

ILLINOIS COMMERCE COMMISSION

NOTICE OF ADOPTED AMENDMENTS

- 1) Heading of the Part: Standards of Service for Gas Utilities and Alternative Gas Suppliers
- 2) Code Citation: 83 Ill. Adm. Code 501
- 3)

<u>Section Numbers</u> :	<u>Adopted Actions</u> :
501.10	Amendment
501.20	Amendment
501.110	Amendment
501.160	Amendment
501.180	Amendment
501.190	Amendment
501.200	Amendment
501.230	Amendment
501.250	Amendment
501.270	Amendment
501.280	Amendment
501.610	Amendment
- 4) Statutory Authority: Implementing and authorized by Sections 8-301, 8-302, 8-501, 9-201, 10-101, 10-107, 19-110(e)(3) and 19-115(b)(1), (b)(4) and (b)(5) of the Public Utilities Act [220 ILCS 5/8-301, 8-302, 8-501, 9-201, 10-101, 10-107, 19-110(e)(3) and 19-115(b)(1), (b)(4) and (b)(5)]
- 5) Effective Date of Rules: December 29, 2016
- 6) Does this rulemaking contain an automatic repeal date? No
- 7) Does this rulemaking contain incorporations by reference? Yes
- 8) A copy of the adopted rules, including any material incorporated by reference, is on file in the Commission's Springfield office and is available for public inspection.
- 9) Notice of Proposal published in the *Illinois Register*: 40 Ill. Reg. 7246; May 13, 2016
- 10) Has JCAR issued a Statement of Objection to this rulemaking? No
- 11) Differences between Proposal and Final Version: No substantive changes have been made.

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- 12) Have all the changes agreed upon by the Agency and JCAR been made as indicated in the agreement letter issued by JCAR? None were made.
- 13) Does this rulemaking replace any emergency rule currently in effect? No
- 14) Are there any rulemakings pending on this Part? No
- 15) Summary and Purpose of Rulemaking: The amendments adopted here make a number of corrections to Part 501, which will apply beginning on January 1, 2017, taking the place of Part 500. Among other things, the amendments correct cross-references within the rules and correct citations to materials incorporated by reference. In addition, Section 501.160(g) expands the roster of national measurement institutes that may serve as sources for calibration standards.
- 16) Questions or requests for information about this adopted rulemaking shall be directed to:

Brian W. Allen
Office of General Counsel
Illinois Commerce Commission
527 East Capitol Avenue
Springfield IL 62701

217/558-2387

The full text of the Adopted Amendments begins on the next page:

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TITLE 83: PUBLIC UTILITIES
CHAPTER I: ILLINOIS COMMERCE COMMISSION
SUBCHAPTER d: GAS UTILITIESPART 501
STANDARDS OF SERVICE FOR GAS UTILITIES AND
ALTERNATIVE GAS SUPPLIERS

SUBPART A: GENERAL

Section

501.5	Effectiveness of this Part
501.10	Definitions and Incorporations by Reference
501.20	Application
501.30	Exemption or Modification
501.40	Complaints
501.50	Customer Call Centers

SUBPART B: NATURAL GAS MEASUREMENT REQUIREMENTS

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501.130	Trained Personnel
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501.150	Fixed Factor Delivery
501.160	Testing Facilities and Equipment
501.170	Meter Accuracy Requirements
501.180	Diaphragm Meters
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501.220	Multi-Path Ultrasonic Meters
501.230	Coriolis Meters
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501.250	Sample Testing of Diaphragm Meters
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501.270	Commission Referee Tests

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501.280	Meter Tests Requested by Natural Gas Suppliers
501.290	Meter Installation Inspection
501.300	Correctors
501.310	Transmitters
501.320	Gas Chromatograph

SUBPART C: CUSTOMER INFORMATION

Section	
501.400	Corrections and Adjustments for Measurement Error
501.410	Information to Customers
501.420	Meter Reading

SUBPART D: GAS SERVICE STANDARDS

Section	
501.500	Pressure Regulation
501.510	Pressure Survey
501.520	Interruptions of Service
501.530	Heating Value
501.540	Good Engineering Practice

SUBPART E: EXTENSION OF MAINS

Section	
501.600	Extension of Distribution Mains in Urban Areas
501.610	Extension of Distribution Mains in Rural Areas

AUTHORITY: Implementing and authorized by Sections 8-301, 8-302, 8-501, 9-201, 10-101, 10-107, 19-110(e)(3) and 19-115(b)(1), (b)(4) and (b)(5) of the Public Utilities Act [220 ILCS 5/8-301, 8-302, 8-501, 9-201, 10-101, 10-107, 19-110(e)(3) and 19-115(b)(1), (b)(4) and (b)(5)].

SOURCE: Adopted at 39 Ill. Reg. 12494, effective August 25, 2015; amended at 41 Ill. Reg. 351, effective December 29, 2016.

SUBPART A: GENERAL

Section 501.10 Definitions and Incorporations by Reference

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a) Definitions

"Act" means the Public Utilities Act [220 ILCS 5].

"AGA" means the American Gas Association.

"Alternative Gas Supplier" has the same meaning as in Section 19-105 of the Act.

"ANSI" means the American National Standards Institute.

"Answer Time" means a measurement from the point the customer dialed the last digit of the natural gas public utility's or alternative gas supplier's telephone number and a natural gas public utility or alternative gas supplier representative or automated system is ready to render assistance or accept information to process calls.

"Auxiliary Equipment" means an integral device attached directly or remotely to a gas meter. The function of auxiliary equipment is to adjust gas meter usage measurements to account for changes in gas temperature or pressure.

"Bell Prover" means a cylindrical metal tank open at the top and nearly filled with liquid, in which a smaller calibrated cylindrical tank called the bell, open at the bottom and having a dome-shaped top, can be raised or lowered. As the operator raises (negative pressure) or lowers (positive pressure) the bell, the bell will displace a known volume of air.

"British Thermal Unit" or "BTU" means the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit from 58.5°F to 59.5°F under a standard pressure of 30 inches of mercury at 32°F, or 1054.804 Joules.

"Complaint" means an objection made to a natural gas public utility or alternative gas supplier, by a customer or another entity, as to its charges, facilities or service. Complaints include a customer or other entity identifying and asking a natural gas public utility or alternative gas supplier to address or resolve a problem or concern and shall not include contacts that are limited to inquiry or seeking information.

"Compressibility" means a gas volume correction factor calculated by using the parameters of natural gas composition, flowing gas temperature, and flowing gas

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pressure. The compressibility correction factor compensates for the deviation of gases from the ideal gas laws with increased pressure and with variations in temperature and gas composition. Compressibility is not to be confused with "supercompressibility", which is also defined in this Section.

"Coriolis Meter" means a gas meter that infers mass flow rate by measuring tube displacement resulting from the Coriolis effect.

"Corrector" means a device that corrects uncorrected gas meter volume according to the gas laws (Boyle's Law, Charles' Law, and Real Gas Law).

"Commission" means the Illinois Commerce Commission.

"Commission Referee Test" means the accuracy test of any gas meter made in the presence of one or more members of Commission Staff.

"Cubic Foot" means the unit of volume for purposes of measurement at a base temperature of 60°F at a base pressure of 14.73 pounds per square inch absolute.

"Custody Transfer Meter" means the meter, auxiliary equipment and tertiary equipment a utility uses to measure a customer's gas usage.

"Diaphragm Meter" means a positive displacement, bellows-type gas meter that alternately fills and empties compartments of known volume and totals the number of times the cycle occurs to determine the volume of gas passing through the meter.

"Defective Meter" means a meter whose condition is impairing service to a customer or a meter that has failed the requirements of Sections [501.170](#), [501.180](#), [501.190](#), [501.200](#), [501.210](#), [501.220](#) or [501.230](#) ~~500.170, 500.180, 500.190, 500.200, 500.210, 500.220 or 500.230~~.

"Flow Computer" means a device that electronically converts signals from a gas measurement system to a useful form such as flow rate.

"Fixed Factor" means the use of a gas pressure regulator to control gas pressure within an allowable pressure band over the required flow rate range considering the variation of inlet pressures and results in the application of a pressure

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correction factor applied via an arithmetic application or special index to a customer's measured usage.

"Master Bell" means a primary bell prover used as a reference standard for target proof correlations and bell prover interface recertification.

"Measurement Error" means an error in the calculation of a customer's gas usage due to the inaccuracy or improper setup of a utility's meter or other equipment whose function directly or indirectly affects the utility's measurement of a customer's gas usage.

"Meter Accuracy" means the overall performance of a particular meter in relationship to a known reference or portable standard.

"Meter Soaking Room" means a room maintained at the same atmospheric conditions as the meter proving room. The purpose of a meter soaking room is to store and acclimatize meters prior to testing to ensure meter testing accuracy that is not affected by temperature variations.

"Multi-path Ultrasonic Meter" means a device that derives gas flow rate by measuring the transit times of high-frequency sound pulses. Sound pulses transit between pairs of transducers located on or in the gas pipe.

"Natural Gas Supplier" means an alternative gas supplier or any other natural gas supplier providing the natural gas commodity to a customer under a gas utility tariff or rider.

"Orifice Meter" means an inferential meter that consists of an orifice plate perpendicular to the gas flow in a pipe. When gas flows across the orifice, it creates a pressure differential. Transmitters and transducers measure the pressure differential, static pressure, and other variables to determine the flow rate. The flow rate is proportional to the square root of the differential pressure across the orifice plate.

"Portable Standards" means instruments that utilities use in the field or the meter shop to test the accuracy of auxiliary and tertiary equipment, transmitters, and other equipment associated with correcting a meter's output.

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"Proving Room" means a temperature-controlled room where the utility uses equipment to determine the accuracy of meters.

"Rated Capacity" or "Badged Capacity" means the hourly gas throughput of a meter as defined by the meter manufacturer.

"Reference Standards" means instruments that utilities use only for verifying the accuracy of portable standards, and whose accuracy is traceable back to the national standard maintained by the National Institute of Standards and Technology (NIST) or its successor.

"Rotary Meter" means a positive displacement meter that alternately fills and empties rotating compartments of known size and totals the number of times the cycle occurs to determine the volume of gas passing through the meter.

"Service Applicant" means a person who applies for residential or non-residential utility service for a location where the utility has not yet installed the meter.

"Small Commercial Customer" has the same meaning as in Section 19-105 of the Act.

"Sonic Nozzle Automatic Prover" means a device containing a parallel bank of sonic flow nozzles that it uses to determine actual gas volume passed through a gas meter in order to determine the gas meter's accuracy.

"Sub-metering" means the placement of a meter downstream of a custody transfer meter.

"Supercompressibility" means a value used in some flow equations for differential pressures (for example, orifice metering). In general, the supercompressibility factor is equal to the square root of the quotient of gas compressibility at base conditions divided by the gas compressibility at flowing conditions. Supercompressibility is not to be confused with "compressibility".

"Tertiary Equipment" means a device that electronically converts signals from a gas measurement system (meter or auxiliary equipment or both) to a useful form such as flow rate (for example, flow computers).

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"Therm" means a unit of measurement representing a quantity of heat equivalent to 100,000 BTUs and expresses the energy content of natural gas.

"Transducer" means a sensing element capable of transforming values of physical properties such as pressure or temperature into equivalent electrical signals.

"Transmitter" means a device designed to enhance the transmission of information from a transducer to a flow computer by the addition of an electrical circuit that converts the transducer output to a standard signal in analog, digital or frequency form.

"Turbine Meter" means an inferential meter that measures gas flow by counting the revolutions of a rotor with blades, which turn in proportion to the gas flow velocity.

- b) Incorporations by Reference. The following materials are incorporated by reference as of the date stated and include no later editions or amendments.

American Gas Association, 400 North Capitol Street, NW, Washington DC 20001

AGA Report No. 3, Orifice Metering of Natural Gas – Part 2: Specification and Installation Requirements, XQ0002 ([April 2000](#))(~~January 1, 2000~~)

AGA Report No. 7, Measurement of Natural Gas by Turbine Meter, [XQ0601 \(February 2006\)](#)~~XQ0604 (January 1, 2006)~~

AGA Report No. 9, Measurement of Gas by Multipath Ultrasonic Meters, XQ0701 (April 1, 2007)

AGA Report No. 11, Measurement of Natural Gas by Coriolis Meter, XQ1301 (February 1, 2013)

AGA Gas Measurement Manuals – Part 15: Electronic Corrector, XQ9901 (May 1999)

AGA Gas Measurement Manuals – Part 8: Electronic Flow Computers and Transducers, Revised (1988), XQ8805 (May 1988)

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American National Standards Institute and American Society for Quality
(American National Standards Institute, 25 West 43rd Street, 4th Floor, New York,
New York 10036)

Sampling Procedures and Tables for Inspection by Attributes, ANSI/ASQ
Z1.4-2008 (January 1, 2008)

American National Standards Institute and American Gas Association (American
National Standards Institute, 25 West 43rd Street, 4th Floor, New York, New York
10036)

Diaphragm-Type Gas Displacement Meters (Under 500 Cubic Feet Per
Hour Capacity), ANSI B109.1-2000, AGA XQ0008 (June 2000)

Diaphragm-Type Gas Displacement Meters (500 Cubic Feet Per Hour
Capacity and Over), ANSI B109.2-2000, AGA XQ0009 (June 2000)

Rotary-Type Gas Displacement Meters, ANSI B109.3-2000, AGA
XQ0010 (June 2000)

(Source: Amended at 41 Ill. Reg. 351, effective December 29, 2016)

Section 501.20 Application

This Part sets forth minimum requirements and shall apply to any natural gas public utility as defined in Section 3-105 of the Act and any alternative gas supplier as defined in Section ~~501.10500.10~~ 501.10500.10. This Part shall not apply to any natural gas cooperative or to a municipal system when operating within its service territory. A public utility shall retain a record required by this Part for the period specified in 83 Ill. Adm. Code 510 unless this Part requires a longer retention period.

(Source: Amended at 41 Ill. Reg. 351, effective December 29, 2016)

SUBPART B: NATURAL GAS MEASUREMENT REQUIREMENTS**Section 501.110 Location and Installation of Meters**

- a) A utility shall install a meter on a service applicant's premises as near as practical to the point of entrance of gas service into the service applicant's building or

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utilization area as mutually agreed upon by the utility and service applicant. The utility shall install a meter in a readily accessible location and protect the meter from corrosion and other damage.

- b) A utility shall not install a meter indoors unless outdoor installation is not possible or would make the meter installation financially infeasible. A utility shall not install ~~an indoor~~ meter in sleeping rooms, in small, unventilated areas, or in locations where the installation, reading or removal of the meter may prove difficult or hazardous. A utility shall not install indoor meters less than three feet from any ignition source, ~~air intake~~, or source of heat that might damage the meter. A utility shall not install a meter in a location where expected temperatures are likely to exist outside the range recommended by the meter manufacturer.
- c) A utility shall not install a meter in front of a residential dwelling except with the consent of the service applicant or if no other practical external location is available.
- d) A utility shall install all meters in a secured upright and level position. A utility may vary from this requirement if it installs a meter whose accuracy does not depend upon an upright and level installation. A utility shall install each meter to minimize anticipated stresses upon the connecting piping and the meter.
- e) If it is not practical for a utility to locate a meter installation in a place free of vehicular traffic hazards, the utility shall install meter protection such as guard posts or rails to protect the meter installation from damage. If the utility determines meter protection is necessary, then the utility shall inform the service applicant and include an estimate of the cost for the additional meter protection. The service applicant may install the guard posts or rails prior to the installation of the meter if the utility approves the proposed protection, or the service applicant may reimburse the utility for the cost and installation of the guard posts or rails.
- f) A utility may refuse to install a meter or to serve a service applicant if, in the utility's judgment, the metering installation is hazardous or the service applicant's installation of piping or gas burning equipment is hazardous or of such character that the utility cannot provide service in a manner consistent with the requirements of Section 8-101 of the Act. In case of refusal, the utility shall inform the service applicant in writing of the reason for refusal to render service

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and make the service applicant aware of the refusal to provide service within five business days after the decision to refuse service.

- g) A utility shall not install a meter without a temperature compensation device unless the utility uses a corrector or other acceptable auxiliary equipment to correct the meter's reading for temperature variation. A utility may install non-temperature compensated meters in indoor locations if the utility uses only that type and size of meter in indoor locations.
- h) Each diaphragm, rotary and turbine meter shall have a register or display on the meter or correcting device that displays consumption in a definite and known proportion to the actual energy consumption of the customer, that is plainly visible, and that a customer can read. A customer may waive this requirement in writing. This requirement shall not affect the utility's right to secure meters for safety reasons or in situations in which the meter is subject to excessive risk of damage or tampering. At the customer's request, a utility shall explain to the customer how to read the meter used for billing that customer.
- i) A utility shall avoid installing a meter or auxiliary or tertiary equipment in locations where the meter or auxiliary or tertiary equipment is in direct contact with soil or concrete unless the manufacturer designed the meter or equipment for those conditions.
- j) A utility shall have security seals installed on all meters and auxiliary and tertiary equipment or take measures to secure its equipment in order to deter unauthorized personnel from tampering with it.
- k) A utility shall secure all meter bypass valves when not in use in order to deter unauthorized personnel from tampering with them while also providing a readily apparent visual indication of tampering or other diversion activities.
- l) A utility shall secure a regulator that it uses in conjunction with fixed factor billing if it discovers tampering with the pressure setting.

(Source: Amended at 41 Ill. Reg. 351, effective December 29, 2016)

Section 501.160 Testing Facilities and Equipment

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- a) A utility shall provide laboratories, testing shops and other equipment, facilities and personnel as may be necessary to conduct the tests required by this Subpart or other orders of the Commission. A utility's laboratories, meter testing shops, and other equipment and facilities so provided shall be at all times available for inspection by authorized representatives of the Commission.
- b) If a utility selects an agent to perform meter sample testing, meter accuracy tests when a meter is removed from service, and other requirements of this Subpart, or if a utility changes its agent, or if the agent changes the location where it will conduct meter tests, the utility shall notify the Director of the Safety and Reliability Division of the Commission in writing within 60 days after the selection or change. If an agent is selected or changed, the utility shall provide the following information about the new agent:
 - 1) Name of agent;
 - 2) Name of contact for agent;
 - 3) Address and phone number of agent contact;
 - 4) Address of location where agent will conduct meter tests;
 - 5) Summary of meter types and sizes that agent will test;
 - 6) Summary of services the agent will perform for the utility; and
 - 7) Identification of what changes, if any, caused the need for the notification.
- c) A utility shall provide meter testing equipment, including a bell prover of not less than two-cubic-foot capacity. A utility shall maintain each of its active provers of all types in proper adjustment in order to determine the average accuracy of meters to within one-half of one percent. A utility shall provide suitable thermometers, pressure gauges, and temperature recorders and shall adequately control the temperature of the meter testing room, meter soaking room, and air supply used in testing meters to achieve the meter testing accuracy stated in this subsection. The temperature of the meter testing and soaking room, when in use, shall not vary by more than 4°F during regular operating hours and shall not vary by more than 6°F throughout the year.

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- d) In the event a meter shop experiences temperature variances that exceed those provided in subsection (c), a utility shall immediately stop testing meters in the meter shop until the utility corrects the problem and the temperature returns to the normal levels for at least four continuous hours or the utility can demonstrate that the temperature variance between the meters and testing equipment is less than or equal to 1°F.
- e) A utility that uses a transfer prover to test the accuracy of meters in the field shall verify the transfer prover's accuracy by testing a reference meter on the transfer prover at least every three months. If this testing shows a deviation of more than 0.5% in the reference meter accuracy, the utility must take all necessary repairs or actions to bring the transfer prover's testing of the reference meter to within 0.5% of the prior readings.
- f) An authorized representative of the Commission may check or establish the accuracy of all testing equipment used or intended for use in determining the accuracy of custody transfer meters, as well as the methods of operating that equipment. If a utility uses an agent to test the accuracy of its meters, the utility shall include provisions within its agreement with its agent for the authorized representatives of the Commission to conduct on-site audits of the agent's facility. An authorized representative of the Commission shall perform an audit of the utility's testing equipment and methods at least every three years. The utility shall reimburse the Commission for all expenses related to audits of meter shops used or maintained by the utility or its agents located outside of this State.
- g) A utility shall certify the accuracy of its testing equipment with measurement results that are traceable to the international system of units through at least one of the following national measurement institutes: the National Institute of Standards and Technology for the United States, the National Physical Laboratory for the United Kingdom, the National Research Council for Canada, National Measurement Institute, American Association of Laboratory Accreditation, and the Physikalisch-Technische Bundesanstalt for Germany. ~~against National Institute of Standards and Technology traceable standards.~~ Unless specified in this subsection (g), the maximum certification interval is 36 months.
- 1) A utility shall certify sonic nozzle automatic provers at least every 12 months. A utility shall also conduct the following maintenance at least every 12 months on sonic nozzle automatic provers:

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- A) Inspect and clean nozzles and solenoids;
 - B) Strap and recertify a master bell during the bell interface recertification process;
 - C) Recalibrate prover sensors and instrumentation in accordance with manufacturer's specifications;
 - D) Test the function of the optical sensor; and
 - E) Perform a complete bell interface certification followed by a reference meter target proof analysis.
- 2) Utility verification checks on portable or reference equipment shall meet the following requirements:
- A) A utility shall verify the accuracy of a portable standard against a reference standard at least every 12 months. If the portable standard exhibits an error greater than 0.5%, the utility shall adjust the portable standard to read within 0.5% or replace the portable standard, or shall apply the proper correction factor.
 - B) If a utility does not operate a reference standard, the utility shall certify or replace its portable standards at least every 12 months.
 - C) A utility shall certify a reference standard at least every 36 months.
 - D) A calibration certificate, verification certificate, or card signed or initialed by the person responsible for the calibration shall accompany a portable standard and a reference standard at all times. A utility, in lieu of maintaining the certificate or card with the device, may maintain the certificate or card in a central location or database that is available to Commission Staff upon request. A certificate or card shall provide the date and results of the last calibration or verification of the instrument. A utility, after each successive issuance of certificates or cards, shall keep any superseded certificates or cards on file for at least three years.

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- h) A utility that tests meters with a rated capacity of 800 cubic feet per hour or less shall use one or more reference meters to conduct equipment checks every week. A utility shall designate and label reference meters for meter shop use only, and shall not adjust reference meters in any manner once in service unless they are in need of repair. A utility shall fully document all alterations to a repaired reference meter, including before and after accuracies. A reference meter shall carry a rating of 800 cubic feet per hour or less and shall have a similar size to the meters the utility tests. Every week during periods when a utility expects to test meters, a utility shall test a reference meter on each prover that the utility uses to test meters of the reference meter's size. A utility shall record reference meter test results, including temperature, when testing on a sonic nozzle automatic prover, and shall record the test results, temperature test flow times and bell pressure when testing on a bell prover. If the reference meter tests indicate an accuracy problem with any equipment, the utility shall cease using that equipment until the utility repairs the equipment.
- i) A utility shall allow meters tested within a meter testing facility to acclimate in the room containing the testing equipment or meter soaking room for at least 12 hours prior to testing. This acclimation time is not required if the utility can show that it has taken sufficient actions to bring the meter temperature and the testing equipment to within 1.0°F of each other.

(Source: Amended at 41 Ill. Reg. 351, effective December 29, 2016)

Section 501.180 Diaphragm Meters

- a) A utility shall install a new diaphragm meter set and revisions to an existing diaphragm meter set in accordance with the recommendations of ANSI B109.1, XQ0008 (June 2000) for diaphragm meters with a rated capacity less than 500 cubic feet per hour and in accordance with ANSI B109.2, XQ0009 (June 2000) for diaphragm meters with a rated capacity of 500 cubic feet per hour or greater.
- b) A utility furnishing natural gas service with diaphragm meters shall ensure the use of suitable meter proving or testing equipment to determine the accuracy of the meter. The average accuracy of a diaphragm meter is determined by averaging the accuracy of the check and open flow rates.
- 1) The open rate is 95% to 105% of the rated capacity.

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- 2) The check rate is 20% to 33% of the rated capacity.
- 3) The maximum allowable accuracy spread between the open and check rates' accuracy is 1.0%.
- c) A utility shall conduct periodic accuracy tests on all installed diaphragm meters at least every 120 months unless the utility has provided notification to the Commission regarding its plans to conduct sample testing in accordance with Section [501.250](#)~~500.250~~.

(Source: Amended at 41 Ill. Reg. 351, effective December 29, 2016)

Section 501.190 Rotary Meters

- a) A utility shall install all rotary meters or revisions to existing rotary meter sets in accordance with the recommendations of ANSI B109.3, XQ0010 (June 2000).
- b) A utility furnishing gas service through a rotary meter shall verify that the meter's accuracy meets the requirements of Section [501.170\(a\)](#)~~500.170(a)~~ before placing the meter in service.
 - 1) A utility may rely on the manufacturer's factory accuracy test to demonstrate that a new rotary meter meets the Section [501.170\(a\)](#)~~500.170(a)~~ requirements only if the utility also conducts quality assurance reviews on its new rotary meters.
 - 2) A utility that conducts quality assurance reviews must group the new meters into meter lots consisting of the same size and manufactured under the same conditions. The utility must then sample test these lots in accordance with a single sample plan for normal inspection, Inspection Level II, of ANSI/ASQ Z1.4-2008 using an acceptable quality level not to exceed 1.0%.
 - 3) In the event that a meter lot fails, the utility must either return the meters to the manufacturer or test all of the meters in the lot to verify compliance with Section [501.170\(a\)](#)~~500.170(a)~~.
 - 4) A utility shall retain a record of a meter's accuracy test for the life of the meter.

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- c) A utility shall differential test an in-service rotary type positive displacement meter at least every 60 months. If the meter's pressure differential for a given flow rate is more than 50% higher than the utility's initial differential test or the factory published differential curve, a utility shall return the differential to a value below the 50% limit. If the utility cannot return the meter's differential to below the 50% limit, the utility shall clean and retest the rotary meter within 7 days and, if the meter's pressure differential is still more than 50% higher than the utility's initial differential test or the factory published differential curve, the utility will replace the meter within 60 days. If the meter is of sufficient size that portions of a customer's structure require modification to remove the meter, then the utility will replace the meter within 90 days unless the utility and customer agree to a longer period, not to exceed 180 days.
- d) If a utility documents conditions at the meter that prevent the utility from obtaining a differential reading from the meter, then the utility may delay verification until those conditions cease to exist or for four months, whichever is shorter. If a utility delays verification, it shall maintain for three years documentation of the conditions that prevented verification within the required 60 months and provide the documentation to an authorized representative of the Commission when requested.
- e) In lieu of the differential test requirement in subsection (c), a utility may conduct an accuracy test of a rotary meter. The average accuracy of a rotary meter is determined by averaging the accuracy of the check and open flow rates.
- 1) The check rate is 10% to 33% of the meter's rated capacity.
 - 2) The open rate is 60% to 105% of the meter's rated capacity. The utility may substitute the proving equipment's maximum capacity for the open flow rate if the meter's required testing volume exceeds the utility's testing equipment's capacity.
- f) A utility shall maintain the most recent 10 years of inspection records, as well as the dates of all inspections of rotary meters.

(Source: Amended at 41 Ill. Reg. 351, effective December 29, 2016)

Section 501.200 Turbine Meters

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- a) A utility furnishing natural gas service with turbine meters shall install new turbine meters or revisions to existing meter sets in accordance with the recommendations contained in AGA Report No. 7, Measurement of Natural Gas by Turbine Meters, XQ0601 (February 2006).
- b) A utility shall accuracy test a turbine meter at least every 60 months.
 - 1) A utility shall atmospherically test the accuracy of a turbine meter with an operating pressure not exceeding 25 psi at a minimum of four different flow rates of not less than 10% of meter capacity and not more than 105% of the meter capacity.
 - 2) A utility shall accuracy test turbine meters with an operating pressure exceeding 25 psi at the expected operating pressure of the meter installation using at least five flow rates of not less than 10% of meter capacity and no more than 105% of the meter capacity. A utility may install a turbine meter at a location where the operating pressure falls within the range of 50% less than or two times greater than the pressure of the meter's accuracy test. For example, a turbine meter that was accuracy tested at 100 psi is acceptable for delivery pressures from 50 psi (50% of 100) through 200 psi (2 x 100).
 - 3) A utility may accuracy test its turbine meters in natural gas or air. A utility that conducts accuracy tests with air shall account for the Reynolds number equivalence as set forth in AGA Report No. 7, Measurement of Natural Gas by Turbine Meters, Appendix E, XQ0601 (February 2006).
 - 4) When tested at the expected delivery pressure of the in-service location, a turbine meter shall demonstrate a tested accuracy within $\pm 1.0\%$ of the accuracy shown over the manufacturer's entire published flow range.
- c) A utility furnishing natural gas service with a dual rotor turbine meter that has an external means of verifying meter accuracy may extend the accuracy test requirement to at least every 120 months if the utility can demonstrate that it verifies the accuracy of the meter at least every six months and that the meter's performance meets the manufacturer's guidelines.

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- d) A utility shall spin test and, if necessary, lubricate its turbine meters at least every 12 months. If a turbine meter is not equipped with external lubrication provisions or external means of verifying the operation of the meter, a utility shall spin test the meter every six months. If the turbine meter's spin time is not equal to or greater than the minimum spin time specified by the manufacturer, the utility shall make corrections to the meter to allow the spin time to equal or exceed the manufacturer's specifications.
- e) A utility is not required to conduct a spin test of its dual rotor turbine meter if the utility furnishes natural gas service with a dual rotor turbine that has an external means of verifying rotor health, the utility can demonstrate that it verifies the health of the rotor at least every six months, and the utility can demonstrate the performance of the rotor meets the manufacturer's guidelines.
- f) A utility shall maintain the most recent five years of inspection records, as well as the dates of all inspections for the most recent 10 years, except accuracy tests. A utility shall maintain documents for each turbine meter's most recent accuracy test, the prior accuracy test, and the dates of any other accuracy test that occurred during the prior 10 years.

(Source: Amended at 41 Ill. Reg. 351, effective December 29, 2016)

Section 501.230 Coriolis Meters

- a) A utility shall install a Coriolis meter in accordance with the recommendations of AGA Report #11, Measurement of Natural Gas by Coriolis Meter, XQ1301 (February 2013).
- b) A utility shall verify the proper operation of an installed Coriolis meter at least every 12 months by verifying that the meter meets the manufacturer's tolerances using, at a minimum, all of the following inspection requirements:
 - 1) Meter zero flow check;
 - 2) Meter sensor check; and
 - 3) Meter transmitter check.

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- c) A utility shall calibrate a Coriolis meter at least every 120 months. However, if the utility can demonstrate that the meter meets the manufacturing tolerances set forth in Section ~~501.220(b)~~~~500.220(b)~~ and the utility conducts an annual inspection of the meter body to ensure that the meter body has not incurred damage that would affect the meter's accuracy, the utility may forego the 120-month calibration requirement.
- d) When a utility removes a Coriolis meter from service, the utility shall verify the meter's existing accuracy prior to altering the operation of the meter. This verification replaces the requirements of Section ~~501.170(d)~~~~500.170(d)~~ for Coriolis meters.
- e) A utility shall maintain the most recent five years of inspection records. A utility shall also maintain documents for each Coriolis meter's most recent accuracy test, the prior accuracy test, and the dates of any other accuracy test that occurred during the prior 10 years.

(Source: Amended at 41 Ill. Reg. 351, effective December 29, 2016)

Section 501.250 Sample Testing of Diaphragm Meters

- a) A utility may, at its option and upon giving notice to the Commission, adopt scientific sample procedures for new and in-service diaphragm meters.
- b) A utility shall develop sample testing lots for new meters that consist of meters of a single type and size that were manufactured under the same conditions and at essentially the same time. All sample testing procedures shall be in accordance with Inspection Level II of ANSI/ASQ Z1.4-2008.
- c) A utility shall establish meter sample testing lots for in-service meters that consist of meters of a similar type, size and year of installation or year of purchase. In the ninth and every subsequent year thereafter that the meters are in service, a utility shall test their accuracy in accordance with Inspection Level II of ANSI/ASQ Z1.4-2008.
- d) In order to comply with the accuracy limits of Section ~~501.170~~~~500.170~~, a utility's sample testing plan for new meters shall provide an acceptable quality limit not to exceed 1.0% in order to assure a process average of at least 99%.

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- e) A manufacturer shall test a new meter, and the resulting test record shall accompany the meter to retirement. A utility shall use the manufacturer's test as the initial test of the meter. However, if a utility tested the new meter prior to placing it into service, then the utility shall use its test as the meter's initial test.
- f) A utility's sample testing plan for meters in service shall provide an acceptable quality limit of 6.5% in order to assure a process average of at least 93.5%. A meter is deviant if the average of its check-rate and capacity-rate accuracy test results in accuracy more than 3.0% fast or 3.0% slow. A utility must complete all sample tests by the end of the calendar year in which the tests are due for completion.
- g) If a utility determines that a meter lot has failed sample testing, the utility shall remove all remaining meters in the failed lot from service within 24 months after completion of the current year's sampling.

(Source: Amended at 41 Ill. Reg. 351, effective December 29, 2016)

Section 501.270 Commission Referee Tests

- a) Subject to the provisions of subsection (b), a customer may not request a referee test of a meter used to measure the customer's gas consumption if the utility that provides service to the customer does not have the necessary testing equipment.
- b) If a customer requests a referee test of the meter used to measure the customer's gas consumption, but the utility's testing facility is located out of state, the utility shall provide the option of having the meter tested at an in-state testing facility, provided the alternative location is in good standing with the Commission and the location is capable of testing the meter. A meter shop is in good standing if a Commission representative has conducted a review of the facility for compliance with the requirements of this Part within the last 40 months and the meter shop has no outstanding non-compliance issues associated with its ability to accurately measure meter accuracy. A Commission representative shall advise, upon request of a utility, if a meter shop is in good standing.
- c) A utility shall conduct a referee test of a meter within 45 days after receiving notice from a Commission representative of a customer's request if the meter testing facility that the utility uses to conduct the test is located in-state. The utility shall conduct the meter test between 7 a.m. and 4 p.m. Monday through

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Friday, excluding holidays, at a date and time agreed upon by the utility, the customer and the Commission representative, unless the utility, the customer and the Commission representative agree to a different day or time.

- d) A utility shall conduct a referee test of a meter within 90 days after receiving notice from a Commission representative of a customer's request if the meter testing facility that the utility uses to conduct the test is located out of state and the customer requesting the referee test selects the out-of-state location, unless the customer agrees to a later time. The utility shall conduct the meter test between 7 a.m. and 4 p.m. Monday through Friday, excluding holidays, at a date and time agreed upon by the utility, the customer and the Commission representative, unless the utility, the customer and the Commission representative agree to a different day or time.
- e) Upon written application to the Commission by a customer and upon notice to a utility by a Commission representative, a utility under the oversight of a Commission representative shall conduct an accuracy test of a meter that was the subject of the written request, provided the customer has not requested a meter accuracy test under this Section or under Section ~~501.260~~~~500.260~~ in the 12 months prior to the request. A customer shall make a written request for a meter test and pay a fee, as provided in this subsection, to the Commission. A utility shall inform the customer or a Commission representative, upon request, of the size and type of meter used to serve the customer. If the accuracy test indicates that the meter over-registers by more than 2.0%, the utility shall refund the fee to the customer.

SCHEDULE OF FEES

<u>Rated capacities in cubic feet per hour</u>	<u>Fee</u>
Diaphragm meters up to 650	\$40
Diaphragm meters from 651 to 1,500	\$80
Diaphragm meters in excess of 1,500	\$120
Rotary meters up to 1,500	\$40
Rotary meters from 1,501 to 12,000	\$80
Rotary meters from in excess of 12,000	\$120
Turbine meter tested in utility shop at atmospheric pressure	\$120
Metering types not listed but tested in utility shop	\$120

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- f) If a customer is required to pay the costs of a meter test under Section ~~501.260~~~~500.260~~ because of the type or size of the meter, the customer must pay the utility the same costs under this Section, in addition to the fee to the Commission under subsection (e).
- g) Upon notice of a referee test from a Commission representative, a utility shall not disturb the meter that was the subject of the written referee test request in any manner, unless a Commission representative or the customer provides authorization. The utility shall document the authorization by recording the name of the person giving the authorization and the date and time of the authorization. The utility shall provide this authorization documentation to the Commission representative at the time of the referee test.
- h) When a utility removes a meter for purposes of a referee test, the utility or Commission representative shall deliver the meter to the utility's meter testing facility, and the utility shall secure the meter to prevent potential tampering or disturbance from in-service conditions until the referee test begins.
- i) A utility shall waive the 12-month waiting period identified in subsection (e) for Commission referee tests if a customer makes one of the following demonstrations:
- 1) A deviation in the customer's measured gas usage in excess of 10% occurred following the utility's installation of a different meter on the customer's service and the difference is not attributable to weather or the customer's process changes; or
 - 2) Relevant facts that point to potential accuracy problems with the meter.
- j) If a utility removes a meter for testing but before the testing occurs is notified by the customer that the customer plans to request a referee test of the meter, the utility shall not test the meter and shall secure the meter to prevent potential tampering or disturbance from in-service conditions until the referee test begins. If, after 60 days from when the utility removed the meter for testing, the customer has not filed a request with the Commission for a referee test, the utility shall send a notice in writing to the customer informing it of the following:
- 1) The notice shall state that the customer has 30 days in which to complete the request for the Commission referee test.

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- 2) If the customer fails to make its request within the 30 days, the utility, at its option, may conduct the required testing of the meter.
- k) The utility is responsible for contacting the Commission to verify the status of the customer's request for a referee test prior to testing the meter.

(Source: Amended at 41 Ill. Reg. 351, effective December 29, 2016)

Section 501.280 Meter Tests Requested by Natural Gas Suppliers

- a) Upon a natural gas supplier's request, provided that the utility or manufacturer has not tested the meter in question within 12 months prior to the request, a utility providing metering service shall test the meter in question within 45 days after receiving the request, unless the natural gas supplier agrees to a later time. The utility shall perform the meter test between 7 a.m. and 4 p.m. on Monday through Friday, excluding holidays, unless the utility and the natural gas supplier agree to a different day or time. The utility shall inform the customer of the natural gas supplier's request and the date and time of the test at least five business days prior to the agreed-upon test date. The utility shall perform the test in the presence of a representative of the natural gas supplier, unless the natural gas supplier waives the right to have a representative present. The utility shall allow the customer or its representative to observe the meter test. The utility shall provide a written summary of the results of the meter test to the natural gas supplier and the customer within five business days.
- b) If a utility or manufacturer has tested a meter within the last 12 months, the utility is not obligated to retest the meter in response to the latest request. Instead, the utility may offer the results of the last test in response to the latest request.
- c) If a requested meter test will not interrupt a customer's gas service, a utility may perform a meter test requested by a natural gas supplier at any time agreeable to the utility and the natural gas supplier. If a requested meter test will interrupt the customer's gas service, then a utility shall obtain permission from a customer to interrupt the customer's service to perform a requested test.
- d) A utility may require a natural gas supplier to pay up to \$10,000 (\$25,000 if performed at a non-affiliated third-party location) for the actual costs of the meter test. A utility performing a meter test at the request of a natural gas supplier shall

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refund the natural gas supplier's payment if the meter test shows that the meter is under-registering by more than 2.0%. A utility shall provide to a natural gas supplier an itemized written statement of the cost of a requested meter test, obtain the natural gas supplier's agreement to pay the stated cost, and receive payment from the natural gas supplier for the requested meter test before taking any action to remove the meter or begin the requested meter test.

- e) A natural gas supplier may request a meter test only for a current customer or for a prior customer if, at the time of the request, the supplier had provided gas supply to that customer within the prior three months.
- f) A natural gas supplier may request a Commission referee test of a meter under the provisions of subsection (c) and Section ~~501.270~~~~500.270~~, and shall be responsible for the fee prescribed by Section ~~501.270(e)~~~~500.270(e)~~ and the actual cost, not to exceed \$10,000, of the test. The utility shall inform the customer of the natural gas supplier's request and the date and time of the referee test at least five business days prior to the agreed upon test date. The utility shall perform the referee test in the presence of a representative of the natural gas supplier, unless the natural gas supplier waives the right to have a representative present. The utility shall allow the customer or its representative to observe the meter test. If the meter over-registers by more than 2.0%, the utility shall refund all fees it charged to the natural gas supplier and make any necessary meter data adjustment.
- g) A utility shall conduct a referee test of a meter within 45 days after receiving notice from a Commission representative of a natural gas supplier's request if the meter testing facility that the utility uses to conduct the test is located in-state, unless the supplier agrees to a later time. The utility shall conduct the meter test between 7 a.m. and 4 p.m. Monday through Friday, excluding holidays, unless the utility, the third party supplier, and Commission representative agree to a different day or time.
- h) A utility shall conduct a referee test of a meter within 90 days after receiving notice from a Commission representative of a natural gas supplier's request if the meter testing facility that the utility uses to conduct the test is located out of state, unless the supplier agrees to a later time. The utility shall conduct the meter test between 7 a.m. and 4 p.m. Monday through Friday, excluding holidays, unless the utility, the third party supplier, and Commission representative agree to a different day or time.

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(Source: Amended at 41 Ill. Reg. 351, effective December 29, 2016)

SUBPART E: EXTENSION OF MAINS

Section 501.610 Extension of Distribution Mains in Rural Areas

- a) Rural Customer
 - 1) A utility shall consider a customer whose premises are not located in urban territory, as described in Section ~~501.600~~501.600.600, as a rural customer.
 - 2) The provisions of this Section shall not apply to applicants for service under tariffs allowing interruptions of service. A utility with service tariffs that allow the utility to interrupt service to a customer shall file with the Commission an extension provision or an agreement with the applicant that shall govern main extensions for service under those tariffs.
- b) Extension Provisions
 - 1) If a utility determines that a main extension is necessary to provide firm gas service for an applicant or group of applicants whose premises are located in rural areas within which the utility operates, the utility, upon written request for service by the applicants, shall make the necessary main extension along a street, highway or other right-of-way to the nearest point or points adjacent to the point of connection with the service piping of such applicants, upon agreement by the applicant or group of applicants to comply with the provisions of this Section.
 - A) A utility may file, in conjunction with its rate schedule, a main extension provision that would provide the utility customer with the choice of obtaining the extension under the provision or under subsection (b)(1)(C). If a utility files a main extension provision and the Commission permits it to become effective, the applicant may, at his or her election, proceed either under the provision or under subsection (b)(1)(C).

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- B) A utility may file a main extension provision that operates in place of, and not as an alternative to, subsection (b)(1)(C), but in that case the main extension provision shall not become effective except after a showing that it is generally more favorable to applicants than are the provisions of subsection (b)(1)(C) and, after specific action by the Commission by order or otherwise, permitting the provision to become effective. If the provision becomes effective, it shall govern the making of extensions.
- C) Deposits for Extensions
- i) The utility may require the applicant or group of applicants to deposit with the utility the estimated cost of the extension determined in the manner designated in subsection (c). Each subsequent customer to be connected within a period of 10 years from the date of making the original extension shall be required to deposit with the utility an amount equal to the sum of the estimated cost of the existing extension plus the estimated cost of any further extension necessary to serve the customer, divided by the number of depositors for the entire extension. The excess of this deposit over the estimated cost of any further extension necessary to serve the customer shall be divided equally by the utility among the previous depositors for the extension and shall be refunded to them in that amount. In no case shall the amount of the refund to a customer exceed the customer's deposit, nor shall the total of deposits for any extension exceed the estimated cost of making the extension.
- ii) The foregoing provisions depend upon agreement by applicants that deposits of applicants will be equal. If an applicant or group of applicants requests a new extension to an existing main that would increase present customers' deposits, the utility shall consider the new extension as an original extension and shall not require deposits from existing customers for the requested new original extension.

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- iii) If the point of connection with the service piping of an applicant is so located that the applicant could be served by extending a separate parallel main at less cost than the amount of deposit that would be required from the applicant for connection to the existing extension, a utility will not require the applicant to deposit in excess of the estimated cost of the separate main, and the applicant shall not share in any refunds so long as the applicant's deposit remains less than that of the other depositors on the existing extension.
- 2) A utility, when reaching agreement with a group of applicants, shall consider the group to be governed by the majority as applied to any specific extension.
- c) A utility shall provide the applicant with a free estimate of the cost of the requested main extension along the expected route for the main extension designated by the utility. A utility shall also provide a free estimate of the cost of an alternative route if the applicant requests an alternative route and the utility expects the cost for the alternative route to not exceed the cost from the expected route by more than 50%.
- d) A utility shall use, as the basis for determining the amount of a deposit, the distance the applicant is from the nearest available distribution main and a route that the utility would normally follow in making the extension and over which right-of-way is available.
- e) A utility may petition the Commission for an investigation and determination of the reasonableness of any main extension if circumstances indicate that the additional revenues generated as a result of the main extension would be so meager as to make it unlikely to pay a fair compensation to the utility for its investment, operation, maintenance and replacement of the extension, or that, for other substantial reasons, the extension is unwarranted. If after a hearing the Commission orders a utility to construct an extension that has been challenged on any of these grounds, the applicant or group of applicants shall reimburse the utility for the construction costs to the extent necessary to ensure that the utility earns the Commission-authorized return from the required investment.

(Source: Amended at 41 Ill. Reg. 351, effective December 29, 2016)