

COLORADO DEPARTMENT OF LABOR AND EMPLOYMENT

DIVISION OF OIL AND PUBLIC SAFETY

LIQUEFIED PETROLEUM GAS (LPG) RULE

7 CCR 1101-15

Effective September 1, 2005

ARTICLE 1 GENERAL PROVISIONS

Section 1-1 Basis and Purpose

The basis and purpose of this rule is to adopt nationally recognized codes and standards; to add or clarify terminology; to add or clarify the duties of LPG facility owners, delivery drivers, and certain users; and to improve the effectiveness of the state LPG program.

Section 1-2 Technical Rationale

The technical requirements of this rule are generally accepted as national and international codes and standards governing the minimum levels of acceptability for the design, construction, location installation, and operation of equipment for storing, handling, transporting, dispensing, and utilizing LPG. The adoption of these consistent standards is necessary for the preservation of the public health, safety and welfare of the citizens of Colorado.

Section 1-3 Statutory Authority

The amendments to this rule are created pursuant to 8-20-302, 8-20-402 and 8-20-405 of the Colorado Revised Statutes.

Section 1-4 Effective Date

These amended rules shall be effective on September 1, 2005.

Section 1-5 Codes Incorporated by Reference

1-5-1 Codes incorporated by reference

The following codes are incorporated by reference:

- (a) NFPA 58, *Liquefied Petroleum Gas Code*, 2004 edition including Errata 58-04-1 and excluding Chapters 9, 11, 13 and all *reserved* sections.
- (b) NFPA 54, 2002 edition: *National Fuel Gas Code, Chapter 7, Sections 7.1-7.2.*
- (c) NFPA 30-A, 2003 edition: *Code for Motor Fuel Dispensing Facilities & Repair Garages.*
- (d) API/ASME 510, 8th edition, addenda 1 – 3: *Pressure Vessel Inspection Code: Maintenance Inspection, Rating, Repair, and Alteration.*
- (e) NBIC, 2001 edition, 2003 addendum

1-5-2 Inspection of incorporated codes

Interested parties may inspect the referenced incorporated materials by contacting the LPG Program Manager, 633 17th Street, North Tower, Fifth Floor, Denver, CO 80202 or the State Depository Libraries.

1-5-3 Later amendments not included

This rule does not include later amendments to or editions of the incorporated material.

Section 1-6 Definitions

(a) Terms in these regulations shall have the same meaning as those found in Title 8, Article 20 and Title 9, Article 4 of the Colorado Revised Statutes. In addition, unless the context otherwise requires:

- 1) **Alteration** – Refer to NBIC, which generally states any change in the item described on the original Manufacturer’s Data Report that affects the pressure-containing capability of the container assembly.
- 2) **API certified inspector** – An *API Certified Inspector* is an inspector who is certified by the American Petroleum Institute to perform functions specified in API-510.
- 3) **API-510, Pressure Vessel Inspection Code** – The *API-510, Pressure Vessel Inspection Code* is the code for maintenance inspection, repair, alteration and re-rating procedures for pressure vessels used by the petroleum and chemical process industries. API-510 is published by the American Petroleum Institute and is an approved ANSI standard.
- 4) **ASME International** – *ASME International* was formerly the American Society of Mechanical Engineers (ASME).
- 5) **ASTM International** – *ASTM International* was formerly the American Society for Testing and Materials.
- 6) **Condemned** – A *condemned container assembly and piping system* is one determined by an inspector to be so unsafe that further use is prohibited until it is satisfactorily repaired or replaced.
- 7) **Container assembly** – A *container assembly* includes US Department of Transportation (DOT) and ASME containers, commonly known as tanks or cylinders.
- 8) **CRS** – *CRS* means the Colorado Revised Statutes.
- 9) **Division of Oil and Public Safety** – The *Division of Oil and Public Safety* also referred to as “the division”, is the regulatory agency of the Colorado Department of Labor and

Employment having jurisdiction over propane container assemblies and piping systems as defined in this rule.

- 10) **Director** – The *director* refers to the director of the Division of Oil and Public Safety of the Colorado Department of Labor and Employment or any designees thereof, which may include certain employees of the Division of Oil and Public Safety of the Colorado Department of Labor and Employment or other persons.
- 11) **Existing installation** – An *existing installation* includes any LPG container assembly and piping system that has been placed into service and received its initial inspection by a state inspector.
- 12) **FSA** – *FSA* means Fire Safety Analysis, also known as *Product Release Prevention and Incident Preparedness Review* or *Incident Prevention Review*. An FSA is a plan incorporating the various safety features used to control the product and operations at the facility, an evaluation of hazard to the immediate neighborhood, and a tool to be used by an emergency response agency such as the local fire department.
- 13) **Handling** – *Handling* LPG means transferring LPG into a DOT container or an ASME tank. Handling does not include transporting of LPG.
- 14) **Incident** – An *incident* means a reportable accident, as defined by 8-20-407(1), CRS.
- 15) **Incident Prevention Review** – See definition under *FSA*.
- 16) **Inspector** – *Inspector* means a person who is authorized by the Division of Oil & Public Safety to perform inspections.
- 17) **Installer** – *Installer* means a person or company responsible for setting up for use any container assembly and piping system required by LPG statute or regulation to be inspected.
- 18) **Interruption of service** – *Interruption of service* means an interruption of service for the following reasons, other than conducting a test: an out-of-gas call or service valve turned off.
- 19) **LPG facility**– An **LPG facility** is a facility that has an LPG container assembly and piping system.
- 20) **NACE** – *NACE* means the National Association of Corrosion Engineers.
- 21) **NBIC** – *NBIC* means the National Board Inspection Code published by the National Board, also known as ANSI/NB-23.
- 22) **National Board** – *National Board* means the National Board of Boiler and Pressure Vessel Inspectors.

- 23) **New installation** – A *new installation* means any container assembly that has been placed into service and has not received its initial inspection by a state inspector.
- 24) **NFPA** – *NFPA* means the National Fire Protection Association.
- 25) **Out-of-gas call** – An *out-of-gas call* means a request for LPG delivery to an empty tank.
- 26) **PERC** – *PERC* means the Propane Education and Resource Council.
- 27) **PRI** – See *pressure retaining item*.
- 28) **Pressure-retaining item** – A *pressure-retaining item*, or *PRI*, means a container assembly, piping, material, or equipment used for the containment of pressure, which includes all LPG containers.
- 29) **Pressure Vessel** – A *pressure vessel* is a container assembly or other component designed in accordance with the *ASME Boiler and Pressure Vessel Code*.
- 30) **Product Release Prevention and Incident Preparedness Review** – see definition under *FSA*.
- 31) **PSI** – *PSI* means pounds per square inch.
- 32) **PSIG** – *PSIG* means pounds per square inch gauge.
- 33) **Repair** – *Repair* means the work necessary to restore pressure-retaining items to a safe and satisfactory operating condition.
- 34) **Re-rate** – *Re-rate* means a change in either the temperature rating or the maximum allowable working pressure rating of a container assembly, and shall be considered an alteration.
- 35) **Section VIII vessel** – A *Section VIII vessel* means a container assembly falling under the scope of Section VIII of the *ASME Boiler and Pressure Vessel Code*.
- 36) **Surface transportation board containers** – *Surface transportation board containers* are now known as DOT containers.

Section 1-7 Applicability

(a) The regulations contained herein shall apply to the operation of all LPG container assembly and piping systems including the following:

- (1) Containers, piping and associated equipment, when delivering LPG to a building for use as a fuel gas;

(2) Pipeline terminals, natural gasoline plants, refineries, tank farms, underground storage facilities, aboveground storage facilities, and chemical plants utilizing LPG in the manufacture of their products;

(3) The design, construction, installation, and operation of pipeline terminals that receive LPG from pipelines under the jurisdiction of the US Department of Transportation, whose primary purpose is the receipt of LPG for delivery to transporters, distributors or users. Coverage shall begin downstream of the last pipeline valve or tank manifold inlet.

Section 1-8 Condemning an LPG Container Assembly and Piping System

(a) Conditions which a state inspector may determine to be unsafe include: bypassed safety controls, inoperative relief valves, any gas leak from an LPG container assembly, any excessive gas leak from the piping system, missing nameplate or any other condition that, in the inspector's judgment, means the container assembly and piping system should be condemned.

(b) The owner or user must shut down the condemned LPG container assembly and piping system as directed by the inspector. If neither the owner nor user is available, the inspector will cause the system to be shut down.

(c) The inspector will affix to a condemned LPG container assembly and piping system a notice that it has been condemned and may not be used until satisfactory repairs are made, as determined by a re-inspection by an authorized state inspector or his designee.

ARTICLE 2 INSTALLATION

Section 2-1 General Requirements

All new and existing LPG installations shall be in accordance with the 2004 edition of NFPA 58, including any retroactive requirements adopted by the division at the time of installation.

Section 2-2 Installation Applications

(a) For all LPG installations governed by 8-20-406 CRS, written application must be submitted and approved by the division before installing, replacing, relocating, or upgrading of the installation to meet code.

(1) The application shall be submitted on an application form approved and provided by the division.

(2) The application shall include a plot plan containing all elements required by the division.

(3) The division may deny the application if the proposed installation does not conform to the division LPG statute or rule, or to codes adopted by the division, or if the application is incomplete or determined to be inaccurate.

(4) Construction and installation of tank and piping shall conform to code(s) in effect at time of installation.

(5) The division may revoke an approved application if construction is not performed per the approved application, or for failure to meet operating or fire safety rules established by the division or by the applicable NFPA Code.

(6) An installation application approved by the division is automatically revoked if construction does not begin within 6 months of approval, unless a written request for an extension is submitted to and approved by the division.

(7) For new installations with an aggregate over 4,000 gallons, a fire safety analysis (FSA) must be in effect prior to the operation of the installation per NFPA 58, following guidance from Annex A, A.6.23.2 and A.6.23.3, or another nationally accepted standard approved in advance by the director.

Section 2-3 Access Requirements

(a) The division may inspect an LPG facility at any time during its construction. Access shall be provided to the division or its agent for such purpose upon request.

(b) After an LPG ASME container has been installed, the division may inspect the container to verify compliance with design, construction, location, installation and operation requirements. LPG facility owners, tank owners, and owners of locations where an LPG ASME container is installed shall grant inspection access to the division or its agent for such purpose upon request.

Section 2-4 Corrosion Prevention Requirements

(1) Cathodic protection is required for all underground steel LPG tanks and piping installed after September 1, 2005, and all other underground steel LPG tanks by January 1, 2011. The cathodic protection system may be a combination of coatings and applied DC voltage such as an impressed current system or through the usage of sacrificial anodes, or the tank may be constructed of a steel-fiberglass-reinforced-plastic composite. Regardless of the method(s) used, protection shall maintain a voltage on a steel underground tank of at least -0.85 voltage (or -850mV) relative to a saturated copper/copper sulfate reference electrode that complies with NACE.

(a) The installer of the cathodic protection system should be qualified in the proper installation of anodes to be used for cathodic protection, but is not required to be certified by NACE.

(b) Upon installation and prior to operation, a test of the cathodic protection system is required to show that the tank is protected in accordance with paragraph (1) above.

Tests of the cathodic protection system shall be performed every three years by the tank owner, and;

An extension to the three year deadline for testing may be requested by contacting the division, and;

A failure of the cathodic protection system shall be investigated and corrected such that a passing result is obtained within 60 days, and;

Records of the testing of the cathodic protection system shall be maintained until at least the completion of the next test, to demonstrate compliance with the performance standards in this section.

(c) Impressed current systems shall be tested every 60 days for operational compliance.

A failure of the impressed current system shall be investigated and corrected such that a passing result is obtained within 30 days, and;

Records of the testing of the impressed current system shall be maintained until at least the completion of the next test, to demonstrate compliance with the performance standards in this section.

Section 2-5 Nameplates

a) When the stamping on a container assembly and piping system becomes indistinct, or the nameplate is lost or illegible, but trace-ability to the original container assembly item is still possible, the owner or user shall have the stamped data replaced. All re-stamping shall be done in accordance with the original code of construction. Requests for permission to re-stamp or replace nameplates shall be made in advance to the director. Proof of the original stamping and the manufacturer's data report, shall be furnished with the request. Permission from the director is not required for the reattachment of nameplates that are partially attached.

1) Re-stamping or replacement authorized by the director shall be witnessed by a Colorado state inspector and the stamping shall be identical to the original stamping. When the Code symbol is to be re-stamped, it shall be done by the original manufacturer and witnessed by a Colorado state inspector. Replacement nameplates shall be clearly marked "replacement".

2) After replacing a nameplate, the owner or user shall file with the division a facsimile of the stamping or nameplate as applied and shall include the signature of the inspector who witnessed the replacement.

b) If replacement of the nameplate is not possible because the container assembly cannot be traced, a hydrostatic test must be performed if the container is to remain in service.

1) Such test shall be performed by an independent contractor experienced in hydrostatic tests. The test shall be conducted according to the procedure outlined in ASTM International Designation: E 1003 – 95 (Reapproved 2000) at 1.5 times working pressure (250 psi x 1.5 = 375 psi) to evaluate the integrity of the container. The owner/operator may then make application, including the results of the hydrostatic test, to the director for an exception. If granted, the state shall assign a number to the container and issue an identifying tag with that number to be permanently attached to the container by a state inspector. With the state's approval, the container may continue to operate at that location indefinitely.

2) The container shall not be moved and reinstalled at any location, including elsewhere at the same facility. If the container is to be moved, it shall be emptied of product and permanently removed from service.

c) For all containers missing nameplates and installed prior to the effective date of these regulations, the nameplates shall be replaced, a hydrostatic test shall be performed per Section 2-5 (b), or the container shall be permanently removed from service by July 1, 2008.

d) When the stamping on a container assembly becomes indistinct, or the nameplate is lost or illegible, and trace-ability to the original container assembly and piping system is not possible, a hydrostatic test shall be performed per Section 2-5 (b) or the container shall be permanently removed from service.

Section 2-6 Fire Safety Analysis (FSA), also known as Product Release Prevention and Incident Preparedness Review

(a) For LPG installations in excess of 4,000 gallons in aggregate, approved for installation by the division before the effective date of these regulations, and with no significant modifications to the approved installation, the FSA is required to be completed within one year of the effective date of these regulations.

(b) For all new LPG installations in excess of 4,000 gallons in aggregate, approved for installation by the division after the effective date of these regulations, the FSA is required to be completed by the operational date of the installation.

(c) The FSA shall be prepared in accordance with the requirements of NFPA-58, including Annex A, A.6.23.2 and A.6.23.3, or any other nationally accepted standard approved by the director in advance.

(d) It is not required that the FSA be prepared or approved by a professional engineer, however, the preparation should be completed by someone who at minimum, is familiar with the properties of propane, the application of NFPA 58, and the physical layout of the installation. The preparer shall consult with the local fire protection district to complete the section of the FSA entitled "Evaluation of Fire Services and Water Supply Requirements." Some modifications to the installation may require the services of a registered professional engineer.

(e) The most current FSA written document shall be maintained at the LPG installation, where it shall be available for inspection by the division upon request.

ARTICLE 3 DELIVERY AND DISPENSING

Section 3-1 Delivery Restrictions

(a) A properly installed LPG system, including containers and piping, shall be filled only after determination that it complies with the design, fabrication, inspection, marking, and requalification provisions of the NFPA code. No person shall deliver LPG into an improperly

installed system, or into a container that does not have an ASME nameplate or a nameplate approved and stamped by the state per Section 2-5.

(b) It is permissible to fill an ASME tank whose nameplate is damaged, provided the following information can be determined:

(1) If the container is registered with the National Board and the facility can produce the Manufacturer's Data Report (U-1A and/or U-2A) form, the manufacturer's name and container's serial number must be legible.

(2) If the container is not a National Board registered container, the manufacturer's name, the container's serial number, the ASME stamp, and the pressure rating must be legible.

(c) If the nameplate is missing, delivery to the tank is prohibited. See Section 2-5 for instructions on re-attaching or re-placing nameplates.

(d) Delivery to a container with corrosion that appears to be greater than 1/3 of the thickness of the metal is prohibited.

Section 3-2 Delivery after Interruption of Service

(a) When delivery is made to an LPG container assembly that has had an interruption of service, as defined by this rule, a test for leakage shall be performed prior to LPG being introduced into the piping.

(b) The test for leakage shall be performed according to one of the methods set forth in Annex D (*Suggested Method of Checking for Leakage*) of NFPA 54 or other method approved by the director in advance.

(c) The person performing the test for leakage shall document that the test was performed. The documentation shall include, at minimum, the following information:

1. Date test was performed;
2. Test start time;
3. Test end time;
4. Name of person performing the test;
5. Name of person's employer;
6. Address and phone number of person's employer;
7. Type of test: Annex D D.2, D.3(a), D.3(2)(a), or D.3(2)(b) or other method approved by the director in advance and located on the department's web page;
8. If a constant pressure is used, then the test start pressure;
9. If a constant pressure is used, then the test end pressure.

(d) Documentation of the test for leakage shall be retained for a minimum of one year by the employer of the person who performed the test.

Section 3-3 Filling Containers by Weight

- (a) All cylinders less than 200 pounds water capacity (100 pound cylinders) shall be filled by weight with the exception of fork lift bottles. Volumetric filling of forklift bottles from bobtail delivery trucks shall be allowed in accordance with NFPA 58, Section 6.5 and Table 6.5.3 and all personnel shall be trained in proper handling procedures in accordance with NFPA, Chapter 7, 2004 edition.
- (b) Scales used for filling LPG containers must be inspected annually and found to be in compliance with the specifications and tolerances published in the National Institute of Standards and Technology Handbook 44. This certification must be performed either by the Colorado Department of Agriculture, or by a person authorized by the Colorado Department of Agriculture. Any necessary repairs must be completed within 30 days.
- (c) If the Colorado Department of Agriculture fails to perform the annual inspection in a timely fashion, the scale may remain in operation provided the scale owner has not prohibited or hindered such inspection by the Colorado Department of Agriculture and further provided any repairs required at the most recent previous inspection have been completed.

Section 3-4 Training Requirements

- (a) Any person who delivers or dispenses LPG shall receive adequate training to perform all related duties safely and in compliance with NFPA requirements per NFPA 58, Chapter 7, 2004 edition.
- (b) The employer of any person who delivers or dispenses LPG shall document that person's training and shall make these records available to the division or its agent upon request. The records shall record the following information, at minimum:
 - (1) Employee's name;
 - (2) Training date(s);
 - (3) Name of trainer;
 - (4) Topics covered by training;
 - (5) Verification by employee's supervisor that employee has demonstrated adequate knowledge and skill to perform assigned duties.
- (c) The employer of the person who received the training shall maintain that documentation as long as the person remains an employee.
- (d) The minimum training requirements for dispenser operators may be satisfied by either of the following:

(1) Completion of the Certified Employee Training Program (CETP) as published by the NPGA and PERC;

(2) Completion of alternate training approved in advance by the director that teaches those points of NFPA-58 that relate to filling cylinders, portable ASME tanks, motor fuel containers, containers permanently mounted on vehicles and emergency procedures as outlined in the employer's FSA.

(e) The minimum training requirements for delivery drivers shall include:

- (1) Proper procedure for filling an ASME tank;
- (2) Knowledge of when a test for leakage is required;
- (3) Proper procedure for conducting and documenting a test for leaking;
- (4) Criteria for determining when filling the tank is prohibited because of improper installation, or because of excessive corrosion, dents, or gouges;
- (5) Emergency procedures as outlined in the employer's FSA.

ARTICLE 4 ACCIDENT REPORTS AND INVESTIGATIONS

Section 4-1 Reportable Accidents

(a) Any accident that meets any of the criteria of 8-20-407(1) CRS shall be reported to the division within 24 hours.

Section 4-2 Reporting Requirements

(a) The following persons are required to notify the division of an LPG accident that meets any of the criteria of 8-20-407(1) CRS:

- (1) Owner or the owner's representative of the LPG facility, if the incident occurred at the facility;
- (2) Employer of the delivery driver, if the incident occurred during delivery;
- (3) Employer of the delivery driver, if the incident occurred post-delivery and the employer received notification of it.

(b) Accidents may be reported by telephone, facsimile, or electronic mail.

(c) The accident report shall include, at minimum, the following information:

- (1) The names of the operator and person making the report and their telephone numbers;
- (2) The date, time and location of the incident;
- (3) The number of fatalities and personal injuries;

(4) All other significant facts known by the person making the report that are relevant to the cause of the incident or extent of the damages.