

DEPARTMENT OF ~~LABOR AND ECONOMIC GROWTH~~ LICENSING AND  
REGULATORY AFFAIRS

PUBLIC SERVICE COMMISSION

TECHNICAL STANDARDS FOR GAS SERVICE

Filed with the secretary of state on

This rule becomes effective immediately upon filing with the secretary of state unless adopted under sections 33, 44, or 45a(6) of the administrative procedures act of 1969, 1969 PA 306, MCL 24.233, 24.244, or 24.245a. Rules adopted under these sections become effective 7 days after filing with the secretary of state.

(By authority conferred on the public service commission by sections **4 and 6 of 1939 PA 3**, Act No. 3 of the Public Acts of 1939 **MCL 460.4 and 460.6**, as amended, and section 2 of Act No. 165 of the Public Acts of 1969 **PA 165**, being ~~SS460.6 and 483.152 of the Michigan Compiled Laws~~ **MCL 483.152**, section 5 of **1919 PA 419**, **MCL 460.55**, sections **3, 9, and 231 of 1965 PA 380**, **MCL 16.103, 16.109, and 16.331**, and section 2 of **1909 PA 300**, **MCL 462.2(12)**, and Executive Reorganization Order Nos. **1996-2, 2003-1, 2008-4, and 2011-4**, **MCL 445.2001, 445.2011, 445.2025, and 445.2030**.)

R 460.2301, R 460.2302, R 460.2321, R 460.2323, R 460.2331, R 460.2332, R 460.2333, R 460.2335, R 460.2341, R 460.2351, R 460.2353, R 460.2354, R 460.2355, R 460.2362, R 460.2371, R 460.2373, R 460.2381, R 460.2382, and R 460.2383 of the Michigan Administrative Code are amended, R 460.2324, R 460.2344, R 460.2345, and R 460.2351a are added, and R 460.2342, R 460.2352, R 460.2361, R 460.2363, R 460.2364, and R 460.2374 are rescinded, as follows:

PART 1. GENERAL PROVISIONS

R 460.2301 Definitions.

Rule 1. As used in these rules:

(a) ~~“Acceptable to the commission” or “Approved by the commission” or “authorized by the commission”~~ means that a commission order has been ~~obtained~~ **issued**.

(b) “British thermal unit” means the quantity of heat that must be added to 1 avoirdupois pound of pure water to raise its temperature from 58.5 degrees Fahrenheit to 59.5 degrees Fahrenheit under standard pressure. Standard pressure is 30 inches mercury at 32 degrees Fahrenheit or 14.73 pounds per square inch absolute and with acceleration due to gravity equal to 32.174 feet per second per second.

(c) “Commission” means the Michigan public service commission.

(d) “Cubic foot of gas” means **either of** the following:

(i) For billing purposes, a standard cubic foot of gas is that quantity of dry gas which, at a temperature of 60 degrees Fahrenheit and an absolute pressure of 14.65 pounds per square inch, occupies 1 cubic foot. The commission may, however, approve a different absolute pressure base.

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(ii) For testing purposes, such as testing for heating value, a standard cubic foot of gas is that quantity of gas which, when saturated with water vapor at a temperature of 60 degrees Fahrenheit and an absolute pressure of 14.73 pounds per square inch, occupies 1 cubic foot.

(e) “Customer” means an individual, **firm, association, or corporation** business, excluding other gas utilities, **or any agency of the federal, state, county, or municipal government** that purchases **or otherwise receives** gas or transportation services, or both, on the utility’s system.

(f) “Hazardous condition” means any condition which the utility determines poses an immediate and serious threat to the health, safety, or welfare of a customer or the general public and which requires immediate action.

~~(g) “Liquefied petroleum gas-air mixture” means a gas that is produced by mixing an appropriate quantity of air with propane vapor, butane vapor, or a mixture of such vapors.~~

~~(h) “Meter” means, unless otherwise qualified, a device owned by a utility that is used in measuring a quantity of gas.~~

~~(ih) “Meter accuracy” means the volume that is measured by a meter as a percent of the actual volume that flowed through the meter as measured by a working standard.~~

**(i) “Meter error” means a failure to accurately measure and record all of the natural gas used that is required by the applicable rate or rates.**

(j) “Mixed gas” means a gas that is produced by mixing natural gas with any of the following:

(i) Air.

(ii) Inert gas.

(iii) Liquefied petroleum gas.

~~(iv) Liquefied petroleum gas-air mixture.~~

~~(v) Other flammable gas.~~

~~(vi) Substitute natural gas.~~

(k) “Premises” means **an individual piece of land or real estate that is not separated by public roads, streets, or alleys**, including buildings and other appurtenances ~~thereon~~ **on that land or real estate.**

(l) “Potentially hazardous condition” means any condition ~~which~~ **that** the utility determines has the potential to become a hazardous condition, but which does not require immediate action. ~~All of the following are examples of potentially hazardous conditions,~~ **including, but not limited to, any of the following:**

(i) Customer failure to permit the utility to perform inspections and maintenance on the utility’s facilities in or on the customer’s premises.

(ii) Customer alterations or modifications of the utility’s facilities located in or on the customer’s premises.

(iii) Customer construction of a structure or appurtenance near or over the main, service line piping, or meter set assembly so that the utility’s facilities are not in compliance with the provisions of ~~R 460.1400~~ **R 460.20101 to R 460.20606 of the Michigan gas safety standards et seq. of the Michigan Administrative Code** or the utility’s standards.

(iv) Customer failure to correct or replace gas utilization equipment or gas fuel line piping that has been previously identified and classified as potentially hazardous by the utility.

(m) “Rate book” means the assembled rate schedules, rules, regulations, and standard forms of the utility as filed with the commission **and available on the commission’s website**.

(n) “Required access” means access that is necessary to conduct any of the following:

(i) Routine inspections and maintenance.

(ii) Meter readings of gas usage.

(iii) Scheduled replacement, repairs, relocation, or disconnection of branch service lines or other changes with respect to service lines and meter assembly piping.

(o) “Substitute natural gas” means gas which is interchangeable and compatible with natural gas and which is manufactured from carbon and hydrogen-bearing materials.

(p) “Utility” means a person, firm, corporation, cooperative, association, or agency ~~which~~ **that** is subject to the jurisdiction of the commission and which delivers or distributes and sells gas to the public for heating, power, or other residential, commercial, or industrial purposes.

R 460.2302 Application, intention, and interpretation of rules; utility rules and regulations.

Rule 2. (1) These rules apply to a gas utility ~~which~~**that** operates within the state of Michigan and ~~which~~**that** is subject to the jurisdiction of the commission.

(2) These rules are intended to promote safe and adequate gas service to the public, to provide technical standards for uniform and reasonable practices by gas utilities, to encourage efficiency and economy, and to establish a basis for determining the reasonableness of such demands as may be made by the public upon gas utilities.

(3) Questions that concern the application or interpretation of these rules and disagreements with respect to any service rules and regulations that are promulgated by a ~~gas~~ utility shall be referred to the commission for a ruling.

(4) A utility shall adopt reasonable rules and regulations, subject to commission approval, governing its relations with customers. The rules and regulations ~~shall~~**must** not be inconsistent with these rules and any other rules of the commission ~~as may be promulgated from time to time~~. A utility’s rules and regulations ~~shall~~**must** constitute an integral part of the utility’s rate book.

**(5) Upon written request of a customer, utility, or on its own motion, the commission may waive any requirements of these rules when it determines the waiver will further the effective and efficient administration of these rules and is in the public interest.**

## PART 2. RECORDS, REPORTS, AND OTHER INFORMATION

R 460.2321 Retention of records.

Rule 21. All records that are required to be made or maintained pursuant to these rules ~~shall~~**must** be preserved by the utility for a period of time specified in R 460.2501 ~~et seq. of the Michigan Administrative Code to R 460.2582~~. If a time period is not specified in these rules or in R 460.2501 ~~et seq. to R 460.2582~~, all records ~~shall~~**must** be preserved by the utility for, ~~not less than~~**at a minimum**, 1 year after the records are completed.

R 460.2323 Reports and records generally.

Rule 23. (1) Volumetric data that is contained in any report ~~which is filed with the commission~~ ~~shall~~**must** define the pressure, temperature, and water saturation upon which the data is based.

(2) In addition to reports or records that are required to be filed with the commission pursuant to these rules, a utility shall provide the commission with a current list of the name, title, address, ~~and~~ telephone number, **and email address** of the person who should be contacted in connection with all of the following:

- (a) General management duties.
- (b) Customer complaints that relate to operations.
- (c) Construction, maintenance, operations, and emergencies during office and nonoffice hours for each major operating headquarters.
- (d) Meter tests and repairs.

**R 460.2324 Security reporting.**

**Rule 24. (1) To inform the commission regarding matters that may affect the security or safety of persons or property, whether public or private, a gas provider must do both of the following:**

**(a) Provide a written or oral annual report, individually or jointly with other gas providers, to designated members of the commission staff regarding the gas provider's cybersecurity program and related risk planning. This report on the threat assessment and preparedness strategy must contain all of the following information:**

**(i) An overview of the program describing the gas provider's approach to cybersecurity awareness and protection.**

**(ii) A description of cybersecurity awareness training efforts for the gas provider's staff members, specialized cybersecurity training for cybersecurity personnel, and participation by the gas provider's cybersecurity staff in emergency preparedness exercises in the previous calendar year.**

**(iii) An organizational diagram of the gas provider's cybersecurity organization, including positions and contact information for primary and secondary cybersecurity emergency contacts.**

**(iv) A description of the gas provider's communications plan regarding unauthorized actions that result in loss of service, financial harm, or breach of sensitive business or customer data, including the gas provider's plan for notifying the commission and customers.**

**(v) A redacted summary of any unauthorized actions that resulted in material loss of service, financial harm, or breach of sensitive business or customer data, including the parties that were notified of the unauthorized action and any remedial actions undertaken.**

**(vi) A description of the risk assessment tools and methods used to evaluate, prioritize, and improve cybersecurity capabilities, including work completed pursuant to R 460.2345.**

**(vii) General information about current emergency response plans regarding cybersecurity incidents, domestic preparedness strategies, threat assessments, and vulnerability assessments.**

**(b) In addition to the information required under subdivision (a) of this subrule, an investor-owned public utility must include in its annual report to the Michigan public service commission an overview of major investments in cybersecurity during the previous calendar year and plans and rationale for major investments in cybersecurity anticipated for the next calendar year.**

(2) As soon as reasonably practicable and prior to any public notification, a gas provider must orally report the confirmation of a cybersecurity incident to a designated member of the commission staff and to the Michigan fusion center, unless prohibited by law or court order or instructed otherwise by official law enforcement personnel, if any of the following occurred:

(a) A person intentionally interrupted the production, transmission, or distribution of natural gas.

(b) A person extorted money or other things of value from the gas provider through a cybersecurity attack.

(c) A person caused a denial of service in excess of 12 hours.

(d) A security breach, as defined by the identity theft protection act, 2004 PA 452, MCL 445.63(r), prior to public and customer notification.

(e) At the gas provider's discretion, any other cybersecurity incident, attack, or threat which the gas provider deems notable, unusual, or significant.

(3) For purposes of this rule, "gas provider" means either of the following:

(a) Any person or entity that is regulated by the commission for the purpose of selling natural gas to retail customers in this state.

(b) A cooperative gas utility in this state.

(4) For purposes of subrule (2) of this rule, "person" means any individual, firm, corporation, educational institution, financial institution, governmental entity, or legal or other entity.

(5) For purposes of subrule (2)(c) of this rule, "denial of service" means, for a gas provider, a successful attempt to prevent a legitimate user from accessing electronic information made accessible by the gas provider or by another party on the behalf of the gas provider.

### PART 3. SERVICE REQUIREMENTS

R 460.2331 Sale of gas.

Rule 31. (1) All gas that is sold by a utility ~~shall~~ **must** be on the basis of meter measurement, unless otherwise ~~authorized~~ **approved** by the commission.

(2) The utility shall provide the ~~characteristics~~ **terms and conditions** of service available to prospective customers upon request.

(3) If gas is supplied and metered to a customer at a nominal delivery pressure of 0.25 pounds per square inch gauge, then, for billing purposes, both of the following provisions apply:

(a) The gas volume that is registered by the meter is assumed to be measured at standard billing conditions as defined in R 460.2301(d)(i), regardless of the actual temperature of the gas or actual atmospheric pressure. ~~However, a~~ **All meters which are to operate at ambient outdoor conditions and which are installed after the effective date of this subrule shall** **must** be ~~installed~~ **equipped** with a temperature-compensating device.

(b) If the billing pressure base is 14.65 pounds per square inch absolute, then the atmospheric pressure is assumed to be 14.4 pounds per square inch absolute. If the commission has approved a different billing pressure base, then the assumed atmospheric pressure is equal to the difference between such absolute billing pressure base and 0.25 pounds per square inch.

(4) If gas is supplied to a customer through a low-pressure distribution system such that a service regulator is not used before metering, then, for billing purposes, the gas ~~shall~~**must** be assumed to be supplied and metered at 0.25 pounds per square inch gauge. The low-pressure system ~~shall~~**must** be operated so that the gauge pressure at the outlet of the meter ~~shall~~**must** be maintained within a range of 3 inches water column minimum to a maximum of 14 inches water column. However, delivery to the customer may be as high as 18 inches water column if the pressure to the ~~appliances~~**gas utilization equipment** is regulated to not more than 14 inches water column. A utility may implement different standards for operating its low-pressure system if those standards are approved by the commission.

(5) If gas is supplied and metered to a customer at a nominal delivery pressure of more than 0.25 pounds per square inch gauge, then, for billing purposes, all of the following provisions apply:

(a) The gas volume that is measured by the meter ~~shall~~**must** be corrected to standard billing conditions as defined in R 460.2301(d)(i).

(b) Gas volume corrections for temperature ~~shall~~**must** be made ~~in accordance with~~**pursuant to** Charles' law. Gas volume corrections for pressure ~~shall~~**must** be made ~~in accordance with~~**pursuant to** Boyle's law. Gas volume corrections for supercompressibility ~~shall~~**must** be made ~~in accordance with~~**pursuant to** either of the following publications ~~of the American gas association (AGA), both of which are adopted by reference in R 460.2344~~**these rules and may be purchased at the cost specified as of the time of adoption of these rules (which is subject to change) from the American Gas Association, 1515 Wilson Boulevard, Arlington, VA 22209, (703) 841-8558, or from the Michigan Public Service Commission, 6545 Mercantile Way, P.O. Box 30221, Lansing, MI 48909:**

(i) ~~"Manual for the Determination of Supercompressibility Factors, for Natural Gas, Project NX-19," PRCI Project NX-19"(1962) (A.G.A. Catalog No. L00340). . \$35.00. as adopted~~**by reference in R 460.2344.**

(ii) ~~"American Gas Association (AGA) Report No. 8, Part 1, "Thermodynamic Properties of Compressibility and Supercompressibility for Natural Gas and Other Related Hydrocarbon Gases, Transmission Measurement Committee Report No. 8," (1992) (A.G.A. Catalog No. . . . . \$80.00 (\$40.00 for AGA members)~~**DETAIL and GROSS Equations of State." (2017) AGA Catalog No. XQ1704-1 as adopted by reference in R 460.2344.**

(c) If the pressure at which the gas is metered is established on a gauge basis rather than an absolute basis, then the absolute pressure at which the gas is metered ~~shall~~**must** be inferred by summing the gauge pressure and either the actual atmospheric pressure or a reasonable estimate thereof or an atmospheric pressure that is filed with, and approved by, the commission.

(d) If a pressure-compensating device is used with the meter, the device ~~shall~~**must** be calibrated using the actual atmospheric pressure or a reasonable estimate thereof.

R 460.2332 ~~Permanent s~~Service line ~~rule~~**tariffs.**

Rule 32. Within 30 days after a company commences operating as a gas utility, the utility shall file its service line ~~installation rule~~**tariffs** for commission approval. ~~Such rules and regulations~~**These tariffs shall** constitute an integral part of the utility's rate book.

R 460.2333 Main extension ~~rule~~**tariffs.**

Rule 33. Within 30 days after a company commences operating as a gas utility, the utility shall file its main extension ~~rule~~**tariffs** for commission approval. ~~Such rules and regulations~~ **These tariffs shall** constitute an integral part of the utility's rate book.

R 460.2335 Interruptions of service.

Rule 35. (1) This rule does not apply to service interruptions that result from a utility's ~~implementation of the provisions of R 460.2101 et seq. of the Michigan Administrative Code or a utility's~~ **shutoff of service due to nonpayment of bills, unauthorized use of gas service, or pursuant to the provisions of R 460.2371 and R 460.2374** ~~and R 460.2374~~**2373**.

(2) A utility shall make a reasonable effort to prevent interruptions of service and, when such interruptions occur, shall endeavor to reestablish service with the shortest possible delay consistent with the safety of its customers, its employees and others engaged in work for the utility, and the general public. If service is necessarily interrupted for the purpose of working on the distribution system or plant equipment, it ~~shall~~**must** be done at a time that causes the least inconvenience to customers, and those customers who may be seriously affected shall be notified in advance.

(3) If the supply of gas diminishes to the point where continuous service to customers is threatened, the utility may limit or shut off service to its customers pursuant to curtailment procedures approved by the commission.

(4) A utility shall keep records of ~~major interruptions of service~~ **reportable outages** on its entire system or in major divisions or operating districts ~~thereof~~ **of its system**. The records ~~shall~~**must** include a statement of the time, duration, and cause of the interruption. A utility shall report interruptions of service, as required by R ~~460.14001 et seq. of the Michigan Administrative Code~~ **460.20101 to R 460.2060** and shall periodically make an analysis of the records ~~for the purpose of determining~~ **to determine** steps to be taken to prevent the recurrence of ~~such~~ **these** interruptions.

#### PART 4. ENGINEERING

R 460.2341 Gas facilities; construction and installation.

Rule 41. (1) Gas facilities of a utility shall be constructed and installed ~~in accordance with~~ **pursuant to** accepted engineering practices in the gas industry **and R 460.20101 to R 460.20606** to ensure, to the extent reasonably practicable, continuity of service, uniformity in the quality of service provided, and the safety of persons and property.

(2) **All new meters must conform to 1 of the following standards adopted by reference in R 460.2344:**

(a) **American National Standards Institute (ANSI) B109.1-2000 (R2008) for Diaphragm-Type Gas Displacement Meters (Under 500 Cubic Feet per Hour Capacity).**

(b) **ANSI B109.2-2000 (R2008) for Diaphragm-Type Gas Displacement Meters (500 Cubic Feet per Hour Capacity and Over).**

(c) **ANSI B109.3-2000 (R2008) for Rotary Type Gas Displacement Meters.**

(d) **AGA Report No. 3, Orifice Metering of Natural Gas Part 2: Specifications and Installation Requirements.**

(e) **AGA Report No. 7, Measurement of Gas by Turbine Meter.**

(f) **AGA Report No. 9, Measurement of Gas by Multipath Ultrasonic Meters.**

(g) **AGA Report No. 11, Measurement of Natural Gas by Coriolis Meter, Second Edition.**

R 460.2342-Standards of accepted engineering practice **Rescinded.**

Rule 42. Unless otherwise specified by the commission, a utility shall use the publications listed below as standards of accepted practice:

- (a) The current edition of the Michigan gas safety code, R 460.14001 et seq. of the Michigan Administrative Code, which may be ordered from the Michigan Public Service Commission, 6545 Mercantile Way, P.O. Box 30221, Lansing, MI 48909.
- (b) The following American national standards institute (ANSI) publications, which are adopted by reference in these rules and which may be purchased at the specified cost as of the time of adoption of these rules (which is subject to change) from the American National Standards Institute, 1430 Broadway, New York, New York 10018, (212) 642-4900, or from the American Gas Association (AGA), 1515 Wilson Boulevard, Arlington, VA 22209, (703) 841-8558, or from the Michigan Public Service Commission, 6545 Mercantile Way, P.O. Box 30221, Lansing, MI 48909:
  - (i) ANSI/API 2530, “Orifice Metering of Natural Gas and Other Related Hydrocarbon, A.G.A. Report No. 3,” as follows:
    - (A) Part I, “General Equations and Uncertainty Guidelines,” (1990) (A.G.A. Catalog No. XQ9017) \$55.00 from ANSI or \$50.00 from AGA (\$40.00 for AGA members).
    - (B) Part II, “Specification and Installation Requirements,” (1991) (A.G.A. Catalog No. XQ9104) \$55.00 from ANSI or \$50.00 from AGA (\$40.00 for AGA members)
    - (C) Part III, “Natural Gas Applications,” (1992) (A.G.A. Catalog No. XQ9210) \$65.00 from ANSI or \$50.00 from AGA (\$40.00 for AGA members)
    - (D) Part IV, “Background Development, Implementation Procedures, and Sub Routine Documentation for Empirical Flange Tapped Discharged Coefficient Equation,” (1992) (A.G.A. Catalog No. XQ9211) \$50.00 from AGA (\$40.00 for AGA members).
    - (ii) ANSI B109.1, “Diaphragm Type—Gas Displacement Meters, Under 500 Cubic Feet per Hour Capacity,” (1992) (A.G.A. Catalog No. X69218) \$20.00 from ANSI or \$20.00 from AGA (\$10.00 for AGA members).
    - (iii) ANSI B109.2, “Diaphragm Type—Gas Displacement Meters, 500 Cubic Feet per Hour Capacity and Over,” (1992) (A.G.A. Catalog No. X69219) \$20.00 from ANSI or \$20.00 from AGA (\$10.00 for AGA members).
    - (iv) ANSI B109.3, “Gas Displacement Meters, Rotary Type,” (1992) (A.G.A. Catalog No. X69220) \$20.00 from ANSI or \$20.00 from AGA (\$10.00 for AGA members).
    - (v) ANSI Z223.1 National Fuel Gas Code—1992 edition, which may also be purchased from the American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017, (212) 705-7722, or from the National Fire Protection Association (NFPA), P.O. Box 9146, Quincy, MA 02269, (800) 344-3555 \$24.50 (\$22.00 for NFPA members).
  - (c) The following national fire protection association standards, which are adopted by reference in these rules and which may be purchased at the specified cost as of the time of adoption by reference in these rules and which may be purchased at the specified cost as of the time of adoption of these rules (which is subject to change) from the National Fire Protection Association, P.O. Box 9146, Quincy, MA 02269, (800) 344-3555, or from the Michigan Public Service Commission, 6545 Mercantile Way, P.O. Box 30221, Lansing, MI 48909:
    - (i) “NFPA Standard 58, Storage and Handling of Liquefied Petroleum Gases,” (1992) \$24.50 (\$22.00 for NFPA members).

**R 460.2344 Adoption of standards by reference.**

**Rule 44. (1) The publications and standards listed in this rule are adopted by reference and are a part of these rules. Publications identified as published by a specific organization are available from the organization at the address specified in this rule. All prices are current at the time of the adoption of these rules. The commission also has copies of the publications available for inspection and distribution at its offices located at 7109 W. Saginaw Highway, Lansing, Michigan 48917 at a cost of 10 cents per page unless otherwise specified in this rule.**

**(2) The numbers in parentheses following the publications adopted by reference indicate the applicable editions.**

**(a) The current edition of the Michigan gas safety standards, which is available online at [www.michigan.gov/mpsc](http://www.michigan.gov/mpsc) or may be ordered from the Michigan public service commission. \$61.49.**

**(b) The following publications of the American Gas Association (AGA), available from the American Gas Association, 400 North Capitol Street, NW, Suite 450, Washington, DC 20001, 202-824-7000, [www.aga.org](http://www.aga.org):**

**(i) “Manual for the Determination of Supercompressibility Factors, PRCI Project NX-19,” (1970) AGA Catalog No. L00340. \$149.00.**

**(ii) AGA Report No. 8, Part 1, “Thermodynamic Properties of Natural Gas and Related Gases, DETAIL and GROSS Equations of State.” (2017) AGA Catalog No. XQ1704-1. \$320.00.**

**(iii) AGA Report No. 3, “Orifice Metering of Natural Gas Part 1: General Equations and Uncertainty Guidelines.” (2013, includes errata) AGA Catalog No. XQ1201. \$168.00.**

**(iv) AGA Report No. 3, Part 2, “Orifice Metering of Natural Gas and Other Related Hydrocarbon Fluids – Concentric, Square-edged Orifice Meters, Specifications and Installation Requirements.” (2017, includes errata) AGA Catalog No. XQ1601. \$168.00.**

**(v) AGA Report No. 3, “Orifice Metering of Natural Gas Part 3: Natural Gas Applications.” (1992) AGA Catalog No. XQ9210. \$148.00.**

**(vi) AGA Report No. 3, “Orifice Metering of Natural Gas Part 4: Background, Development, Implementation Procedures.” (1992) AGA Catalog No. XQ9211. \$148.00.**

**(vii) American National Standards Institute (ANSI) B109.1-2000 (R2008), “Diaphragm-Type Gas Displacement Meters, Under 500 Cubic Feet per Hour Capacity.” AGA catalog No. XQ0008. \$110.00.**

**(viii) ANSI B109.2-2000 (R2008), “Diaphragm-Type Gas Displacement Meters, 500 Cubic Feet per Hour Capacity and Over.” AGA Catalog No. XQ0009. \$110.00.**

**(ix) ANSI B109.3-2000 (R2008), “Rotary Type Gas Displacement Meters.” (2000) AGA Catalog No. XQ0010. \$110.00.**

**(x) AGA Report No. 7, “Measurement of Gas by Turbine Meter.” (2006) AGA Catalog No. XQ0601. \$352.00.**

**(xi) AGA Report No. 9, “Measurement of Gas by Multigraph Ultrasonic Meters.” (2017) AGA Catalog No. XQ1705. \$400.00.**

**(xii) AGA Report No. 11, “Measurement of Natural Gas by Coriolis Meter, Second Edition.” (2013) AGA Catalog No. XQ1301. \$440.00.**

**(xiii) National Fuel Gas Code. (2018) AGA Catalog No. Z223118. \$60.00.**

(c) The following publications of the American Society for Testing and Materials (ASTM) International available from ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA, 19428, 610-832-9585, [www.astm.org](http://www.astm.org):

(i) ASTM D1826-94, “Standard Test Method for Calorific (Heating) Value of Gases in Natural Gas Range by Continuous Recording Calorimeter.” (2017) ASTM Catalog No. D-1826. \$46.00.

(ii) ASTM D1945-14, “Standard Test Method for Analysis of Natural Gas by Gas Chromatography.” ASTM Catalog No. D-1945. \$52.00.

(iii) ASTM D3588-98, “Standard Practice for Calculating Heating Value, Compressibility Factor, and Relative Density of Gaseous Fuels.” (2017) ASTM Catalog No. D-3588. \$46.00.

(d) The following publications of the American Society for Quality (ASQ) available from American Society for Quality, PO Box 3005, Milwaukee, WI 53201, 800-248-1946, [www.asq.org](http://www.asq.org):

(i) ANSI/ASQ Z1.9-2003 (R2013), “Sampling Procedures and Tables for Inspection by Variables for Percent Nonconforming.” \$149.00.

(ii) ANSI/ASQ Z1.4-2003 (R2013), “Sampling Procedures and Tables for Inspection by Attributes.” \$159.00.

(e) American Petroleum Institute (API) Standard 1164 Ed. 2 (2009/R2016), “Pipeline SCADA Security,” available from API Publishing Services, 1220 L Street, NW, Washington DC 20005. \$146.00.

#### R 460.2345 Security standards.

**Rule 45.** Unless otherwise approved by the commission, all utilities utilizing supervisory control and data acquisition systems shall implement API Standard 1164 Ed. 2 (2009/R2016), as adopted by reference in R 460.2344.

### PART 5. ~~INSPECTION OF METERS~~ METERING EQUIPMENT INSPECTIONS AND TESTS

R 460.2351 Meters and associated metering devices; inspections; ~~and tests~~; **and records.**

Rule 51. Inspections and tests of meters and associated metering devices ~~shall~~**must** be made by, or on behalf of, each utility as follows:

(a) A meter or an associated metering device that is not included as a part of the meter, or both, ~~shall~~**must** be inspected and tested before being placed in service, and the error ~~shall~~**must not** be not more than 1.0%. ~~In place of this requirement, methods of sample testing that are acceptable to the commission may be used.~~

(b) A meter or an associated metering device, or both, ~~shall~~**must** be tested after it is removed from service. ~~Such~~**These** tests ~~shall~~**must** be made before the meter or associated metering device is adjusted, repaired, or retired.

(c) A repaired meter or a meter that is removed from service ~~shall~~**must** be leak-tested before being returned to service, subject to the following requirements:

(i) If tested in the field, a meter ~~shall~~**must** be tested at the actual meter operating pressure of the system.

(ii) If tested in the shop, a meter ~~shall~~**must** be subjected to an internal pressure test of, **at a minimum**, ~~not less than~~ 3.0 pounds per square inch gauge pressure. ~~and, in~~ **In** addition, any

meter that will operate above 3.0 pounds per square inch gauge pressure ~~shall~~**must** be so marked on the meter and ~~shall~~**must** be subjected to 1 of the following tests:

(A) An internal pressure test of, **at a minimum, not less than** the manufacturer's rated operating pressure.

(B) An internal pressure test at 10% above the maximum operating pressure to which the meter could be subjected.

(C) Any suitable test that is ~~acceptable to~~**approved by** the commission.

(iii) During the pressure test, the meter ~~shall~~**must** be checked for leaks by 1 of the following tests:

(A) Immersion test.

(B) Soap test.

(C) Pressure drop test of a type that is ~~acceptable to~~**approved by** the commission.

(d) As part of its rate book, a utility shall file, for commission approval, a statement of its policy with regard to testing meter accuracy upon a customer's request. In the absence of a filed policy approved by the commission, the utility shall adhere to both of the following provisions:

(i) A utility shall test meter accuracy upon the request of a customer if the customer does not request a test more than once every 2 years and if the customer agrees to accept the results of the test as the basis for determining the difference claimed. A charge ~~shall~~ **must** not be made to the customer for the first test in any 5-year period, but if subsequent tests during the same period, for the same customer, show the meter to be within the allowable limits of accuracy, the utility may charge the customer an amount for subsequent tests which is uniform and which does not exceed the utility's direct cost thereof, plus a reasonable charge for administrative overhead. The customer may be present at the test if he or she makes a request before the test.

(ii) A written report ~~shall~~**must** be made to the customer by the utility. The report ~~shall~~**must** state the results of the test. A record of the test ~~shall~~**must** be kept by the utility.

(e) A utility shall make periodic tests of meters, associated devices, and instruments to ensure their accuracy. The tests ~~shall~~**must** be conducted according to the following schedule, unless otherwise ~~authorized~~**approved** by the commission. **A utility may test meters more frequently than provided in the following schedule without commission approval:**

(i) Positive displacement diaphragm-type meters that have capacities of 500 cubic feet per hour ~~and under 10 years~~, **not to exceed 123 months.**

(ii) Positive displacement diaphragm-type meters that have capacities over 500 cubic feet per hour ~~7 years~~, **not to exceed 87 months.**

(iii) **Rotary meters that have capacities of less than 15,000 cubic feet per hour, which may be tested in place, not to exceed 51 months.**

(iv) **Rotary meters that have capacities of 15,000 cubic feet per hour or more, which may be tested in place, not to exceed 27 months.**

(v) Other meter types, such as ~~proportional, rotary, and turbine~~, **Coriolis, 4-Path or greater ultrasonic, or other metering technology, which** may be tested in place when possible ~~2 years~~, **not to exceed 27 months.**

(vi) Orifice meters ~~6 months~~, **2 times per year with intervals not to exceed 7.5 months.**

(vii) Gas instruments, such as base volume, base pressure, and base temperature-correcting devices, ~~shall~~**must** be ~~removed and~~ checked for calibration at intervals that correspond to the

schedule for their associated meters ~~and shall be checked for calibration in place at intervals of not more than 2 years.~~ **The testing interval must not exceed 51 months.**

(viii) ~~Test bottles, 1 cubic foot 10 years~~ **deadweight testers, certified test meters, not to exceed 123 months.**

~~(vii) Deadweight testers 10 years.~~

~~(viii) Certified test meters 10 years.~~

(ix) Meter testing systems ~~shall~~**must** be calibrated when first installed and after alterations, damages, or repairs that might affect accuracy. To ~~assure~~ **ensure** that the accuracy of a meter testing system is maintained on a continuous basis, a daily leakage test ~~shall~~**must** be made and a weekly accuracy test with a comparison meter of known accuracy ~~shall~~**must** be made. If the test results differ by more than plus or minus 0.5% from the comparison meter, the cause of the error ~~shall~~**must** be determined and necessary corrections ~~shall~~**must** be made before the system is reused. The comparison meter ~~shall~~**must** be checked at an interval of 1 year **not to exceed 13 months.**

**(f) Utilities shall maintain records of meters that have been tested during the preceding calendar year and shall make this information available to the commission upon request. The record must contain all of the following information for each meter tested:**

**(i) Set year.**

**(ii) Type of case.**

**(iii) Manufacturer.**

**(iv) Customer class, either commercial and industrial or residential.**

**(v) Results of the meter test.**

**(vi) Whether the meter was retired and if so the reasons for the retirement.**

**R 460.2351a Statistical quality sampling program for diaphragm-type meters.**

**Rule 51a. (1) A utility shall comply with the provisions of R 460.2351, except that a utility that receives approval from the commission may adopt the requirements of this rule for statistical sampling and quality control of in-service diaphragm meters. Statistical sampling and quality control must be supervised by an individual trained in statistical sampling techniques.**

**(2) A utility may use any of the following statistical quality control programs for meter testing, as adopted by reference in R 460.2344:**

**(a) ANSI B109.1-2000 (R2008), "Diaphragm-Type Gas Displacement Meters, Under 500 Cubic Feet per Hour Capacity."**

**(b) ANSI B109.2-2000 (R2008), "Diaphragm-Type Gas Displacement Meters, 500 Cubic Feet per Hour Capacity and Over."**

**(c) ANSI/ASQ Z1.9-2003 (R2013), "Sampling Procedures and Tables for Inspection by Variables for Percent Nonconforming."**

**(d) ANSI/ASQ Z1.4-2003 (R2013), "Sampling Procedures and Tables for Inspection by Attributes."**

**(3) A utility may use an alternative statistical quality sampling program if approved by the commission. An application to use an alternative program must include all of the following information:**

**(a) A description of the sampling program that must include all of the following:**

**(i) The type or types of meters subject to the sampling plan.**

- (ii) The frequency of testing.
- (iii) The procedures to be used for the sampling.
- (iv) The meter test method to be used.
- (v) The accuracy of the testing and of the sampling plan.
- (b) An explanation of the reason or reasons for the requested sampling plan.
- (c) An analysis that demonstrates that, with respect to assuring the accuracy of the meters tested, the requested sampling program is at least as effective as the standards listed in subrule (2) of this rule.

(4) Meters for quality control sampling must be separated into homogenous groups by year set and may be further separated by manufacturer, capacity rating, model, case type, diaphragm material, year manufactured, or other distinguishing characteristics. When 1 or more groups established are believed to be too small for practical quality control sampling, they may be combined with another group of similar operating characteristics to establish a larger sampling base. Combined groups must have sample size and acceptance-rejection numbers based on the combined total of meters. Samples must be drawn by a random method that ensures each meter in the group has an equal chance of being selected.

(5) All meter groups, or combined meter groups, must be subject to acceptance or rejection on the basis of the statistical results unless it becomes obvious that the rejected meters are predominantly from 1 identifiable subgroup which may be shown by test data to have been affected by location, age, or other common factors. If this result should occur, the identifiable subgroup may be separated and the remaining meters treated as a new combined group with appropriate sample size and acceptance-rejection numbers.

(6) A meter removed from a customer's premises and tested as part of any business practice not related to the statistical quality control program must be included only in the program's sample if the meter is randomly selected according to subrule (4) of this rule.

(7) Not later than March 1 of each year, utilities shall file a report of the meters that have been tested during the preceding calendar year. The report must include separate sections addressing results for meters tested as part of the statistical quality control program and meters tested as part of routine meter removals or exchanges. The report must detail both of the following:

- (a) All of the following meter characteristics:
  - (i) Set year.
  - (ii) Type of case.
  - (iii) Manufacturer.
  - (iv) Type of diaphragm.
  - (v) Revenue classification, either commercial and industrial or residential.
- (b) The number of meters in each meter class tested and found within the norm and within each 1% variance from norm between 94% accuracy and 106% accuracy. Meters that are slower than 94% and faster than 106% must each be grouped separately. Meters that are determined to be nonregistering shall be reported to either have been repaired, tested, and returned to the field, or retired.

Rule 52. (1) A utility shall comply with the provisions of R 460.2351, except that a utility that receives approval from the commission may adopt the requirements of this rule.

~~(2) This rule applies only to diaphragm type meter categories that have a rated capacity as follows:~~

~~(a) Category 1—500 cubic feet per hour or less.~~

~~(b) Category 2—501 cubic feet per hour to 1000 cubic feet per hour.~~

~~(c) Category 3—1001 cubic feet per hour or more.~~

~~(3) As used in this rule:~~

~~(a) “Meter class” means a group or groups of meters as assigned by the utility according to specified meter characteristics, such as TMS (type, make, size), set year, year of manufacture, or other similar characteristics.~~

~~(b) “Norm” means the acceptable meter accuracy range between 98% and 102%.~~

~~(c) “Test point,” for a meter, means the numerical equivalent of the accuracy variance from norm, with 1 test point equal to a 1% variance. For example, a meter that is between 104.1% and 105.0% or between 95.0% and 95.9% accurate on test would have 3 test points.~~

~~(4) The overall annual test rate criteria shall be determined pursuant to all of the following provisions:~~

~~(a) Determine the average test points per meter for each meter class (Pmc).~~

~~(b) Multiply the total number of installed meters at year end in each class by the respective Pmc to determine the total test points for each meter class. The test points for each meter class shall be added to arrive at total overall test points (Pt) for all installed meters specified in subrule (2) of this rule.~~

~~(c) Divide Pt by the total number of installed meters at year end to determine the overall average test points per meter.~~

~~(d) Using the overall average test points per meter determined in subdivision (c) of this subrule, determine the required percentage of total overall test points to be corrected the following year based upon the following table:~~

~~Percentage of total~~

~~Overall average test overall test points points per meter (Pt) to be corrected~~

~~.060 or less 2~~

~~.061—.09 3~~

~~.091—.12 4~~

~~.121—.15 5~~

~~.151—.18 6~~

~~.181—.21 7~~

~~.211—.24 8~~

~~.241—.27 9~~

~~.271—.30 10~~

~~.301—.33 11~~

~~.331—.35 12~~

~~.351 or more 15~~

~~(e) Multiply Pt by the applicable percentage of the points to be corrected as specified in subdivision (d) of this subrule to determine the total minimum test points to be corrected for the following year.~~

~~(f) The sum of Pmc times the number of meters tested for each meter class for the following year shall meet or exceed the total minimum test points to be corrected as determined in~~

subdivision (e) of this subrule. The mix of meters to be tested shall be at the utility's discretion, if the requirements of subrules (5) and (6) of this rule are met.

~~-(g) With commission approval, a utility may modify the requirements set forth in subdivisions (b) to (f) of this subrule so as to make the required computations based not on the utility's test data from the prior year, but on the utility's test data from a calendar year 1 year earlier.~~

~~-(5) Except for the nonregistering meters, all meters that are removed from customers' premises shall be tested and shall form the basis of determining the total minimum test points to be corrected for the following calendar year in accordance with the provisions of subrule (4) of this rule. If a utility has knowledge that a particular class of meters is not maintaining satisfactory accuracy and cannot be repaired to maintain satisfactory accuracy, the class of meters shall be removed from service and retired.~~

~~-(6) Not less than 2% of the total meters that are originally set in each set year and not less than 2% of the total meters in service in each meter class shall be tested annually, except that a meter need not be removed for testing within the first 4 years after it is set.~~

~~-(7) Not later than March 1 of each year, utilities shall file a report of the meters that have been tested during the preceding calendar year. The report shall detail all of the following information:~~

~~-(a) All of the following meter characteristics:~~

~~-(i) Set year.~~

~~-(ii) Type of case.~~

~~-(iii) Manufacturer.~~

~~-(iv) Type of diaphragm.~~

~~-(v) Revenue classification, either commercial and industrial or residential.~~

~~-(b) The number of meters in each meter class tested and found within the norm and within each 1% variance from norm between 94% accuracy and 106% accuracy. Meters that are slower than 94% and faster than 106% shall each be grouped separately. For a utility that has more than 500,000 customers, the commission may approve a further 1% variance for meters that are slower than 94% and faster than 106%.~~

~~-(c) A comparison of the total test meters that were tested in the preceding year with the standard required pursuant to the provisions of subrule (4) of this rule.~~

~~-(d) Information and data that are needed to compute the total minimum test points to be corrected for the subsequent year in accordance with the provisions of subrule (4)(a) to (e) of this rule.~~

~~-(e) The identity of the meter classes to be used for the subsequent year, including an explanation for any meter class changes.~~

~~-(f) A separate section on meters that were retired during the preceding year that details the information identified in subdivision (a) of this subrule and the reasons for the retirement of the meters.~~

#### R 460.2353 Retirement of meters.

Rule 53. (1) Meters ~~shall~~**must** be retired from service whenever abnormal conditions affecting accuracy cannot be corrected for economic or other reasons. Examples of such conditions are basic defects due to manufacture, design, or excessive damage. Meters may also be retired due to obsolescence, unavailability of repair parts, or other reasons.

**(2) Notwithstanding the provisions of any other rule, meters that are found to be overregistering must be repaired or replaced within 6 months of the discovery of the error unless a different period is approved by the commission.**

R 460.2354 Accuracy of metering equipment; tests; standards.

Rule 54. (1) ~~The A~~ utility shall use the applicable provisions of the standards ~~listed~~**adopted by reference** in R 460.2342**44** as criteria of accepted practice in testing meters.

(2) Metering equipment ~~shall~~**must** be tested by comparison with the standards that are **adopted by reference** in R 460.2342**44**.

(3) A gas service meter that is repaired or removed from service for any cause ~~shall~~**must**, before installation, be tested and adjusted to be correct within 1% fast or 1% slow.

(4) Every diaphragm-type gas meter ~~shall~~**must** be tested before installation and adjusted, if required, to a meter accuracy of 100% plus or minus 1% at a low flow rate and at a high flow rate so that the numerical difference between the meter accuracy at these 2 flow rates is not more than 1 percentage point. A low flow rate is a flow at 20% to 50% of the rated capacity of the meter. A high flow rate is a flow at 80% to 120% of the rated capacity of the meter. The average meter accuracy of a diaphragm-type meter ~~shall~~**must** be defined as 1/2 the sum of the meter accuracy at the low flow test and at the high flow test.

(5) All recording-type meters or associated instruments that have a timing element that serves to record the time at which the measurement occurs for billing purposes ~~shall~~**must** be adjusted at intervals of not more than 2 years so that the timing element is not in error by more than plus or minus 4 minutes in 24 hours, under laboratory conditions, as set forth in ANSI B109.1-2000 (R 2008), “**Diaphragm Type – Gas Displacement Meters, Under 500 Cubic Feet per Hour Capacity**”, which is adopted by reference in R 460.2342(b)(ii)**44**, or by more than plus or minus 10 minutes in 24 hours under field conditions.

R 460.2355 Meter shop; design; meter testing system; standards; handling; calibration cards; calibrated orifices.

Rule 55. (1) A utility shall maintain or designate a meter shop within Michigan for the purpose of inspecting, testing, and repairing meters. The shop ~~shall~~**must** be open for inspection by authorized representatives of the commission at all reasonable times. A utility may ~~secure authority~~**obtain approval** from the commission to have its meters tested outside of Michigan upon showing, to the satisfaction of the commission, that the meter test facilities so utilized are in compliance with these rules. Records of test results ~~shall~~**must** be maintained in Michigan or the administrative headquarters of the utility.

(2) The area within the meter shop that is used for the testing of meters ~~shall~~**must** be designed so that the meters and meter-testing equipment are protected from drafts and excessive changes in temperature. The meters to be tested ~~shall~~**must** be stored in such a manner that the temperature of the meters is substantially the same as the temperature of the prover.

(3) A utility shall own and maintain, or have access to, a meter-testing system (working standard) of an approved type, subject to all of the following provisions:

(a) Means ~~shall~~**must** be provided to maintain the temperature of the liquid in a meter-testing system at substantially the same level as the ambient temperature in the prover area.

(b) The meter-testing system ~~shall be~~ **shall must** be maintained in good condition and in correct adjustment so that it ~~shall be~~ **is** capable of determining the accuracy of any service meter to plus or minus 0.5%.

(c) A utility may use a properly calibrated test meter or transfer prover or may use a properly designed flow prover for testing meters.

(4) Meter-testing systems (working standards) ~~shall be~~ **shall must** be checked by comparison with a secondary standard. Both of the following provisions ~~shall be~~ **shall must** be complied with:

(a) At least once every 5 years, bell and flow provers ~~shall be~~ **shall must** be checked with a 1-cubic foot bottle or ~~shall be~~ **shall must** be calibrated by dimensional measurement or any other test that is approved by the commission. The accuracy of the secondary standard that is used ~~shall be~~ **shall must** be traceable to the ~~n~~National ~~i~~Institute of ~~s~~Standards and ~~t~~Technology.

(b) At least once every 10 years, rotary displacement transfer provers ~~shall be~~ **shall must** be checked with a standard that has its calibration traceable to the ~~n~~National ~~i~~Institute of ~~s~~Standards and ~~t~~Technology or ~~shall be~~ **shall must** be checked by any other suitable test that is approved by the commission.

(5) Extreme care ~~shall be~~ **shall must** be exercised in the use and handling of standards to ~~assure~~ **ensure** that their accuracy is maintained.

(6) Each standard ~~shall be~~ **shall must** have a certificate or calibration card which ~~shall be~~ **shall must** be duly signed and dated and which ~~shall be~~ **shall must** record the corrections that were required to compensate for errors found on the last test.

(7) A utility shall have properly calibrated orifices to achieve the rates of flow required to test the meters on its system.

## PART 6. BILL ADJUSTMENT; METER ACCURACY

R 460.2361 ~~Bill adjustment; meter accuracy~~**Rescinded.**

~~Rule 61. If a meter is found to be nonregistering or to have an average meter accuracy less than 98% or greater than 102%, an adjustment of bills for the inaccuracy may be made in the case of nonregistration or underregistration and shall be made in the case of overregistration. The adjustment shall be calculated on the basis that the meter is 100% accurate with respect to the testing equipment that is used to make the test.~~

R 460.2362 Determination of adjustment.

Rule 62. (1) If the date that the period of inaccurate meter registration began can be determined, that date ~~shall be~~ **shall must** be the starting point for calculating an adjustment pursuant to the provisions of R 460.2361**115**.

(2) If the date that the period of inaccurate meter registration began cannot be determined, it ~~shall be~~ **shall must** be assumed that the inaccuracy existed for a period equal to 1/2 of the time elapsed since the meter was last installed ~~on the present premises~~ **or tested**.

(3) The adjustment ~~shall be~~ **shall must** be made on the basis of actual monthly consumption, if possible. Otherwise, the average monthly consumption that is determined from the most recent 36 months' consumption data ~~shall be~~ **shall must** be used.

R 460.2363 ~~Refunds~~**Rescinded.**

~~Rule 63. (1) Refunds shall be made to the 2 most recent customers who received service through the meter found to be registering inaccurately. If the utility has not adopted the~~

~~requirements of R 460.2352, the period that is used for determining the amount to be refunded shall not be more than 12 months. If the utility has adopted the requirements of R 460.2352, the period that is used for determining the amount to be refunded shall be the period of inaccurate meter registration that is determined pursuant to the provisions of R 460.2362(1) to (2). In the case of a previous customer who is no longer a customer of the utility, a notice of the amount of the refund shall be mailed to his or her last known address and the utility shall, upon demand made within 3 months, refund the amount.~~

~~-(2) If the amount of the refund due an existing or previous customer as the result of meter overregistration is equal to, or more than, an average of 10 cents per month for the period that is used for determining the amount to be refunded, the full amount of the refund shall be made, except that a refund that is less than \$1.00 need not be made to an existing customer and a refund that is less than \$2.00 need not be made to a previous customer who is no longer a customer of the utility.~~

#### R 460.2364 ~~Rebilling~~**Rescinded.**

~~Rule 64. If the amount due the utility as the result of meter nonregistration or underregistration is equal to, or more than, amounts set forth in R 460.2363(2) as minimum refunds, the utility may bill the customer for the amount due, but the period covered by the billing shall not be more than 12 months unless otherwise ordered by the commission. The utility shall offer the customer reasonable payment arrangements for the amount of the billing, taking into account the period covered by the billing. A rebilling policy that is adopted by a utility based on minimum amounts that are more than those set forth in R 460.2363(2) shall be uniformly applied to all customers.~~

### PART 7. SHUTOFF OF SERVICE

R 460.2371 Conditions for establishing gas service; liability; notice and record of inability to establish service; refusal of service to customer using other gaseous fuel; exception; **service quality.**

Rule 71. (1) A utility shall ~~not~~ establish gas service to a customer's premises ~~until the utility has done both of the following:~~**in compliance with the Michigan gas safety standards.**

~~(a) Performed a leakage test using gas at utilization pressure to ensure that the customer's fuel line is gastight.~~

~~(b) Made a determination that the gas odor is detectable.~~

(2) ~~This test shall not be construed to make the~~**The utility shall not be liable for the installation, maintenance, or use of piping or appliancesgas utilization equipment that areis owned by the customer, nor shall the utility be held liable for any continuing duty of inspection of piping or appliancesequipment.**

(3) If the condition of the customer's fuel line is such that service cannot be established, the utility shall notify the customer, in writing, of the reason or reasons that service was not established.

(4) A record ~~shall~~**must** be kept by the utility of all cases where refusal to establish service is made. The record ~~shall~~**must** provide all of the following information:

(a) The name of the customer.

(b) The address or location of the premises.

(c) The date of the test.

(d) The name of the service person.

(e) All changes or rearrangements recommended.

(5) Except in certain commercial and industrial applications that require a standby fuel that is authorized by the utility, the utility shall have the authority to refuse gas service to a customer that uses another gaseous fuel, such as liquefied petroleum gas, in the same building.

**(6) A utility shall have a meter reading factor of 85% or more for meters requiring billing reads within the meter reading period pursuant to the approved tariff, including customer reads.**

**(7) If there is an existing main at a requesting address, a utility shall complete 90% or more of its new service installations within 15 business days of customer payment per tariff requirements and site readiness, or by a later date that is mutually agreed upon between the utility and customer.**

R 460.2373 Shutoff of service.

Rule 73. Under any of the following conditions, gas service may be shut off by the utility:

(a) A hazardous condition exists. In this instance, gas service may be shut off without prior notification.

(b) A potentially hazardous condition exists. In this instance, gas service may be shut off ~~upon implementing the customer notification procedures set forth in R 460.2071 et seq. and R 460.2101 et seq. of the Michigan Administrative Code and in the utility's rate book~~ **after providing the customer with written notice of shutoff by first class mail at least 10 days before the shutoff is scheduled to occur.**

(c) Refusal of required access. In this instance, gas service may be shut off ~~upon implementing the customer notification procedures set forth in R 460.2071 et seq. and R 460.2101 et seq. of the Michigan Administrative Code and in the utility's rate book~~ **after providing the customer with written notice of the shutoff by first class mail at least 10 days before the shutoff is scheduled to occur.**

~~R 460.2374 Customer notification of shutoff of service~~ **Rescinded.**

~~Rule 74. A utility shall include, in its rate book, notification procedures to be utilized in dealing with potentially hazardous conditions and refusal of required access conditions.~~

## PART 8. GAS QUALITY

R 460.2381 Gas purity.

Rule 81. (1) Gas that is distributed by a utility to a customer ~~shall~~ **must** not contain more than 0.3 grains of hydrogen sulfide or more than 20 grains of total sulfur per 100 cubic feet, including the sulfur in any hydrogen sulfide.

(2) Gas that is distributed by a utility to a customer ~~shall~~ **must** not contain flammable liquids in quantities that interfere with the normal operation of the customer's equipment.

**(3) Gas that is distributed by a utility to a customer must not contain more than 2% carbon dioxide and 5 parts per million oxygen.**

**(4) Gas that is distributed by a utility to a customer must not contain water in excess of 7 pounds per million cubic feet.**

R 460.2382 Heating value; authorized variations.

Rule 82. (1) The heating value of substitute natural gas and mixed gas ~~shall~~**must** be considered as being under the control of the utility. The average heating value on 1 day ~~shall~~**must** not be more than or less than the standard total heating value range set forth in the utility's rules. A utility shall not add air to a gas stream if this results in a heating value that is below 1,000 British thermal units per standard cubic foot.

(2) The average monthly heating value of gas that is supplied by a utility shall be 1,025 British thermal units per standard cubic foot, plus or minus 75 British thermal units. A greater variation may be ~~authorized~~**approved** by the commission upon a showing by the utility that the variation will not adversely affect the efficient and satisfactory operation of its customers' ~~appliances~~**gas utilization equipment**.

R 460.2383 Heating value records; location and accuracy of measuring equipment; frequency of heating value determination.

Rule 83. (1) A utility shall maintain records of the heating value of ~~the~~ gas it distributes. Heating value test records ~~shall~~**must** be preserved for ~~not less than~~ **a minimum of 6 years**. A utility shall utilize either the industry standards that are adopted by reference in R 460.23424(d) or other standards that are approved by the commission for heating value determination methods.

(2) Heating value measuring equipment ~~shall~~**must** be installed in suitably located testing stations.

(3) The accuracy of all heating value measuring equipment and the method of making heating value tests ~~shall~~**must** meet the industry standards that are adopted by reference in R 460.23424(d) or ~~shall~~**must** otherwise be approved by the commission. Recording equipment ~~shall~~**must** be tested ~~not less than~~, **at a minimum**, annually.

(4) The utility shall determine the heating value of substitute natural gas and mixed gas ~~not less than~~ **at a minimum of** twice a day and shall make the tests during the periods of the a.m. and p.m. peak demands.

(5) The utility shall determine the heating value of gas at least once a month. A utility that sells gas subject to a thermal adjustment shall determine the heating value at least once a day.