

AVISTA CORPORATION  
dba Avista Utilities

## RULE NO. 18

## METER TESTS AND ADJUSTMENT OF BILLS FOR METER ERROR

## A. Tests

## 1. Prior to Installation

Each gas service meter, when installed for the use of any customer, will be in good working order and will have been tested and adjusted, if necessary, to operate within prescribed limits.

## 2. Periodic and Other Tests

a. Each gas meter in service will be tested, and properly adjusted, if necessary, in accordance with procedures authorized by the Commission.

b. At any time a meter is observed by a Company employee to be in such a condition or so operating as to cause doubt of its accuracy, it will be tested and readjusted, if necessary, to operate within prescribed limits.

## 3. On Customer Request

a. Any customer may request the Company to test the meter used to measure his gas usage. Such tests shall be made within 20 working days of the request at no cost to the customer. The meter tests will be conducted at a time mutually agreeable to both customer and the Company. A customer will have the right to require the Company to conduct the test in his presence or in the presence of an expert or other representative appointed by him. A written report showing the name of the customer, the date of the request, address where the meter has been installed, the number of the meter, the date tested and the result of the test shall be supplied to the customer within a reasonable time after completion of the test.

(continued)

Advice No. 08-02-G  
Issued March 31, 2008

Effective For Service On & After  
April 1, 2008

Issued by Avista Utilities  
By

Kelly Norwood,

Vice-President, State & Federal Regulation

AVISTA CORPORATION  
dba Avista Utilities

RULE NO. 18 (continued)

METER TESTS AND ADJUSTMENT OF BILLS FOR METER ERROR

If the customer requests more than one meter test within any 12-month period, the Company may charge to recover the reasonable cost of the test. The Company shall inform the customer, prior to the test, that if the meter is found to register within the 2 percent accepted tolerance standard, under normal operating conditions, the customer shall be required to pay the reasonable costs for the Company performing the meter test. This payment shall be based on a company formula which allows the Company to recover expenses for payroll, taxes, insurance and company vehicle used.

No billing adjustment shall be required if the gas meter registers less than two percent error under conditions of normal operation.

B. METER TEST PROCEDURES

1. Meter Test Records.

After December 31 of each year, meter test results will be summarized and analyzed. Retention of records will be in accordance with OAR 860-023-0015(4).

2. Technical performance requirements for natural gas meters shall be per the current versions of ANSI B109.1 and ANSI B109.2.

4. New Meters.

(1) New meters shall be factory tested and certified to meet accuracy criteria specified by OAR 860-023-0015(1).

(a) Formulation of test sample sizes and analysis of test results shall be per ANSI/ASQ Z1.9-2003 (hereinafter may be referred to as the Standard) or any more current version referenced in regulatory requirements. On-going manufacturer quality control program results for specific meter types consistent with an AQL value of 1.5 overall performance (double specification limit) and AQL value of 1.0 for fast meters (single specification limit) are acceptable.

Advice No. 08-09-G  
Issued December 1, 2008

Effective For Service On & After  
January 1, 2009

AVISTA CORPORATION  
dba Avista Utilities

## RULE NO. 18 (continued)

## METER TESTS AND ADJUSTMENT OF BILLS FOR METER ERROR

## B. METER TEST PROCEDURES continued

(2) Acceptance testing by the Utility prior to installation of new meters.

(a) Each meter shipment will be inspected for physical damage. Meters found to be damaged or in damaged packaging will be tested, repaired and/or calibrated or returned to the manufacturer as described herein. All costs for tests, return shipping and/or calibration to meters described in this section shall be borne by the manufacturer.

(b) Normal acceptance testing described herein, not associated with physical damage found on arrival of the shipment, will be performed by the Utility at the Utility's expense. Expanded testing for shipments found to be non-conforming through acceptance testing will be paid for by the manufacturer or the shipment returned to the manufacturer per negotiations between the Utility and the manufacturer.

(c) The methodology for the new meter testing program is derived from ANSI/ASQ Z1.9-2003.

(i) Test results shall be analyzed bi-annually to insure data points are symmetrically distributed about a mean value with correlation coefficient to the normal distribution of at least .70.

(d) Acceptance testing of new domestic meters, 1000 CFH and smaller. A random sample of new domestic meters, selected using random number procedures, of quantity per the Standard, shall be tested against tolerances prescribed by OAR 860-023-0015 and analyzed using the procedures contained in the Standard as detailed herein.

(i) Test result analysis:

((1)) General:

((a)) Two analysis results will determine the acceptability of a lot:

Advice No. 08-09-G  
Issued December 1, 2008

Effective For Service On & After  
January 1, 2009

AVISTA CORPORATION  
dba Avista Utilities

## RULE NO. 18 (continued)

## METER TESTS AND ADJUSTMENT OF BILLS FOR METER ERROR

## B. METER TEST PROCEDURES continued

((i)) The “standard deviation – double specification limit method with variability unknown” as detailed in the Standard shall be used to determine the overall acceptability of a meter type lot. Acceptable Quality Limit (AQL) for analysis will equal 1.5. Equal weight shall be given to both the upper and lower specification limit; i.e., fast and slow meters are weighted equally. The results of the “Open Test” and the “Check Test” will be averaged. The resulting average number will be used in the procedures for analysis per the Standard.

((1)) It is the intent of this rule to accomplish testing to verify, with approximately 90% certainty, that the percentage of non-conforming meters do not exceed 3% of any new meter shipment population.

((2)) It is further the intent of this specification to insure that the long-term proportion of non-conforming meters to the standard does not exceed 1.5%.

((i)) The “standard deviation – single specification limit method with variability unknown” as detailed in the Standard shall be used to determine the acceptability of a meter type lot in the fast direction (disadvantageous to the consumer). Acceptable Quality Limit (AQL) for analysis will equal 1.0. The results of the “Open Test” and the “Check Test” will be averaged. The resulting average number will be used in the procedures for analysis per the Standard.

((1)) It is the intent of this rule to accomplish testing to verify, with approximately 90% certainty, that non-conforming meters to the fast direction is approximately 1% or less of any new meter shipment population.

((2)) It is further the intent of this specification to insure that the long-term proportion of non-conforming meters to the standard does not exceed 1.0%.

((2)) The lot size to determine random sample quantity shall be the size of the shipment.

Advice No. 08-09-G  
Issued December 1, 2008

Effective For Service On & After  
January 1, 2009

AVISTA CORPORATION  
dba Avista Utilities

## RULE NO. 18 (continued)

## METER TESTS AND ADJUSTMENT OF BILLS FOR METER ERROR

## B. METER TEST PROCEDURES continued

## ((3)) Sample size:

((a)) Normal inspection: per the procedures contained in the Standard utilizing tables A-2, A-3, and B-3. Normal inspection is the default inspection level.

((b)) Tightened inspection: per the procedures contained in the Standard utilizing tables A-2, A-3, and B-3.

((c)) Reduced inspection: per the procedures contained in the Standard utilizing tables A-2, A-3, and B-4.

((4)) Sample size for meter types with five (5) test histories are eligible for reduced inspection in general accordance with the guidelines contained within the Standard as modified below. Meter types may also transition from normal to tightened inspection as detailed below.

((a)) Normal to tightened: Switching rules for transition from normal to tightened inspection (inspection level II to inspection level I) shall be applied if 2 out of 5 lots have been rejected on original inspection. This is per the guidelines contained in A10.3.1 of the Standard. Testing beyond the sample size for normal inspection will be paid for by the manufacturer.

((b)) Tightened to Normal: Switching rules for transition from tightened to normal inspection (inspection level I to inspection level II) shall be applied when testing has been at the tightened level and 5 consecutive batches have been acceptable on original inspection. This is per the guidelines in A10.3.2 of the Standard.

((c)) Normal to Reduced: Switching rules for transition from normal to reduced inspection (inspection level II to inspection level III) shall be applied if:

((i)) Preceding 5 lots have been on normal inspection and none have been rejected, AND

((ii)) Meter model has been in steady production without major design modifications (as determined by the Company).

Advice No. 08-09-G  
Issued December 1, 2008

Effective For Service On & After  
January 1, 2009

AVISTA CORPORATION  
dba Avista Utilities

RULE NO. 18 (continued)

METER TESTS AND ADJUSTMENT OF BILLS FOR METER ERROR

B. METER TEST PROCEDURES continued

((iii)) This is a modification of the guidelines contained in A10.3.3 of the Standard. Five (5) lots passing normal inspection has been specified in lieu of ten (10) lots to reflect the historically slow change in meter performance over time.

((d)) Reduced to Normal: Switching rules for transition from reduced to normal (inspection level III to inspection level II) shall be applied if:

((i)) A batch is rejected, OR

((ii)) Meter model has not been in steady production or a major design modification has occurred (as determined by the Company).

((iii)) This is per the guidelines contained in A10.3.4 of the Standard.

((5)) Random sampling per the Standard shall be discontinued if 5 consecutive lots under tightened inspection are not accepted. Acceptance procedures as detailed herein shall not be resumed until corrective action has been taken. At that time, tightened inspection procedures shall be used.

((a)) Equipment that were not eligible for random sampling that fail to meet Acceptable Quality limit (AQL) criteria, shall be returned to the manufacturer or the entire shipment may be adjusted at the manufacturer's expense.

((b)) Tested meters found to be outside the tolerances of OAR 860-023-0015 shall be adjusted to 100% plus or minus .5% with no greater than .7% spread. If the meter cannot be adjusted to these standards it shall be returned to the manufacturer.

(e) New diaphragm meters, greater than 1000 CFH.

(i) New diaphragm meters (1000 class and larger) shall be tested against metering tolerance of OAR 860-023-0015.

(T)

Advice No. 11-10-G  
Issued November 18, 2011

Effective For Service On & After  
January 1, 2012

Issued by Avista Utilities  
By Kelly Norwood, Vice-President, State & Federal Regulation

AVISTA CORPORATION  
dba Avista Utilities

RULE NO. 18 (continued)

METER TESTS AND ADJUSTMENT OF BILLS FOR METER ERROR

B. METER TEST PROCEDURES continued

(ii) Meters found to be outside of tolerance shall be adjusted to 100% plus or minus .5%, with no greater spread than .7%. If the meter cannot be adjusted within these standards, it shall be returned to the manufacturer.

(T)

(f) New turbine meters.

(i) New turbine meters are tested after setting.

(ii) Testing confirms a minimum of 2 points within the range of the meter.

(g) New rotary meters.

(i) Rotary meters are tested after setting.

(ii) Differential testing confirms a minimum of 3 points for accuracy.

5. Installed meters testing program.

(1) General: Meters shall be periodically inspected and tested against metering tolerance prescribed in OAR 860-023-0015. Meters found to be outside the tolerances of OAR 860-023-0015 shall be immediately adjusted or replaced. If a meter cannot be adjusted, and no replacement meter is immediately available, the inaccurate meter shall be removed and a replacement meter shall be installed as soon as possible. Service will be maintained to the customer.

(2) The methodology for sample sizes and analysis for the installed meter testing program is derived from ANSI/ASQ Z1.9-2003 (hereafter may be referred to as the Standard).

(a) Meter test results shall be analyzed bi-annually to confirm data points are symmetrically distributed about a mean value whose probability density function is calculated to have a correlation coefficient to the normal distribution of at least .70.

(3) Domestic meters, 1000 CFH and smaller: A random sample of domestic meters shall be selected, tested against tolerances prescribed by OAR 860-023-0015, and analysis conducted using the Standard. Random sampling program shall begin during the 10<sup>th</sup> year after meter installation.

Advice No. 11-10-G  
Issued November 18, 2011

Effective For Service On & After  
January 1, 2012

Issued by Avista Utilities  
By Kelly Norwood, Vice-President, State & Federal Regulation

AVISTA CORPORATION  
dba Avista Utilities

RULE NO. 18 (continued)

METER TESTS AND ADJUSTMENT OF BILLS FOR METER ERROR

B. METER TEST PROCEDURES continued

(a) A meter population is defined as meters of the same model, size, and manufactured in the same year.

(D)(N)

(i) Meter population is synonymous with the term lot as used in the Standard.

(ii) Major design changes to a meter model within a single year shall be a new population for sampling.

(b) Random sample, as selected by random number procedures, of meters to be tested within a population will be made at the beginning of a calendar year. The random sample may be modified as described below.

(i) Every meter in a population will be considered eligible for testing. If service work such as a reported gas odor brings a service person to a meter during the course of the year and the required test quota of meters has not yet been completed, the meter will be eligible for substitution into the sample of the meter population for that year.

(ii) Eligibility of meters for inclusion into the test population will be tracked electronically through the Mobile Dispatch Program in conjunction with meter test program requirements. An electronic flag will alert the service person if a meter is eligible to be included in the year's test program. The service person will have the option to override the electronic flag if work load at the time does not lend itself to pulling that meter for testing.

(iii) A meter in the beginning of year random sample list for the year will then be chosen, using a random selection procedure, to be removed from the scheduled test list.

(iv) An individual meter test result of more than 10% error shall be declared a uniquely defective test and disregarded. A substitute test will be made with meter selected by random sample methods.

Advice No. 11-10-G  
Issued November 18, 2011

Effective For Service On & After  
January 1, 2012

Issued by Avista Utilities  
By Kelly Norwood, Vice-President, State & Federal Regulation



AVISTA CORPORATION  
dba Avista Utilities

RULE NO. 18 (continued)

METER TESTS AND ADJUSTMENT OF BILLS FOR METER ERROR

B. METER TEST PROCEDURES continued

(c) Test result analysis:

((1)) General:

((a)) Two analysis results will determine the acceptability of a lot:

((i)) The “standard deviation – double specification limit method with variability unknown” as detailed in the Standard shall be used to determine the overall acceptability of a meter type lot. Acceptable Quality Limit (AQL) for analysis will equal 10.0.

((1)) Equal weight shall be given to both the upper and lower specification limit; i.e., fast and slow meters are weighted equally. The results of the “Open Test” and the “Check Test” will be averaged; that average will be the data point for inclusion in analysis of a meter type performance.

((2)) It is the intent of this rule to accomplish testing to verify, with approximately 90% certainty, that the proportion of non-conforming meters does not exceed 10% of any installed meter population. It is further the intent of this specification to verify through continued testing that the long-term proportion of non-conforming meters does not exceed 10%.

((i)) The “standard deviation – single specification limit method with variability unknown” as detailed in the Standard shall be used to determine the acceptability of a meter type lot in the fast direction (disadvantageous to the consumer). Acceptable Quality Limit (AQL) for analysis will equal 10.0.

((1)) The results of the “Open Test” and the “Check Test” will be averaged; that average will be the data point for inclusion in analysis of a meter type performance.

((2)) It is the intent of this rule to accomplish testing to verify, with approximately 90% certainty, that the proportion of non-conforming meters to the fast direction is less than 10% of any installed meter population. It is further the intent of this specification to verify through continued testing that the long-term proportion of non-conforming meters does not exceed 10%.

Advice No. 08-09-G  
Issued December 1, 2008

Effective For Service On & After  
January 1, 2009

Issued by Avista Utilities  
By

Kelly Norwood,

Vice-President, State & Federal Regulation

AVISTA CORPORATION  
dba Avista Utilities

METER TESTS AND ADJUSTMENT OF BILLS FOR METER ERROR

B. METER TEST PROCEDURES continued

((2)) When the percentage of non-conforming meters trends towards the AQL, inspections will be tightened per switching rules detailed herein.

(i) Table A-3 of the Standard is utilized to determine the applicable AQL curve per the intent of the testing described in paragraphs above. When this point lies between standard AQL curves on Table A-3, the AQL curve to be applied shall be chosen per Table A-1 of the Standard.

((1)) The intent of the analysis rules contained in paragraphs above applied to the Standard using Table A-3 and Table A-1 yields:

((a)) Sample size code letters B through P: AQL = 10.0

(ii) Inspection levels:

((1)) Normal inspection: shall be per the procedures contained in the Standard utilizing tables A-2, A-3, and B-3. Normal inspection is the default level of inspection.

((2)) Tightened inspection: shall be per the procedures contained in the Standard utilizing tables A-2, A-3, and B-3.

((3)) Reduced inspection: shall be per the procedures contained in the Standard utilizing tables A-2, A-3, and B-4.

(iii) Inspection levels for existing meter types with 5 year test histories are eligible for reduced testing per guidelines contained within the Standard. Meter types may also be subject to tightened inspection per the guidelines. Analysis of test results for the time prior to adoption of this Tariff for defined populations may be used to determine application of switching rules.

((1)) Normal to tightened: Switching rules for transition from normal to tightened inspection (inspection level II to inspection level I) shall be applied if 2 out of 5 lots have been rejected on original inspection. This is per the guidelines contained in A10.3.1 of the Standard.

Advice No. 08-09-G  
Issued December 1, 2008

Effective For Service On & After  
January 1, 2009

Issued by Avista Utilities  
By

Kelly Norwood,

Vice-President, State & Federal Regulation

AVISTA CORPORATION  
dba Avista Utilities

METER TESTS AND ADJUSTMENT OF BILLS FOR METER ERROR

B. METER TEST PROCEDURES continued

((2)) Tightened to Normal: Switching rules for transition from tightened to normal inspection (inspection level I to inspection level II) shall be applied when testing has been at the tightened level and 5 consecutive batches have been acceptable on original inspection. This is per the guidelines in A10.3.2 of the Standard.

((3)) Normal to Reduced: Switching rules for transition from normal to reduced inspection (inspection level II to inspection level III) shall be applied if:

((a)) Preceding 5 lots have been on normal inspection and none have been rejected.

((b)) This is a modification to the guidelines contained in A10.3.3 of the Standard. Five lots passing normal inspection have been specified in lieu of ten to reflect the historically slow changing performance of installed equipment.

((4)) Reduced to Normal: Switching rules for transition from reduced to normal (inspection level III to inspection level II) shall be applied if:

((a)) A batch is rejected,

((b)) This is per the guidelines contained in A10.3.4 of the Standard.

((5)) Discontinuance of random sampling, failure of meter population. A meter population shall be declared defective and removed from service when:

((a)) 3 consecutive yearly inspections for a population under tightened inspection are not accepted based on AQL of 10.0 for overall performance (double specification limit), OR

((b)) 2 consecutive yearly inspections fail tightened inspection as non-conforming fast meters in excess of OAR 860-023-0015 tolerances based on an AQL value of 10.0 (single specification limit), OR

((c)) 2 consecutive yearly inspection exceed total of 20% non-conforming meters (total of fast and slow meters) under tightened inspection per standards of OAR 860-023-00015 tolerances.

Advice No. 08-09-G  
Issued December 1, 2008

Effective For Service On & After  
January 1, 2009

Issued by Avista Utilities  
By

Kelly Norwood,

Vice-President, State & Federal Regulation

AVISTA CORPORATION  
dba Avista Utilities

RULE NO. 18 (continued)

METER TESTS AND ADJUSTMENT OF BILLS FOR METER ERROR

B. METER TEST PROCEDURES continued

((6)) Tested meters found to be outside the tolerances of OAR 860-23-0015 shall be adjusted to 100% plus or minus .5% with no greater than .7% spread. If the meter cannot be adjusted to these standards it shall be returned to the manufacturer.

(D)(N)  
(T)

(4) Installed diaphragm meters, greater than 1000 CFH.

(i) 1001 CFH through 3000 CFH: Inspected and proved every ten (10) years or sooner.

(ii) Larger than 3000 CFH: Inspected and proved every five (5) years or sooner.

(iii) All meters shall be tested against metering tolerance of OAR 860-023-0015

(iv) Meters found to be outside of tolerance shall be adjusted to 100% plus or minus .5% with no greater spread than .7% or be replaced.

(T)

(5) Installed turbine meters.

(i) Installed single rotor turbine meters shall be inspected and spin tested annually and determined to be within the manufactures acceptability limits. Turbine meters failing the spin test shall be removed from the field and repaired prior to any subsequent installation.

(D)(N)  
(N)  
(N)  
(N)

(ii) Installed auto adjust meters shall be inspected annually and determined to be operating within the manufactures acceptability limits. Meter Delta A ( $\Delta A$ ), the difference between the main and sensing rotor pulses, that exceed the manufactures recommended operating parameters shall be repaired or replaced.

(D)(N)  
(N)  
(N)  
(N)

(iii) Turbine meters that are proof tested against metering tolerance of OAR 860-023-0015.

(D)(N)

(iv) Meters found to be outside of tolerance shall be adjusted to 100% plus or minus .5% with no greater spread than .7%.

(T)

(6) Installed rotary meters.

(i) Rotary meters shall be tested by differential testing or using proving equipment.

(D)(N)

Advice No. 11-10-G  
Issued November 18, 2011

Effective For Service On & After  
January 1, 2012

AVISTA CORPORATION  
dba Avista Utilities

RULE NO. 18 (continued)

METER TESTS AND ADJUSTMENT OF BILLS FOR METER ERROR

B. METER TEST PROCEDURES continued

(ii) Meters shall be inspected and tested every five (5) years or sooner.

(iii) Meters inspected by differential testing shall confirm that the meter is performing within 150% of the manufacturer's specification for differential pressure at the operating pressure.

(iv) Every meter tested by proving shall confirm that the meter is operating within the tolerances of OAR 860-023-0015. Meters not performing shall be adjusted to be not more than two (2) percent slow or fast before installed.

(D)(N)  
(N)  
(N)

(D)(N)  
(N)  
(N)

6. Meter Test Equipment and Application

(1) Meter test equipment

(a) Roots 10-M Transfer Prover. The accuracy of the testing equipment is ascertained through:

(i) Monthly, in-house self testing procedures

(ii) Sending of Standard Meter Module to the manufacturer for periodic calibration. The period between factory calibration shall not exceed five (5) years.

(b) American Meter Sonic Nozzle Prover and AM Bell Prover.

(i) The accuracy of the testing equipment is ascertained through an automatic test diagnostic. The diagnostic is completed each time the prover is powered on.

(ii) The test equipment shall be factory calibrated every two (2) years.

(2) Meters

(a) Meters shall be tested on either a Sonic Nozzle, Bell Prover, or Transfer Prover.

Advice No. 11-10-G  
Issued November 18, 2011

Effective For Service On & After  
January 1, 2012

AVISTA CORPORATION  
dba Avista Utilities

RULE NO. 18 (continued)

METER TESTS AND ADJUSTMENT OF BILLS FOR METER ERROR

C. ADJUSTMENT OF BILLS FOR METER ERROR

Billing adjustments due to fast meters will be calculated on the basis that the meter should be 100% accurate. For the purpose of billing adjustment, the average error of the check rate and the open rate flow will be used.

1. Fast Meters

When, upon test, any meter is found to be registering more than 2% fast, the Company will refund or credit to the customer the amount of the overcharge based on corrected meter readings. The period of time over which a refund is to be calculated is described in Rule No. 9 Section C.1.

(M)

(M)

Advice No. 11-10-G  
Issued November 18, 2011

Effective For Service On & After  
January 1, 2012

Issued by Avista Utilities  
By Kelly Norwood, Vice-President, State & Federal Regulation