLIED TO

CYCLIC METER READINGS

AND METER INSPECTION NOTIFICATIONS

Version 1.0

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1. Cyclic Reading Validation (Pipeline User)

1.1 All readings supplied by Pipeline Users will be subject to tolerance checking.

1.2 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 iGT UNC Section E1.2 (V), the RTC test will be performed by the Transporter.

1.3 For consumptions up to 10, 000 cf there will be no tolerance checking.

1.4 For consumptions over 10,000 cf a further tolerance check will be applied to ensure that the reading is within a wider tolerance range of the estimated reading. This will be known as the Outer Tolerance Range (OTR). If the reading fails this test it will not be applied to the system. Readings that have been confirmed as correct although outside the ITR will be applied to the system unless they fail the OTR check.

1.5 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.

1.6 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.

2. Cyclic Reading Validation (Pipeline Operator)

2.1 The Pipeline Operator will undertake basic validation checks are follows:

- MPRN recognised on Pipeline Operator System
- MPRN and serial number match
- Correct number of dials/digits used
- Read must not be less than last actual read held subject to RTC flag
- Read submitted is later than date of last actual read held
- Shipper submitting read is registered at time of read
- Where corrector is fitted ensure that corrected and uncorrected reads are provided

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 as 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 as the meter has gone through its zero's 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

A: Consumption Tolerance Ranges

Table 1: Inner Tolerance Range

Estimated Consumption of cf	Tolerance ($\pm\%$)
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 of cf	Tolerance ($\pm \%$)
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/Convertor

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

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

Appendix C – Rejection Codes

Meter Readings

Rejection Code	Explanation
MPO00001	Meter Point does not exist
MRE00413	The meter round the clock count has not been supplied
MRE00414	The Pipeline User is not responsible for the Meter Point
MRE00419	The meter serial number on the read does not agree with the meter serial number held on the Pipeline Operator Database
MRE00420	The meter read does not have the expected number of digits
MRE00432	The Meter Point already has a read for a later date.
MRE00437	The meter read has a future read date
MRE00445	Meter Round The Clock Count must be numeric if supplied
MRE00457	New Meter Reading is less than previous meter reading
MET00567	Meter Serial Number Provided is for previous meter
MRE00489	Non-opening reading received outside the read receipt window
MRE00490	A breach of the allowed reading submission frequency occurred
FIL00001	File not in the correct format

Meter Inspection Notifications

Rejection Code	Explanation
MPO00001	Meter Point does not exist
MPI00011	Pipeline User does not own meter point at the time of the meter inspection
MPI00012	Last inspection date should not be future date
MPI00013	Last Inspection date should be greater than last inspection date held.