



Public Input No. 1-NFPA 58-2013 [Global Input]

NOTE: This public input originates from Tentative Interim Amendment 58-14-1 (TIA 1079) issued by the Standards Council on August 1, 2013 and per the NFPA Regs. needs to be reconsidered by the Technical Committee for the next edition of the Document.

11.1.1* This chapter applies to engine fuel systems on vehicles using LP-Gas in internal combustion engines, including containers, container appurtenances, carburetion equipment, piping, hose and fittings, and their installation.

A.11.1.1 Chapter 11 covers engine fuel systems for engines installed on vehicles for any purpose, as well as fuel systems for ~~stationary and~~ portable engines.

11.15.2 6.26 Containers for Stationary Engines.

11.15.2.1 6.26.1 LP-Gas containers for stationary installations shall be located outside of buildings unless the buildings comply with the requirements of Chapter 10.

11.15.2.2 6.26.2 Containers for stationary engines shall be installed to meet the separation requirements of Section 6.3.

11.15.2.3 6.26.3 Where containers for stationary engines have a fill valve with an integral manual shutoff valve, the minimum separation distances shall be one-half of the distances specified in Section 6.3.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
Proposed_TIA_1079_58_.docx	Balloted TIA

Statement of Problem and Substantiation for Public Input

The addition of new subsection 11.15.2 placed requirements for containers providing propane engine fuel for stationary engines. This requires all ASME propane containers to have a maximum allowable working pressure (MAWP) of 312 psig, if constructed after April 1, 2001 (per 11.3.2.1). It is the intent of the LP-Gas committee to require vehicle engine fuel containers to have a MAWP of 312 psig due to the possibility of overpressure and propane release due to heat accumulated from the engine or the vehicle's operation. This environment does not exist for ASME propane containers serving stationary engines (such as emergency generators), and the normal MAWP of 250 psig is adequate. In practice such stationary engine fuel containers exist in the same environment as propane containers providing fuel to residential heating and cooking.

The problem is ASME containers with a design pressure of 312 psig are currently produced in sizes up to 110 gallons. Larger 312 psig ASME containers will have to be custom designed and manufactured at a significantly higher cost and with a lengthy lead time. There is no technical reason to require this for stationary containers serving stationary engines.

It is noted that the ASME Boiler and Pressure Vessel Code requires a minimum wall thickness for pressure vessels, with a design pressure of 250 and 312 psig, up to about 24" diameter. This requirement results in the same design for ASME containers of about 24" diameter and smaller for pressure of 250 psig and 312 psig. Vehicle fuel containers have a diameter of about 24" or smaller. This made the requirement for engine fuel containers on vehicles essentially the same, so there was no hardship. Stationary engines normally use larger containers, for example it is not unusual for a hospital using a propane engine for standby power to use a 250 gallon or larger ASME container. By relocating the requirement to Chapter 6, the 250 psig ASME container currently used with no adverse safety implications can continue to be used.

The scope of Chapter 11 is revised to clarify that Chapter 11, in its entirety, is intended only for propane containers on vehicle, and was never intended to be applicable to containers serving stationary engines.

Emergency Nature: The committee erred when it added requirements for containers for stationary engines in Chapter 11, rather than Chapter 6. The NFPA regulations Governing Committee Projects provide several criteria for the emergency nature of TIA's. Two of these are applicable to the proposed TIA:

- (a) The document contains an error or an omission that was overlooked during a regular revision process.
 - (f) The proposed TIA intends to correct a circumstance in which the revised document has resulted in an adverse impact on a product or method that was inadvertently overlooked in the total revision process, or was without adequate technical (safety) justification for the action.
- The committee required the use of tanks significantly more expensive and not readily available. (312 psig containers rather than 250 psig containers in sizes larger than 110 gallons) by locating the requirements in Chapter 11, rather than Chapter 6. No technical substantiation was provided to require a change to the container design pressure; however, by inadvertently locating the requirement in Chapter 11, a higher design pressure was inadvertently mandated.

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA
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Submittal Date: Thu Oct 31 08:27:23 EDT 2013

**Public Input No. 2-NFPA 58-2013 [Global Input]**

NOTE: This public input originates from Tentative Interim Amendment 58-14-2 (TIA 1095) issued by the Standards Council on August 1, 2013 and per the NFPA Regs. needs to be reconsidered by the Technical Committee for the next edition of the Document.

6.12.9 Where emergency shutoff valves are required to be installed in ~~fixed piping at bulk plants and industrial plants,~~ accordance with 6.12.2, a means shall be incorporated to actuate the emergency shutoff valves in the event of a break of the fixed piping resulting from a pull on the hose.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
Proposed_TIA_1095_58_.docx	Balloted TIA

Statement of Problem and Substantiation for Public Input

Since 2001 the installation of Emergency Shutoff Valves has been allowed not only to protect transfer lines at bulkheads (loading/unloading stations) but also at the liquid outlet of containers to comply with 5.7.4.2 (D)(2), (H)(2).

The action taken by the Technical Committee during the balloting process on Comment 58-58 would require all Emergency Shutoff Valves regardless of where they are installed in the fixed piping system to incorporate a means to actuate in the event of break in the fixed piping resulting from a pull on the hose. This would include Emergency Shutoff Valves installed 100 feet or more from the transfer hose at the container opening which is used to only protect the liquid withdrawal opening at the container not the hose at the transfer station. It was the intent of the Technical Committee to require activation of only the Emergency Shutoff Valve installed within 20 feet of the nearest end of the hose or swivel-type piping connection (see 6.12.2).

Emergency Nature: The intent of the committee was to cover only those emergency shutoff valves that are installed to protect the loading and unloading stations; the proposed 6.12.9 goes far beyond the intent.

As currently written, Comment 58-58 would create a huge installation problem and in many cases could not be complied with due to the location of all the Emergency Shutoff Valves installed in the system. The difficulty in trying to connect all of the valves in the fixed piping system would far outweigh any benefit of having done so. Only the most critical valve must close and that is the one installed closest to where the hose "pull away" occurs, per the requirement in 6.12.2.

The proposed revision to 6.12.9 will clarify the limitation of this new requirement to Emergency Shutoff Valves installed within 20 ft of lineal pipe from the nearest end of the transfer hose connection to the fixed piping system (6.12.2), thereby providing the necessary protection for loading and unloading stations.

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Submittal Date: Thu Oct 31 08:39:03 EDT 2013

**Public Input No. 54-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-70 (Log #57) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-70.pdf	58-70
58-112.pdf	P58-112

Statement of Problem and Substantiation for Public Input

Recommendation: Add new text to read:

6.18.4.2(B) The two means of emergency egress, where required, shall be at least 25 ft. (7.6 m) apart, on center.

Renumber subsequent sections.

Substantiation: There are situations at some bulk plants where the second point of egress is literally beside the main point of egress. If the main egress is not safe to use (the reason for having the second egress), then having the second egress right beside the first defeats the purpose of having the second egress. The reason the first cannot be used may be equally affecting the second. Since a minimum distance of 25 ft. was specified as the separation for a remote shutdown location, it seems reasonable that the same 25 ft. of separation is appropriate for the distance to the secondary means of egress.

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA

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Submittal Date: Fri Mar 07 08:28:44 EST 2014

58-70 Log #57
(6.18.4.2(B) (New))

Final Action: Hold

Submitter: Richard G. Fredenburg, North Carolina Dept. of Agriculture & Consumer Services

Comment on Proposal No: 58-112

Recommendation: Add new text to read:

6.18.4.2(B) The two means of emergency egress, where required, shall be at least 25 ft. (7.6 m) apart, on center.
Renummer subsequent sections.

Substantiation: There are situations at some bulk plants where the second point of egress is literally beside the main point of egress. If the main egress is not safe to use (the reason for having the second egress), then having the second egress right beside the first defeats the purpose of having the second egress. The reason the first cannot be used may be equally affecting the second. Since a minimum distance of 25 ft. was specified as the separation for a remote shutdown location, it seems reasonable that the same 25 ft. of separation is appropriate for the distance to the secondary means of egress.

Committee Meeting Action: Hold

Committee Statement: The concept presented by the submitter is new material that has not had the benefit of public review.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 25 Negative: 2

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

Explanation of Negative:

KING, J.: Please refer to Mr. Mortimer's comment on 58-70.

MORTIMER, F.: Not all locations have the distances listed in this proposal available.

**Public Input No. 55-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-76 (Log #33) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u> <u>Approved</u>
58-76.pdf	58-76
58_L33_Tbl_6.23.3.1_R.docx	Table 6.23.3.1
58-121.pdf	P58-121

Statement of Problem and Substantiation for Public Input

Recommendation: Revise Table 6.23.3.1 to read:

See Uploaded File for Recommendation text:

Substantiation: Two revisions are recommended.

1. The categories of nonpassenger vehicle and road surfacing vehicle are combined as one requirement should apply to all nonpassenger vehicles. The current requirement, which allows larger quantities for road surfacing vehicles is an arbitrary extension of the 300 gallon limit for nonpassenger vehicles for a specific use. There are other uses that should also not be arbitrarily limited.
2. An entry for nonpassenger vehicles with LP-Gas storage of > 1000 gallons is added. This is due coordinate with DOT regulations for fuel tanks (tanks on vehicles where the fuel is consumed on the vehicle). DOT exempts fuel tanks from the Cargo Tank vehicle requirement and references NFPA 58 for installation requirements. If a user has a need for a vehicle with a fuel tank larger than 1,000 gallons, there is no reason to prohibit such use, and the proven DOT requirements for cargo tank vehicles will provide adequate safety.

Submitter Information Verification

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Submittal Date: Fri Mar 07 08:33:14 EST 2014

Table 6.23.3.1 (C) Maximum Capacities of Individual LP-Gas Containers Installed on Highway Vehicles

Maximum Container Water Capacity		
Vehicle	gal	m ³
Passenger Vehicle	200	0.8
Nonpassenger vehicle	300	1.1
Road surfacing vehicle	1000	3.8
<u>Nonpassenger vehicle >1000 gal</u>	<u>In accordance with DOT regulations for cargo tank vehicles</u>	
Cargo tank vehicle	Not limited by this code	

**Public Input No. 56-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-85 (Log #60) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-85.pdf	58-85
58-86.pdf	C58-86
58-70.pdf	C58-87
58-88.pdf	C58-88
58-89.pdf	C58-89
58-137.pdf	P58-137

Statement of Problem and Substantiation for Public Input

See the Uploaded File for Recommendation text.

Substantiation: This change is intended to require basic safety requirements on tanks not connected for use but that may contain product. Requirements for cylinders not connected for use have been provided in the LP-Gas Code for several editions. Separation requirements for ASME tanks not connected for use are not specified, even though these tanks may contain substantial amounts of LP-Gas. The dangers of these tanks located close to buildings and tanks connected for use has been recognized by the enforcement community but, without specified requirements, they are limited on what steps to reduce the dangers could be enforced. The way the code reads now, a 1000-gallon ASME tank 80% full could be set right beside a house (zero separation) and it would not be in violation. See also some other comments concerning this subject, all of them concerned with modifying chapter 8.

Submitter Information Verification

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Submittal Date: Fri Mar 07 08:37:47 EST 2014

58-85 Log #60
(8.1)

Final Action: Hold

Submitter: Richard G. Fredenburg, North Carolina Dept. of Agriculture & Consumer Services

Comment on Proposal No: 58-137

Recommendation: Revise text to read as follows:

Chapter 8 Storage of ~~Cylinders~~ Containers Awaiting Use, Resale, or Exchange

8.1 Scope.

8.1.1 The provisions of this chapter apply to the storage of cylinders of 1000 lb (454 kg) water capacity or less and to ASME tanks of 2000 gallons (7.6 m3) water capacity or less, whether filled, partially filled, or empty, as follows:

(1) At consumer sites or dispensing stations, where not connected for use

(2) In storage for resale or exchange by dealer or reseller

8.1.2 This chapter does not apply to new or unused ~~cylinders~~ containers.

8.1.3 This chapter does not apply to ~~cylinders~~ containers stored inside the security area at bulk plants.

Substantiation: This change is intended to require basic safety requirements on tanks not connected for use but that may contain product. Requirements for cylinders not connected for use have been provided in the LP-Gas Code for several editions. Separation requirements for ASME tanks not connected for use are not specified, even though these tanks may contain substantial amounts of LP-Gas. The dangers of these tanks located close to buildings and tanks connected for use has been recognized by the enforcement community but, without specified requirements, they are limited on what steps to reduce the dangers could be enforced. The way the code reads now, a 1000-gallon ASME tank 80% full could be set right beside a house (zero separation) and it would not be in violation.

See also some other comments concerning this subject, all of them concerned with modifying chapter 8.

Committee Meeting Action: Hold

Committee Statement: The committee didn't reach consensus on the concept of including ASME containers in Chapter 8. Therefore, the committee put Comments 58-85 (Log #60), 58-86 (Log #61), 58-87 (Log #62), 58-88 (Log #63), and 58-89 (Log #64) on hold for further study.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 25 Negative: 2

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

Explanation of Negative:

KING, J.: Please refer to Mr. Mortimer's comment on 58-85.

MORTIMER, F.: The current text should be retained.

**Public Input No. 57-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-85 (Log #61) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-86.pdf	58-86
58-85.pdf	C58-85
58-87.pdf	C58-87
58-88.pdf	C58-88
58-89.pdf	C58-89
58-137.pdf	P58-137

Statement of Problem and Substantiation for Public Input

See the Uploaded File for the Recommendation text.

Substantiation: This change is intended to require basic safety requirements on tanks not connected for use but that may contain product. Requirements for cylinders not connected for use have been provided in the LP-Gas Code for several editions. Separation requirements for ASME tanks not connected for use are not specified, even though these tanks may contain substantial amounts of LP-Gas. The dangers of these tanks located close to buildings and tanks connected for use has been recognized by the enforcement community but, without specified requirements, they are limited on what steps to reduce the dangers could be enforced. The way the code reads now, a 1000-gallon ASME tank 80% full could be set right beside a house (zero separation) and it would not be in violation. See also some other comments concerning this subject, all of them concerned with modifying chapter 8.

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA
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Submittal Date: Fri Mar 07 08:48:41 EST 2014

58-86 Log #61
(8.2)

Final Action: Hold

Submitter: Richard G. Fredenburg, North Carolina Dept. of Agriculture & Consumer Services

Comment on Proposal No: 58-137

Recommendation: Revise text to read as follows:

8.2 General Provisions.

8.2.1 General Location of Cylinders Containers.

8.2.1.1 Cylinders Containers in storage shall be located to minimize exposure to excessive temperature rises, physical damage, or tampering.

8.2.1.2 Cylinders in storage having individual water capacity greater than 2.7 lb (1.1 kg) [nominal 1 lb (0.45 kg) LP-Gas capacity] and all ASME tanks shall be positioned so that the pressure relief valve is in direct communication with the vapor space of the cylinder.

8.2.1.3 Cylinders stored in buildings in accordance with Section 8.3 shall not be located near exits, near stairways, or in areas normally used, or intended to be used, for the safe egress of occupants.

8.2.1.4 ASME tanks shall not be stored in buildings.

~~8.2.1.4~~ **8.2.1.5** If empty cylinders that have been in LP-Gas service are stored indoors, they shall be considered as full cylinders for the purposes of determining the maximum quantities of LP-Gas permitted by 8.3.1, 8.3.2.1, and 8.3.3.1.

~~8.2.1.5~~ **8.2.1.6** Cylinders Containers shall not be stored on roofs.

8.2.2 Protection of Valves on Cylinders Containers in Storage.

8.2.2.1 Cylinder valves shall be protected as required by 5.2.6.1 and 7.2.2.5.

8.2.2.2 Screw-on-type caps or collars shall be in place on all cylinders stored, regardless of whether they are full, partially full, or empty, and cylinder outlet valves shall be closed.

8.2.2.3 Valve outlets on cylinders less than 108 lb (49 kg) water capacity [nominal 45 lb (20 kg) propane capacity] shall be plugged, capped, or sealed in accordance with 7.2.2.5.

8.2.2.4 Valve outlets on ASME tanks shall be plugged or capped in accordance with 5.7.7.2.

Substantiation: This change is intended to require basic safety requirements on tanks not connected for use but that may contain product. Requirements for cylinders not connected for use have been provided in the LP-Gas Code for several editions. Separation requirements for ASME tanks not connected for use are not specified, even though these tanks may contain substantial amounts of LP-Gas. The dangers of these tanks located close to buildings and tanks connected for use has been recognized by the enforcement community but, without specified requirements, they are limited on what steps to reduce the dangers could be enforced. The way the code reads now, a 1000-gallon ASME tank 80% full could be set right beside a house (zero separation) and it would not be in violation.

See also some other comments concerning this subject, all of them concerned with modifying chapter 8.

Committee Meeting Action: Hold

Committee Statement: The committee didn't reach consensus on the concept of including ASME containers in Chapter 8. Therefore, the committee put Comments 58-85 (Log #60), 58-86 (Log #61), 58-87 (Log #62), 58-88 (Log #63), and 58-89 (Log #64) on hold for further study.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 25 Negative: 2

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

Explanation of Negative:

KING, J.: Please refer to Mr. Mortimer's comment on 58-86.

MORTIMER, F.: The current text should be retained.

**Public Input No. 58-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-87 (Log #62) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-87.pdf	58-87
58-85.pdf	C58-85
58-86.pdf	C58-86
58-88.pdf	C58-88
58-89.pdf	C58-89
58-137.pdf	P58-137

Statement of Problem and Substantiation for Public Input

See the Uploaded File for the Recommendation text.

Substantiation: This change is clarifies that the storage within buildings requirements of Chapter 8 apply to cylinder storage only.
See also some other comments concerning this subject, all of them concerned with modifying chapter 8.

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA
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Submittal Date: Fri Mar 07 08:52:32 EST 2014

58-87 Log #62
(8.3)

Final Action: Hold

Submitter: Richard G. Fredenburg, North Carolina Dept. of Agriculture & Consumer Services

Comment on Proposal No: 58-137

Recommendation: Revise text to read as follows:

8.3 Storage of Cylinders Within Buildings.

[remainder of the section is unchanged]

Substantiation: This change is clarifies that the storage within buildings requirements of Chapter 8 apply to cylinder storage only.

See also some other comments concerning this subject, all of them concerned with modifying chapter 8.

Committee Meeting Action: Hold

Committee Statement: The committee didn't reach consensus on the concept of including ASME containers in Chapter 8. Therefore, the committee put Comments 58-85 (Log #60), 58-86 (Log #61), 58-87 (Log #62), 58-88 (Log #63), and 58-89 (Log #64) on hold for further study.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 25 Negative: 2

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

Explanation of Negative:

KING, J.: Please refer to Mr. Mortimer's comment on 58-87.

MORTIMER, F.: The current text should be retained.

**Public Input No. 59-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-88 (Log #63) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-88.pdf	58-88
58-85.pdf	C58-85
58-86.pdf	C58-86
58-87.pdf	C58-87
58-89.pdf	C58-89
58-137.pdf	P58-137

Statement of Problem and Substantiation for Public Input

See the Uploaded File for the Recommendation text.

Substantiation: This change is intended to require basic safety requirements on tanks not connected for use but that may contain product. Requirements for cylinders not connected for use have been provided in the LP-Gas Code for several editions. Separation requirements for ASME tanks not connected for use are not specified, even though these tanks may contain substantial amounts of LP-Gas. The dangers of these tanks located close to buildings and tanks connected for use has been recognized by the enforcement community but, without specified requirements, they are limited on what steps to reduce the dangers could be enforced. The way the code reads now, a 1000-gallon ASME tank 80% full could be set right beside a house (zero separation) and it would not be in violation.

This could happen when a new company gains the customer and disconnects and sets aside the former company's tank. If they set the unconnected tank beside the house, it is not violating any requirement of the LP-Gas Code. Tanks not connected for service need to be supported so that wet, weak, or sloped soil will not allow them to roll over or slide away.

See also some other comments concerning this subject, all of them concerned with modifying chapter 8.

Submitter Information Verification

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Submittal Date: Fri Mar 07 08:55:43 EST 2014

58-88 Log #63
(8.4)

Final Action: Hold

Submitter: Richard G. Fredenburg, North Carolina Dept. of Agriculture & Consumer Services

Comment on Proposal No: 58-137

Recommendation: 8.4 Storage Outside of Buildings.

8.4.1* Location of Cylinder Storage Outside of Buildings.

[remainder of 8.4.1 is unchanged]

8.4.2 Location of ASME Tank Storage Outside of Buildings.

8.4.2.1 Storage outside of buildings for ASME tanks not connected for use at consumer sites or dispensing stations shall be located according to Table 6.3.1 with respect to important buildings, containers connected for use, and lines of adjoining property that can be built upon.

8.4.2.2 Tanks will be considered to be aboveground tanks if stored above ground, no matter what is the intended type of installation for that tank.

8.4.2.3 Tanks included in section 8.4.2.1 shall be supported according to 6.6.3.1.

~~8.4.2~~ 8.4.3 Protection of Cylinders.

~~8.4.2.1~~ 8.4.3.1* Cylinders at a location open to the public shall be protected by either of the following:

- (1) An enclosure in accordance with 6.18.4.2
- (2) A lockable ventilated enclosure of metal exterior construction

~~8.4.2.2~~ 8.4.3.2* Protection against vehicle impact shall be provided in accordance with good engineering practice where vehicular traffic is expected at the location.

~~8.4.3~~ 8.4.4 Alternate Location and Protection of Storage. Where the provisions of 8.4.1 and ~~8.4.2.1~~ 8.4.3.1 are impractical at construction sites or at buildings or structures undergoing major renovation or repairs, alternative storage of cylinders shall be acceptable to the authority having jurisdiction.

Substantiation: This change is intended to require basic safety requirements on tanks not connected for use but that may contain product. Requirements for cylinders not connected for use have been provided in the LP-Gas Code for several editions. Separation requirements for ASME tanks not connected for use are not specified, even though these tanks may contain substantial amounts of LP-Gas. The dangers of these tanks located close to buildings and tanks connected for use has been recognized by the enforcement community but, without specified requirements, they are limited on what steps to reduce the dangers could be enforced. The way the code reads now, a 1000-gallon ASME tank 80% full could be set right beside a house (zero separation) and it would not be in violation. This could happen when a new company gains the customer and disconnects and sets aside the former company's tank. If they set the unconnected tank beside the house, it is not violating any requirement of the LP-Gas Code. Tanks not connected for service need to be supported so that wet, weak, or sloped soil will not allow them to roll over or slide away. See also some other comments concerning this subject, all of them concerned with modifying chapter 8.

Committee Meeting Action: Hold

Committee Statement: The committee didn't reach consensus on the concept of including ASME containers in Chapter 8. Therefore, the committee put Comments 58-85 (Log #60), 58-86 (Log #61), 58-87 (Log #62), 58-88 (Log #63), and 58-89 (Log #64) on hold for further study.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 25 Negative: 2

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

Explanation of Negative:

KING, J.: Please refer to Mr. Mortimer's comment on 58-88.

MORTIMER, F.: The current text should be retained.

**Public Input No. 60-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-89 (Log #64) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-89.pdf	58-89
58-85.pdf	C58-85
58-86.pdf	C58-86
58-87.pdf	C58-87
58-88.pdf	C58-88
58-137.pdf	P58-137

Statement of Problem and Substantiation for Public Input

See the Uploaded File for the Recommendation text.

Substantiation: This change is clarifies that the fire protection requirements of Chapter 8 apply to cylinder storage only.
See also some other comments concerning this subject, all of them concerned with modifying chapter 8.

Submitter Information Verification

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Submittal Date: Fri Mar 07 08:58:28 EST 2014

58-89 Log #64
(8.5)

Final Action: Hold

Submitter: Richard G. Fredenburg, North Carolina Dept. of Agriculture & Consumer Services

Comment on Proposal No: 58-137

Recommendation: Revise text to read as follows:

8.5* Fire Protection for Cylinders.

8.5.1 Storage locations, where the aggregate quantity of propane stored in cylinders is in excess of 720 lb (327 kg), shall be provided with at least one approved portable fire extinguisher having a minimum capacity of 18 lb (9.2 kg) dry chemical with B:C rating.

8.5.2 The required fire extinguisher shall be located not more than 50 ft (15 m) from the storage location. Where fire extinguishers have more than one letter classification, they can be considered to satisfy the requirements of each letter class.

Substantiation: This change is clarifies that the fire protection requirements of Chapter 8 apply to cylinder storage only. See also some other comments concerning this subject, all of them concerned with modifying chapter 8.

Committee Meeting Action: Hold

Committee Statement: The committee didn't reach consensus on the concept of including ASME containers in Chapter 8. Therefore, the committee put Comments 58-85 (Log #60), 58-86 (Log #61), 58-87 (Log #62), 58-88 (Log #63), and 58-89 (Log #64) on hold for further study.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 26 Negative: 1

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

Explanation of Negative:

KING, J.: Please refer to Mr. Mortimer's comment on 58-89.

**Public Input No. 61-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-91 (Log #41) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-91.pdf	58-91
58-140.pdf	P58-140

Statement of Problem and Substantiation for Public Input

See the Uploaded File for the Recommendation text.

Substantiation: This proposal is being submitted to reduce confusion and ensure compliance with NFPA-10 for properly addressing potential obstacle, gravity 3-dimensional and pressure class "B" fire situations, by suggesting the committee add the metric references and minimum 1 pound per second agent discharge recommendation to their proposal.

High flow fire extinguisher models have been recommended and utilized for addressing these types of class "B" fire situations since 2007. (Reference: 2010 edition NFPA-10 paragraphs 5.5.1.1.2, 5.5.2 and 5.5.4 (3).) These fire extinguishers are readily available models, manufactured by most of the existing approved fire equipment manufacturers.

The numerical class "B" rating references identified within NFPA-10 are primarily intended to address minimum extinguisher occupancy coverage recommendations for potential liquid spill surface areas and not the various special class "B" fire hazard configurations which might be presented. Extinguisher recommendations addressing potential class "B" pressure, obstacle and gravity 3-dimensional fire hazards identified within 5.5.1 specifically now call for extinguisher models having minimum agent capacities and agent discharge rates. This is because numerical class "B" fire ratings are based upon the surface areas of square test pans presenting flat/still flammable liquid surfaces and extended hardware discharge times, which require manufacturers to throttle and reduce agent delivery rates, to obtain higher numerical fire ratings.

Dry chemical fire extinguisher models having agent discharge rates exceeding 1 pound per second measured at the 2/3 point of their discharge have demonstrated an acceptable capability for handling various real world class "B" fire situations.

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA

Organization: TC on Liquefied Petroleum Gases

Street Address:

City:

State:

Zip:

Submittal Date: Fri Mar 07 09:21:33 EST 2014

58-91 Log #41
(8.5.1)

Final Action: Hold

Submitter: J. R. Nerat, Badger/Kidde Fire Protection

Comment on Proposal No: 58-140

Recommendation: Revise text to read as follows:

8.5.1 At least one approved portable fire extinguisher having a minimum capacity of 10 lbs (4.54 kg) of dry chemical with having a discharge rate of 1 lb/sec (0.45 kg) and an A:B:C rating complying with 8.5.3 shall be provided on the premises where retail cylinder exchange cabinets storing more than 720 lbs. (327 kg) of propane are stored.

Substantiation: This proposal is being submitted to reduce confusion and ensure compliance with NFPA-10 for properly addressing potential obstacle, gravity 3-dimensional and pressure class “B” fire situations, by suggesting the committee add the metric references and minimum 1 pound per second agent discharge recommendation to their proposal.

High flow fire extinguisher models have been recommended and utilized for addressing these types of class “B” fire situations since 2007. (Reference: 2010 edition NFPA-10 paragraphs 5.5.1.1.2, 5.5.2 and 5.5.4 (3).) These fire extinguishers are readily available models, manufactured by most of the existing approved fire equipment manufacturers.

The numerical class “B” rating references identified within NFPA-10 are primarily intended to address minimum extinguisher occupancy coverage recommendations for potential liquid spill surface areas and not the various special class “B” fire hazard configurations which might be presented. Extinguisher recommendations addressing potential class “B” pressure, obstacle and gravity 3-dimensional fire hazards identified within 5.5.1 specifically now call for extinguisher models having minimum agent capacities and agent discharge rates. This is because numerical class “B” fire ratings are based upon the surface areas of square test pans presenting flat/still flammable liquid surfaces and extended hardware discharge times, which require manufacturers to throttle and reduce agent delivery rates, to obtain higher numerical fire ratings.

Dry chemical fire extinguisher models having agent discharge rates exceeding 1 pound per second measured at the 2/3 point of their discharge have demonstrated an acceptable capability for handling various real world class “B” fire situations.

Committee Meeting Action: Hold

Committee Statement: The intent of having a fire extinguisher in the context of NFPA 58 is to fight an incipient fire caused by normal combustibles such as paper, trash, or oily rags. Extinguishing a propane fire related to a cylinder exchange cabinet is not encouraged because it would result in a leaking cylinder that seeks another source of ignition. Additionally, industry training educates propane employees and firefighters not to fight a propane fire until the fuel source is under control.

The committee placed all comments related to fire extinguishers on hold for further study so that more research can be put into this topic.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 25 Negative: 2

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

Explanation of Negative:

KING, J.: Please refer to Mr. Mortimer's comment on 58-91

MORTIMER, F.: New material not part of the referenced proposal.

**Public Input No. 62-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-92 (Log #116) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-92.pdf	58-92
58-141.pdf	P58-141

Statement of Problem and Substantiation for Public Input

See the Uploaded File for the Recommendation text.

Substantiation: In NFPA Standard 10 we (the committee) wrote the requirements in Section 5.5 for pressure fires to discharge at least 1 lb. per second. The main idea is to discharge as much dry chemical per second on that type of fire as possible. The more the better but at least 1 lb. per second. Without adding the 1 lb. of dry chemical per second would exclude this particular hazard from being protected in accordance to NFPA Standard 10, Standard for Portable Fire Extinguishers Section 5.5 Selection for Specific Hazards, paragraphs 5.5.1.1* Extinguishers for Pressurized Flammable Liquids and Pressurized Gas Fires.

By adding the underlined text to NFPA 58 paragraph 8.5.1., the paragraph would comply and fall into the intent of proper protection for that hazard in accordance to NFPA Standard 10, Standard for Portable Fire Extinguishers.

Note: Supporting material is available for review at NFPA Headquarters.

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA

Organization: TC on Liquefied Petroleum Gases

Street Address:

City:

State:

Zip:

Submittal Date: Fri Mar 07 09:26:57 EST 2014

58-92 Log #116
(8.5.1)

Final Action: Hold

Submitter: Dennis D. Brohmer, Tyco Fire Protection Products

Comment on Proposal No: 58-141

Recommendation: Revise text to read as follows:

8.5.1* Retail cylinder exchange locations shall be provided with at least one approved portable fire extinguisher having a ~~40-B:C or 80-B:C~~ 20-B:C or 40-B:C rating and a minimum capacity of 10 lb. dry chemical that delivers a minimum of 1 lb. of dry chemical per second.

Substantiation: In NFPA Standard 10 we (the committee) wrote the requirements in Section 5.5 for pressure fires to discharge at least 1 lb. per second. The main idea is to discharge as much dry chemical per second on that type of fire as possible. The more the better but at least 1 lb. per second. Without adding the 1 lb. of dry chemical per second would exclude this particular hazard from being protected in accordance to NFPA Standard 10, Standard for Portable Fire Extinguishers Section 5.5 Selection for Specific Hazards, paragraphs 5.5.1.1* Extinguishers for Pressurized Flammable Liquids and Pressurized Gas Fires.

By adding the underlined text to NFPA 58 paragraph 8.5.1., the paragraph would comply and fall into the intent of proper protection for that hazard in accordance to NFPA Standard 10, Standard for Portable Fire Extinguishers.

Note: Supporting material is available for review at NFPA Headquarters.

Committee Meeting Action: Hold

Committee Statement: The intent of having a fire extinguisher in the context of NFPA 58 is to fight an incipient fire caused by normal combustibles such as paper, trash, or oily rags. Extinguishing a propane fire related to a cylinder exchange cabinet is not encouraged because it would result in a leaking cylinder that seeks another source of ignition. Additionally, industry training educates propane employees and firefighters not to fight a propane fire until the fuel source is under control.

The committee placed all comments related to fire extinguishers on hold for further study so that more research can be put into this topic.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 25 Negative: 2

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

Explanation of Negative:

KING, J.: Please refer to Mr. Mortimer's comment on 58-92.

MORTIMER, F.: New material not part of the referenced proposal.

**Public Input No. 63-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-93 (Log #117) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-93.pdf	58-93
58-141.pdf	P58-141

Statement of Problem and Substantiation for Public Input

See the Uploaded File for the Recommendation text.

Substantiation: High Flow "HF" fire extinguishers are specifically designed for gas fires and they have a low rating because those types of fire extinguishers completely emptied in a very short period of time, less than eight seconds for a maximum of a 40-B:C rating (But that's what's required to put those types of fires out). Discharge time & ratings have a direct correlation within UL Standard 711, Testing of Fire Extinguishers. The two hand portable fire extinguisher Ansul has available for "HF" High Flow are a 20-B:C rating for the 18 lbs. extinguisher and a 40-B:C rating for a 27 lbs. extinguisher. By requiring 40-B:C & 80-B:C ratings, you could exclude the exact fire extinguishers designed specifically to protect these hazards.

Note: Supporting material is available for review at NFPA Headquarters.

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA
Organization: TC on Liquefied Petroleum Gases
Street Address:
City:
State:
Zip:
Submittal Date: Fri Mar 07 09:36:35 EST 2014

58-93 Log #117
(8.5.2)

Final Action: Hold

Submitter: Dennis D. Brohmer, Tyco Fire Protection Products

Comment on Proposal No: 58-141

Recommendation: Revise text to read as follows:

Storage locations, other than those complying with 8.5.1, where the aggregated quantity of propane stored is in excess of 720 lb (327 kg) shall be provided with at least one approved portable fire extinguisher having a ~~40- or 80-~~ 20-B:C or 40-B:C rating and a minimum capacity of 18 lb. dry chemical with B:C rating.

Substantiation: High Flow "HF" fire extinguishers are specifically designed for gas fires and they have a low rating because those types of fire extinguishers completely emptied in a very short period of time, less than eight seconds for a maximum of a 40-B:C rating (But that's what's required to put those types of fires out). Discharge time & ratings have a direct correlation within UL Standard 711, Testing of Fire Extinguishers. The two hand portable fire extinguisher Ansul has available for "HF" High Flow are a 20-B:C rating for the 18 lbs. extinguisher and a 40-B:C rating for a 27 lbs. extinguisher. By requiring 40-B:C & 80-B:C ratings, you could exclude the exact fire extinguishers designed specifically to protect these hazards.

Note: Supporting material is available for review at NFPA Headquarters.

Committee Meeting Action: Hold

Committee Statement: The intent of having a fire extinguisher in the context of NFPA 58 is to fight an incipient fire caused by normal combustibles such as paper, trash, or oily rags. Extinguishing a propane fire related to a cylinder exchange cabinet is not encouraged because it would result in a leaking cylinder that seeks another source of ignition. Additionally, industry training educates propane employees and firefighters not to fight a propane fire until the fuel source is under control.

The committee placed all comments related to fire extinguishers on hold for further study so that more research can be put into this topic.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 25 Negative: 2

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

Explanation of Negative:

KING, J.: Please refer to Mr. Mortimer's comment on 58-93.

MORTIMER, F.: New material not part of the referenced proposal.

**Public Input No. 64-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-94 (Log #40) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-94.pdf	58-94
58-141.pdf	P58-141

Statement of Problem and Substantiation for Public Input

See the Uploaded File for the Recommendation text.

Substantiation: This proposal is being submitted to reduce confusion and ensure compliance with NFPA-10 for properly addressing potential obstacle, gravity 3-dimensional and pressure class "B" fire situations, by suggesting the committee reduce the 80B numerical rating to 60B and adding the minimum 1 pound per second agent discharge recommendation to the proposal.

Because only 30 pound extinguisher models currently have the necessary agent capacity, flow rate and 80B:C fire rating, changing this proposals recommendation from 80B:C to 60B:C will allow users to continue to utilize the less expensive 20 lb sizes of fire extinguisher models. This would provide a much more cost effective way for users to meet both the 40B:C and 60B:C rating recommendations established for travel distances, using readily available 18 to 20 pound fire extinguisher models.

High flow fire extinguisher models have been recommended and utilized for addressing these types of class "B" fire situations since 2007. (Reference: 2010 edition NFPA-10 paragraphs 5.5.1.1.2, 5.5.2 and 5.5.4 (3).) These fire extinguishers are readily available models, manufactured by most of the existing approved fire equipment manufacturers.

The numerical class "B" rating references identified within NFPA-10 are primarily intended to address minimum extinguisher occupancy coverage recommendations for potential liquid spill surface areas and not the various special class "B" fire hazard configurations which might be presented. Extinguisher recommendations addressing potential class "B" pressure, obstacle and gravity 3-dimensional fire hazards identified within 5.5.1 specifically now call for extinguisher models having minimum agent capacities and agent discharge rates. This is because numerical class "B" fire ratings are based upon the surface areas of square test pans presenting flat/still flammable liquid surfaces and extended hardware discharge times, which require manufacturers to throttle and reduce agent delivery rates, to obtain higher numerical fire ratings.

Dry chemical fire extinguisher models having agent discharge rates exceeding 1 pound per second measured at the 2/3 point of their discharge have demonstrated an acceptable capability for handling these real world class "B" fire situations.

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA
Organization: TC on Liquefied Petroleum Gases
Street Address:
City:
State:
Zip:
Submittal Date: Fri Mar 07 09:45:34 EST 2014

58-94 Log #40
(8.5.2 and 8.5.3.2)

Final Action: Hold

Submitter: J. R. Nerat, Badger/Kidde Fire Protection

Comment on Proposal No: 58-141

Recommendation: Revise text to read as follows:

8.5.2 Storage locations, other than those complying with 8.5.1, where the aggregate quantity of propane stored is in excess of 720 lbs (327 kg) shall be provided with at least one approved portable fire extinguisher having a 40- or ~~80~~ 60-B:C rating and a minimum capacity of 18 lb dry chemical with a discharge rate of 1 lb/sec (0.45 kg/sec).

8.5.3.2 An ~~80~~ 60-B:C fire extinguisher shall be located not more than 50 ft from the propane storage location.

Substantiation: This proposal is being submitted to reduce confusion and ensure compliance with NFPA-10 for properly addressing potential obstacle, gravity 3-dimensional and pressure class “B” fire situations, by suggesting the committee reduce the 80B numerical rating to 60B and adding the minimum 1 pound per second agent discharge recommendation to the proposal.

Because only 30 pound extinguisher models currently have the necessary agent capacity, flow rate and 80B:C fire rating, changing this proposals recommendation from 80B:C to 60B:C will allow users to continue to utilize the less expensive 20 lb sizes of fire extinguisher models. This would provide a much more cost effective way for users to meet both the 40B:C and 60B:C rating recommendations established for travel distances, using readily available 18 to 20 pound fire extinguisher models.

High flow fire extinguisher models have been recommended and utilized for addressing these types of class “B” fire situations since 2007. (Reference: 2010 edition NFPA-10 paragraphs 5.5.1.1.2, 5.5.2 and 5.5.4 (3).) These fire extinguishers are readily available models, manufactured by most of the existing approved fire equipment manufacturers.

The numerical class “B” rating references identified within NFPA-10 are primarily intended to address minimum extinguisher occupancy coverage recommendations for potential liquid spill surface areas and not the various special class “B” fire hazard configurations which might be presented. Extinguisher recommendations addressing potential class “B” pressure, obstacle and gravity 3-dimensional fire hazards identified within 5.5.1 specifically now call for extinguisher models having minimum agent capacities and agent discharge rates. This is because numerical class “B” fire ratings are based upon the surface areas of square test pans presenting flat/still flammable liquid surfaces and extended hardware discharge times, which require manufacturers to throttle and reduce agent delivery rates, to obtain higher numerical fire ratings.

Dry chemical fire extinguisher models having agent discharge rates exceeding 1 pound per second measured at the 2/3 point of their discharge have demonstrated an acceptable capability for handling these real world class “B” fire situations.

Committee Meeting Action: Hold

Committee Statement: The intent of having a fire extinguisher in the context of NFPA 58 is to fight an incipient fire caused by normal combustibles such as paper, trash, or oily rags. Extinguishing a propane fire related to a cylinder exchange cabinet is not encouraged because it would result in a leaking cylinder that seeks another source of ignition. Additionally, industry training educates propane employees and firefighters not to fight a propane fire until the fuel source is under control.

The committee placed all comments related to fire extinguishers on hold for further study so that more research can be put into this topic.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 25 Negative: 2

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

Explanation of Negative:

KING, J.: Please refer to Mr. Mortimer's comment on 58-94

MORTIMER, F.: New material not part of the referenced proposal.

**Public Input No. 65-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-95 (Log #118) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-95.pdf	58-95
58-141.pdf	P58-141

Statement of Problem and Substantiation for Public Input

See the Uploaded File for the Recommendation text.

Substantiation: By changing to the 20-B:C rated fire extinguisher, we would not exclude the perfect 18 lbs. fire extinguisher designed for that fire type of fire.

Note: Supporting material is available for review at NFPA Headquarters.

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA

Organization: TC on Liquefied Petroleum Gases

Street Address:

City:

State:

Zip:

Submittal Date: Fri Mar 07 09:47:14 EST 2014

58-95 Log #118
(8.5.3.1)

Final Action: Hold

Submitter: Dennis D. Brohmer, Tyco Fire Protection Products

Comment on Proposal No: 58-141

Recommendation: Revise text to read as follows:

A ~~40-B:C~~ 20-B:C fire extinguisher shall be located not more than 30 ft from the propane storage location.

Substantiation: By changing to the 20-B:C rated fire extinguisher, we would not exclude the perfect 18 lbs. fire extinguisher designed for that fire type of fire.

Note: Supporting material is available for review at NFPA Headquarters.

Committee Meeting Action: Hold

Committee Statement: The intent of having a fire extinguisher in the context of NFPA 58 is to fight an incipient fire caused by normal combustibles such as paper, trash, or oily rags. Extinguishing a propane fire related to a cylinder exchange cabinet is not encouraged because it would result in a leaking cylinder that seeks another source of ignition. Additionally, industry training educates propane employees and firefighters not to fight a propane fire until the fuel source is under control.

The committee placed all comments related to fire extinguishers on hold for further study so that more research can be put into this topic.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 25 Negative: 2

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

Explanation of Negative:

KING, J.: Please refer to Mr. Mortimer's comment on 58-95.

MORTIMER, F.: New material not part of the referenced proposal.

**Public Input No. 66-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-96 (Log #119) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-96.pdf	58-96
58-141.pdf	P58-141

Statement of Problem and Substantiation for Public Input

See the Uploaded File for the Recommendation text.

Substantiation: By changing to the 40-B:C rated fire extinguisher, we would not exclude the perfect 26 lbs. fire extinguisher designed for that fire type of fire.

Note: Supporting material is available for review at NFPA Headquarters.

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA

Organization: TC on Liquefied Petroleum Gases

Street Address:

City:

State:

Zip:

Submittal Date: Fri Mar 07 12:26:49 EST 2014

58-96 Log #119
(8.5.3.2)

Final Action: Hold

Submitter: Dennis D. Brohmer, Tyco Fire Protection Products

Comment on Proposal No: 58-141

Recommendation: Revise text to read as follows:

A ~~60-B:C~~ 40-B:C fire extinguisher shall be located not more than 50 ft from the propane storage location.

Substantiation: By changing to the 40-B:C rated fire extinguisher, we would not exclude the perfect 26 lbs. fire extinguisher designed for that fire type of fire.

Note: Supporting material is available for review at NFPA Headquarters.

Committee Meeting Action: Hold

Committee Statement: The intent of having a fire extinguisher in the context of NFPA 58 is to fight an incipient fire caused by normal combustibles such as paper, trash, or oily rags. Extinguishing a propane fire related to a cylinder exchange cabinet is not encouraged because it would result in a leaking cylinder that seeks another source of ignition. Additionally, industry training educates propane employees and firefighters not to fight a propane fire until the fuel source is under control.

The committee placed all comments related to fire extinguishers on hold for further study so that more research can be put into this topic.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 25 Negative: 2

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

Explanation of Negative:

KING, J.: Please refer to Mr. Mortimer's comment on 58-96.

MORTIMER, F.: New material not part of the referenced proposal.

**Public Input No. 67-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-97 (Log #42) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-97.pdf	58-97
58-144.pdf	P58-144

Statement of Problem and Substantiation for Public Input

See the Uploaded File for the Recommendation text.

Substantiation: This proposal is submitted to reduce confusion and ensure compliance with NFPA-10 for properly addressing potential obstacle, gravity 3-dimensional and pressure class "B" fire situations, by suggesting the committee add the minimum 1 pound per second agent discharge recommendation to the proposal.

These high flow fire extinguisher models have been recommended and utilized for addressing these types of fire situations since 2007. (Reference: 2010 edition NFPA-10 paragraphs 5.5.1.1.2, 5.5.2 and 5.5.4 (3).) These fire extinguishers are readily available models, manufactured by most of the existing approved fire equipment manufacturers.

The numerical class "B" rating references identified within NFPA-10 are primarily intended to address minimum extinguisher occupancy coverage recommendations for potential liquid spill surface areas and not the various special class "B" fire hazard configurations which might be presented. Extinguisher recommendations addressing potential class "B" pressure, obstacle and gravity 3-dimensional fire hazards identified within 5.5.1 specifically now call for extinguisher models having minimum agent capacities and agent discharge rates. This is because numerical class "B" fire ratings are based upon the surface areas of square test pans presenting flat/still flammable liquid surfaces and extended hardware discharge times, which require manufacturers to throttle and reduce agent delivery rates, to obtain higher numerical fire ratings.

Dry chemical fire extinguisher models having agent discharge rates exceeding 1 pound per second measured at the 2/3 point of their discharge have demonstrated an acceptable capability for handling these real world class "B" fire situations.

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA
Organization: TC on Liquefied Petroleum Gases
Street Address:
City:
State:
Zip:
Submittal Date: Fri Mar 07 12:28:38 EST 2014

58-97 Log #42
(9.3.5.1)

Final Action: Hold

Submitter: J. R. Nerat, Badger/Kidde Fire Protection

Comment on Proposal No: 58-144

Recommendation: Revise text to read as follows:

9.3.5.1 Each truck or trailer transporting portable containers in accordance with 9.3.2 or 9.3.3 shall be equipped with at least one approved portable fire extinguisher having a minimum capacity of 18 lbs of (8.2 kg) dry chemical with a discharge rate of 1 lb/sec (0.45 kg/sec with and a B:C rating.

Substantiation: This proposal is submitted to reduce confusion and ensure compliance with NFPA-10 for properly addressing potential obstacle, gravity 3-dimensional and pressure class “B” fire situations, by suggesting the committee add the minimum 1 pound per second agent discharge recommendation to the proposal.

These high flow fire extinguisher models have been recommended and utilized for addressing these types of fire situations since 2007. (Reference: 2010 edition NFPA-10 paragraphs 5.5.1.1.2, 5.5.2 and 5.5.4 (3).) These fire extinguishers are readily available models, manufactured by most of the existing approved fire equipment manufacturers.

The numerical class “B” rating references identified within NFPA-10 are primarily intended to address minimum extinguisher occupancy coverage recommendations for potential liquid spill surface areas and not the various special class “B” fire hazard configurations which might be presented. Extinguisher recommendations addressing potential class “B” pressure, obstacle and gravity 3-dimensional fire hazards identified within 5.5.1 specifically now call for extinguisher models having minimum agent capacities and agent discharge rates. This is because numerical class “B” fire ratings are based upon the surface areas of square test pans presenting flat/still flammable liquid surfaces and extended hardware discharge times, which require manufacturers to throttle and reduce agent delivery rates, to obtain higher numerical fire ratings.

Dry chemical fire extinguisher models having agent discharge rates exceeding 1 pound per second measured at the 2/3 point of their discharge have demonstrated an acceptable capability for handling these real world class “B” fire situations.

Committee Meeting Action: Hold

Committee Statement: The intent of having a fire extinguisher in the context of NFPA 58 is to fight an incipient fire caused by normal combustibles such as paper, trash, or oily rags. Extinguishing a propane fire related to a cylinder exchange cabinet is not encouraged because it would result in a leaking cylinder that seeks another source of ignition. Additionally, industry training educates propane employees and firefighters not to fight a propane fire until the fuel source is under control.

The committee placed all comments related to fire extinguishers on hold for further study so that more research can be put into this topic.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 25 Negative: 2

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

Explanation of Negative:

KING, J.: Please refer to Mr. Mortimer's comment on 58-97.

MORTIMER, F.: New material not part of the referenced proposal.

**Public Input No. 68-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-98 (Log #120) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-98.pdf	58-98
58-144.pdf	P58-144

Statement of Problem and Substantiation for Public Input

See the Uploaded File for the Recommendation text.

Substantiation: In NFPA Standard 10 we (the committee) wrote the requirements in Section 5.5 for pressure fires to discharge at least 1 lb. per second. Again the main idea is to discharge as much dry chemical per second on that type of fire as possible. The more the better but at least 1 lb. per second.

Note: Supporting material is available for review at NFPA Headquarters.

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA
Organization: TC on Liquefied Petroleum Gases
Street Address:
City:
State:
Zip:
Submittal Date: Fri Mar 07 12:30:13 EST 2014

58-98 Log #120
(9.3.5.1)

Final Action: Hold

Submitter: Dennis D. Brohmer, Tyco Fire Protection Products

Comment on Proposal No: 58-144

Recommendation: Revise text to read as follows:

Each truck or trailer transporting containers in accordance with 9.3.2 or 9.3.3 shall be equipped with at least one approved portable fire extinguisher having a minimum capacity of 18 lb (8.2 kg) dry chemical with a B:C rating that discharges at least 1 lb of dry chemical per second.

Substantiation: In NFPA Standard 10 we (the committee) wrote the requirements in Section 5.5 for pressure fires to discharge at least 1 lb. per second. Again the main idea is to discharge as much dry chemical per second on that type of fire as possible. The more the better but at least 1 lb. per second.

Note: Supporting material is available for review at NFPA Headquarters.

Committee Meeting Action: Hold

Committee Statement: The intent of having a fire extinguisher in the context of NFPA 58 is to fight an incipient fire caused by normal combustibles such as paper, trash, or oily rags. Extinguishing a propane fire related to a cylinder exchange cabinet is not encouraged because it would result in a leaking cylinder that seeks another source of ignition. Additionally, industry training educates propane employees and firefighters not to fight a propane fire until the fuel source is under control.

The committee placed all comments related to fire extinguishers on hold for further study so that more research can be put into this topic.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 25 Negative: 2

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

Explanation of Negative:

KING, J.: Please refer to Mr. Mortimer's comment on 58-98.

MORTIMER, F.: New material not part of the referenced proposal.

**Public Input No. 69-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-99 (Log #43) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-99.pdf	58-99
58-146.pdf	P58-146

Statement of Problem and Substantiation for Public Input

See the Uploaded Filed for the Recommendation text.

Substantiation: This proposal is submitted to reduce confusion and ensure compliance with NFPA-10 for properly addressing potential obstacle, gravity 3-dimensional and pressure class "B" fire situations, by suggesting the committee add the minimum 1 pound per second agent discharge recommendation to their proposal.

These high flow fire extinguisher models have been recommended and utilized for addressing these types of fire situations since 2007. (Reference: 2010 edition NFPA-10 paragraphs 5.5.1.1.2, 5.5.2 and 5.5.4 (3).) These fire extinguishers are readily available models, manufactured by most of the existing approved fire equipment manufacturers.

The numerical class "B" rating references identified within NFPA-10 are primarily intended to address minimum extinguisher occupancy coverage recommendations for potential liquid spill surface areas and not the various special class "B" fire hazard configurations which might be presented. Extinguisher recommendations addressing potential class "B" pressure, obstacle and gravity 3-dimensional fire hazards identified within 5.5.1 specifically now call for extinguisher models having minimum agent capacities and agent discharge rates. This is because numerical class "B" fire ratings are based upon the surface areas of square test pans presenting flat/still flammable liquid surfaces and extended hardware discharge times, which require manufacturers to throttle and reduce agent delivery rates, to obtain higher numerical fire ratings.

Dry chemical fire extinguisher models having agent discharge rates exceeding 1 pound per second measured at the 2/3 point of their discharge have demonstrated an acceptable capability for handling these real world class "B" fire situations.

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA
Organization: TC on Liquefied Petroleum Gases
Street Address:
City:
State:
Zip:
Submittal Date: Fri Mar 07 12:32:27 EST 2014

58-99 Log #43
(9.4.7.1)

Final Action: Hold

Submitter: J. R. Nerat, Badger/Kidde Fire Protection

Comment on Proposal No: 58-146

Recommendation: Revise text to read as follows:

9.4.7.1 Each cargo tank vehicle or tractor shall be equipped with at least one approved portable fire extinguisher having a minimum capacity of 18 lbs of (8.2 kg) dry chemical with a discharge rate of 1 lb/sec (0.45 kg/sec with and a B:C rating.

Substantiation: This proposal is submitted to reduce confusion and ensure compliance with NFPA-10 for properly addressing potential obstacle, gravity 3-dimensional and pressure class “B” fire situations, by suggesting the committee add the minimum 1 pound per second agent discharge recommendation to their proposal.

These high flow fire extinguisher models have been recommended and utilized for addressing these types of fire situations since 2007. (Reference: 2010 edition NFPA-10 paragraphs 5.5.1.1.2, 5.5.2 and 5.5.4 (3).) These fire extinguishers are readily available models, manufactured by most of the existing approved fire equipment manufacturers.

The numerical class “B” rating references identified within NFPA-10 are primarily intended to address minimum extinguisher occupancy coverage recommendations for potential liquid spill surface areas and not the various special class “B” fire hazard configurations which might be presented. Extinguisher recommendations addressing potential class “B” pressure, obstacle and gravity 3-dimensional fire hazards identified within 5.5.1 specifically now call for extinguisher models having minimum agent capacities and agent discharge rates. This is because numerical class “B” fire ratings are based upon the surface areas of square test pans presenting flat/still flammable liquid surfaces and extended hardware discharge times, which require manufacturers to throttle and reduce agent delivery rates, to obtain higher numerical fire ratings.

Dry chemical fire extinguisher models having agent discharge rates exceeding 1 pound per second measured at the 2/3 point of their discharge have demonstrated an acceptable capability for handling these real world class “B” fire situations.

Committee Meeting Action: Hold

Committee Statement: The intent of having a fire extinguisher in the context of NFPA 58 is to fight an incipient fire caused by normal combustibles such as paper, trash, or oily rags. Extinguishing a propane fire related to a cylinder exchange cabinet is not encouraged because it would result in a leaking cylinder that seeks another source of ignition. Additionally, industry training educates propane employees and firefighters not to fight a propane fire until the fuel source is under control.

The committee placed all comments related to fire extinguishers on hold for further study so that more research can be put into this topic.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 25 Negative: 2

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

Explanation of Negative:

KING, J.: Please refer to Mr. Mortimer's comment on 58-99.

MORTIMER, F.: New material not part of the referenced proposal.

**Public Input No. 70-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-100 (Log #121) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-100.pdf	58-100
58-146.pdf	P58-146

Statement of Problem and Substantiation for Public Input

See the Uploaded File for the Recommendation text.

Substantiation: In NFPA Standard 10 we (the committee) wrote the requirements in Section 5.5 for pressure fires to discharge at least 1 lb. per second. Discharging as much dry chemical per second on that type of fire as possible is the only way of extinguishing that type of fire beside eliminating the fuel. The more dry chemical the better but at least 1 lb. per second. Without adding the 1 lb. of dry chemical per second would exclude this particular hazard from being protected in accordance to NFPA Standard 10, Standard for Portable Fire Extinguishers Section 5.5 Selection for Specific Hazards, paragraphs 5.5.1.1* Extinguishers for Pressurized Flammable Liquids and Pressurized Gas Fires.

Note: Supporting material is available for review at NFPA Headquarters.

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA
Organization: TC on Liquefied Petroleum Gases
Street Address:
City:
State:
Zip:
Submittal Date: Fri Mar 07 12:34:24 EST 2014

58-100 Log #121
(9.4.7.1)

Final Action: Hold

Submitter: Dennis D. Brohmer, Tyco Fire Protection Products

Comment on Proposal No: 58-146

Recommendation: Revise text to read as follows:

Each cargo tank vehicle or tractor shall be provided with at least one approved portable fire extinguisher having a minimum capacity or 18 lb (8.2 kg) dry chemical with a B:C rating that delivers a minimum of 1 lb. of dry chemical per second.

Substantiation: In NFPA Standard 10 we (the committee) wrote the requirements in Section 5.5 for pressure fires to discharge at least 1 lb. per second. Discharging as much dry chemical per second on that type of fire as possible is the only way of extinguishing that type of fire beside eliminating the fuel. The more dry chemical the better but at least 1 lb. per second. Without adding the 1 lb. of dry chemical per second would exclude this particular hazard from being protected in accordance to NFPA Standard 10, Standard for Portable Fire Extinguishers Section 5.5 Selection for Specific Hazards, paragraphs 5.5.1.1* Extinguishers for Pressurized Flammable Liquids and Pressurized Gas Fires.

Note: Supporting material is available for review at NFPA Headquarters.

Committee Meeting Action: Hold

Committee Statement: The intent of having a fire extinguisher in the context of NFPA 58 is to fight an incipient fire caused by normal combustibles such as paper, trash, or oily rags. Extinguishing a propane fire related to a cylinder exchange cabinet is not encouraged because it would result in a leaking cylinder that seeks another source of ignition. Additionally, industry training educates propane employees and firefighters not to fight a propane fire until the fuel source is under control.

The committee placed all comments related to fire extinguishers on hold for further study so that more research can be put into this topic.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 25 Negative: 2

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

Explanation of Negative:

KING, J.: Please refer to Mr. Mortimer's comment on 58-100.

MORTIMER, F.: New material not part of the referenced proposal.

**Public Input No. 71-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-119 (Log #4) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-119.pdf	58-119

Statement of Problem and Substantiation for Public Input

Recommendation: Replace Annex H with the requirements found in NFPA 290, Standard for Fire Testing of Passive Protection Materials for Use on LP-Gas Containers, 2013 edition or with reference to that Standard.

Substantiation: NFPA 290 was developed by the Fire Test Technical Committee at the request of the Technical Committee on Liquefied Petroleum Gases as a result of numerous BLEVE incidents, however, NFPA 58 does not reference the requirements in NFPA 290. The Fire Test Technical Committee requests that the requirements in NFPA 290 developed for NFPA 58 be incorporated into Annex H.

This Proposal was balloted through the Technical Committee on Fire Tests with the following results:

22 Members Eligible to Vote

3 Not Returned (A. Marshall, D. Sheppard and R. Wessel)

18 Affirmative on All (1 with comment – S. Adams)

Mr. Adams voted affirmative with the following comment:

"If requested by the technical committee for NFPA 58 to develop document by Fire Test Technical Committee, then I agree it should be part of NFPA 58 document".

0 Negatives

1 Abstention (J. Ziolkowski)

Mr. Ziolkowski abstained for the following reason:

"Insufficient knowledge".

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA

Organization: TC on Liquefied Petroleum Gases

Street Address:

City:

State:

Zip:

Submittal Date: Fri Mar 07 12:36:01 EST 2014

58-119 Log #4
(Annex H)

Final Action: Hold

Submitter: Technical Committee on Fire Tests,

Comment on Proposal No: N/A

Recommendation: Replace Annex H with the requirements found in NFPA 290, Standard for Fire Testing of Passive Protection Materials for Use on LP-Gas Containers, 2013 edition or with reference to that Standard.

Substantiation: NFPA 290 was developed by the Fire Test Technical Committee at the request of the Technical Committee on Liquefied Petroleum Gases as a result of numerous BLEVE incidents, however, NFPA 58 does not reference the requirements in NFPA 290. The Fire Test Technical Committee requests that the requirements in NFPA 290 developed for NFPA 58 be incorporated into Annex H.

This Proposal was balloted through the Technical Committee on Fire Tests with the following results:

22 Members Eligible to Vote

3 Not Returned (A. Marshall, D. Sheppard and R. Wessel)

18 Affirmative on All (1 with comment – S. Adams)

Mr. Adams voted affirmative with the following comment:

"If requested by the technical committee for NFPA 58 to develop document by Fire Test Technical Committee, then I agree it should be part of NFPA 58 document".

0 Negatives

1 Abstention (J. Ziolkowski)

Mr. Ziolkowski abstained for the following reason:

"Insufficient knowledge".

Committee Meeting Action: Hold

Committee Statement: The committee put the comment on hold because it is new material that has not had the benefit of public review.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 27

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

**Public Input No. 72-NFPA 58-2014 [Global Input]**

NOTE: The following Public Input appeared as Rejected but held (Hold) in Public Comment No. 58-121 (Log #79) of the A2013 Second Draft Report (ROC) for NFPA 58 and per the Regs. at 4.4.8.3.1.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58-121.pdf	58-121
58-104.pdf	P58-104

Statement of Problem and Substantiation for Public Input

See the Uploaded File for the Recommendation text.

Substantiation: The proposed changes will correlate NFPA 58 with text that has been proposed to NFPA 54 National Fuel Gas Code.

In M.1.2 (2) and (5), the proposal incorporates new language to cover leak checking of systems utilizing a test assembly with a low pressure regulator and an inches water column gauge or a test assembly with a high pressure regulator and a 30 psi gauge as part of the test assembly. The proposal refers the reader to the type of test that should be conducted when utilizing a specific type of device.

In (3), there are systems that utilize a number of second-stage regulators supplied from one first-stage regulator and 2 psi systems may use a number of line pressure regulators supplied from one first-stage and a 2 psi regulator. The requirement in the test protocol is to insure regulators upstream of the selected checkpoint are unlocked. If there are piping systems with regulators in parallel within the piping system and there is a leak in the parallel line, the new provisions would insure that the parallel regulator would not lockup and the leak would be detected. If there is no leak in the parallel line, the parallel regulator would lockup as expected and that is acceptable. This change specifically addresses the need for a clarification of the testing required when there is more than one second stage regulator and the procedure to ensure the regulators are unlocked during the test.

Paragraph (4) adds testing information for 5 psi first-stage regulators which are utilized in many of the northern States where container pressures can drop to 10 psi. The 2 psi minimum pressure reduction will insure that the first stage regulator, 5 or 10 psi outlet setting is unlocked when the leak check is performed.

The addition of "gauge/regulator" test assemblies in (2) and (5), which incorporate a regulator that limits the pressure to the gauge during the test, is to recognize new types of leak check devices that are available and presently being used by LP-Gas servicemen.

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA

Organization: TC on Liquefied Petroleum Gases

Street Address:

City:

State:

Zip:

Submittal Date: Fri Mar 07 12:37:52 EST 2014

58-121 Log #79
(M.1)

Final Action: Hold

Submitter: Bruce J. Swiecicki, National Propane Gas Association / Rep. NPGA Technology, Standards and Safety Committee

Comment on Proposal No: 58-104

Recommendation: Revise text to read as follows:

M.1 Suggested Methods of Checking for Leakage.

M.1.1 This Section describes several methods for conducting a leak check on an LP gas system before placing it back into service.

M.1.2 These are three widely used methods, but they are not the only methods that can be used to conduct a leak check, and they are shown as follows:

(1) The first method is performed by inserting a pressure gauge assembly between the container gas shutoff valve and the first-stage regulator or integral two-stage regulator in the system, admitting full container pressure to the system, and then closing the container shutoff valve. Enough gas should then be released from the system to lower the pressure gauge reading by 10 psig (69 kPag). The system should then be allowed to stand for 3 minutes without showing an increase or a decrease in the pressure gauge reading.

(2) Insert a gauge/regulator test assembly between the container gas shutoff valve and first-stage regulator or integral two-stage regulator in the system. If a gauge/regulator test assembly with an inches water column gauge is inserted, follow the test requirements in (3) below; if a gauge/ regulator test assembly with a 30 psi gauge is inserted follow the test requirements in (4).

~~(2)~~ (3) The second method is for systems with an integral two-stage, a second-stage or a line pressure regulator; and, multiple second stage or line pressure regulators serving appliances that receive gas at pressures of ~~1.2~~ 1 1/2 psig (3.5 kPag) or less; ~~and is performed by inserting~~ Insert a water manometer or manometer pressure inches water column gauge into the system downstream of the final ~~system stage~~ stage regulator, pressurizing the system with either fuel gas, inert gas, or air to a test pressure of 9 in. w.c. \pm 1.2 in. w.c. (2.2 kPag \pm 0.1 kPag), and observing the device for a pressure change. If fuel gas is used as a pressure source, it is necessary to pressurize the system to full operating pressure, close the container service valve, and then release enough gas from the system through a range burner valve or other suitable means to drop the system pressure to 9 in. w.c. \pm 1.2 in. w.c. (2.2 kPag \pm 0.1 kPag). This ensures that all regulators in the system upstream of the test point are unlocked and that a leak anywhere in the system is communicated to the gauging device. The system should be allowed to stand for 3 minutes without showing an increase or a decrease in the pressure gauge reading.

~~(3)~~ (4) The third method is performed on systems that have a first-stage regulator, or an integral two-stage regulator by inserting a 30 psig (207 kPag) pressure gauge on the downstream side of the first-stage regulator or at the intermediate pressure tap of an integral two-stage regulator, admitting normal operating pressure to the system and then closing the container valve. Enough ~~pressure gas~~ gas should be released from the system to lower the pressure gauge reading by ~~5 psig (34.5 kPag)~~ a minimum of 2 psi (13.8 kPa) so that the first-stage regulator is unlocked. The system should be allowed to stand for 3 minutes without showing an increase or a decrease in the pressure gauge reading.

(5) Insert a gauge/regulator test assembly on the downstream side of the first stage regulator or at the intermediate pressure tap of an integral two stage regulator. If a gauge/regulator test assembly, with an inches water column gauge is inserted, follow the test requirements in (c) above; if a gauge/regulator test assembly with a 30 psi gauge is inserted follow the test requirements in (d) above.

Substantiation: The proposed changes will correlate NFPA 58 with text that has been proposed to NFPA 54 National Fuel Gas Code.

In M.1.2 (2) and (5), the proposal incorporates new language to cover leak checking of systems utilizing a test assembly with a low pressure regulator and an inches water column gauge or a test assembly with a high pressure regulator and a 30 psi gauge as part of the test assembly. The proposal refers the reader to the type of test that should be conducted when utilizing a specific type of device.

In (3), there are systems that utilize a number of second-stage regulators supplied from one first-stage regulator and 2 psi systems may use a number of line pressure regulators supplied from one first-stage and a 2 psi regulator. The requirement in the test protocol is to insure regulators upstream of the selected checkpoint are unlocked. If there are piping systems with regulators in parallel within the piping system and there is a leak in the parallel line, the new provisions would insure that the parallel regulator would not lockup and the leak would be detected. If there is no leak in

the parallel line, the parallel regulator would lockup as expected and that is acceptable. This change specifically addresses the need for a clarification of the testing required when there is more than one second stage regulator and the procedure to ensure the regulators are unlocked during the test.

Paragraph (4) adds testing information for 5 psi first-stage regulators which are utilized in many of the northern States where container pressures can drop to 10 psi. The 2 psi minimum pressure reduction will insure that the first stage regulator, 5 or 10 psi outlet setting is unlocked when the leak check is performed.

The addition of “gauge/regulator” test assemblies in (2) and (5), which incorporate a regulator that limits the pressure to the gauge during the test, is to recognize new types of leak check devices that are available and presently being used by LP-Gas servicemen.

Committee Meeting Action: Hold

Committee Statement: The comment is put on hold because further research is needed.

Number Eligible to Vote: 30

Ballot Results: Affirmative: 27

Ballot Not Returned: 3 Garza-Obregon, C., Kastanas, S., Young, W.

**Public Input No. 293-NFPA 58-2014 [New Section after 1.3.1]**

- 1.3.1 (5) LP-Gas at utility gas plants that either:
(a) Have an aggregate water capacity of 4000 gallons or less or
(b) Serve 9 or fewer customers.

Statement of Problem and Substantiation for Public Input

Propane installations commonly termed 'propane vapor distribution systems' or 'small propane distribution systems' may fall within the scope of NFPA 58 or within the scope of NFPA 59. Making the determination of which code applies can be a confusing and frustrating task. Facility owners and regulators must refer to both codes since they are unable to make this determination simply by reading NFPA 58. NFPA 58 does not cover Utility Gas Plants, referring these systems to NFPA 59. However, NFPA 59 refers some of those utility systems back to NFPA 58. NFPA 59 currently defines a 'Utility Gas Plant' as "A plant that stores and vaporizes LP-Gas for distribution that supplies either LP Gas or LP-Gas-air mixture to a gas distribution system of 10 or more customers."

Because of the references between documents and the difficulty in following applications and nonapplications of the codes, it is not clear to some industry members that some propane distribution systems now are included in NFPA 59 that were formerly under NFPA 58.

This proposed change should clarify and help emphasize the proper application of NFPA 58 by identifying which distribution systems are included in NFPA 58 and which are not.

Proposed changes to sections 1.3.1, 1.3.2(3) and A1.3.2(3) should be considered together.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 295-NFPA 58-2014 [Section No. 1.3.2]	
Public Input No. 301-NFPA 58-2014 [New Section after A.1.1]	

Submitter Information Verification

Submitter Full Name: Michael Osmundson
Organization: Lexicon Propane Group
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 14:12:36 EDT 2014

**Public Input No. 295-NFPA 58-2014 [Section No. 1.3.2]****1.3.2 Nonapplication of Code.**

This code shall not apply to the following:

- (1) Frozen ground containers and underground storage in caverns, including associated piping and appurtenances used for the storage of LP-Gas
- (2) Natural gas processing plants, refineries, and petrochemical plants
- (3) LP-Gas at utility gas plants (including refrigerated storage) with an aggregate water capacity more than 4000 gallons and that serve 10 or more customers (see NFPA 59, *Utility LP-Gas Plant Code*)
- (4) * Chemical plants where specific approval of construction and installation plans is obtained from the authority having jurisdiction
- (5) * LP-Gas used with oxygen
- (6) * The portions of LP-Gas systems covered by NFPA 54 (ANSI Z223.1), *National Fuel Gas Code*, where NFPA 54 (ANSI Z223.1) is adopted, used, or enforced
- (7) Transportation by air (including use in hot air balloons), rail, or water under the jurisdiction of the DOT
- (8) * Marine fire protection
- (9) Refrigeration cycle equipment and LP-Gas used as a refrigerant in a closed cycle
- (10) The manufacturing requirements for recreational vehicle LP-Gas systems that are addressed by NFPA 1192, *Standard on Recreational Vehicles*
- (11) Propane vehicle fuel dispensers located at multiple fuel refueling stations (see NFPA 30A, *Code for Motor Fuel Dispensing Facilities and Repair Garages*)

Statement of Problem and Substantiation for Public Input

Propane installations commonly termed 'propane vapor distribution systems' or 'small propane distribution systems' may fall within the scope of NFPA 58 or within the scope of NFPA 59. Making the determination of which code applies can be a confusing and frustrating task. Facility owners and regulators must refer to both codes since they are unable to make this determination simply by reading NFPA 58. NFPA 58 does not cover Utility Gas Plants, referring these systems to NFPA 59. However, NFPA 59 refers some of those utility systems back to NFPA 58. NFPA 59 currently defines a 'Utility Gas Plant' as "A plant that stores and vaporizes LP-Gas for distribution that supplies either LP Gas or LP-Gas-air mixture to a gas distribution system of 10 or more customers."

Because of the references between documents and the difficulty in following applications and nonapplications of the codes, it is not clear to some industry members that some propane distribution systems now are included in NFPA 59 that were formerly under NFPA 58.

This proposed change should clarify and help emphasize the proper application of NFPA 58 by identifying which distribution systems are included in NFPA 58 and which are not.

Proposed changes to sections 1.3.1, 1.3.2(3) and A.1.3.2(3) should be considered together.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 293-NFPA 58-2014 [New Section after 1.3.1]	
Public Input No. 301-NFPA 58-2014 [New Section after A.1.1]	

Submitter Information Verification

Submitter Full Name: Michael Osmundson
Organization: Lexicon Propane Group
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 14:25:51 EDT 2014

**Public Input No. 50-NFPA 58-2014 [Section No. 1.4.2]****1.4.2**

In those cases where the authority having jurisdiction determines that the existing situation presents a distinct hazard to life and property, the authority having jurisdiction shall be permitted to apply retroactively any portions of this code that are deemed appropriate.

1.4.2 _____. Delete ""that are deemed appropriate" in the last line as "appropriate" is a vague and meaningless term.

Statement of Problem and Substantiation for Public Input

The word "appropriate" is a vague and meaningless term.

Submitter Information Verification

Submitter Full Name: Samuel McTier

Organization: Propane Technologies, LLC

Street Address:

City:

State:

Zip:

Submittal Date: Mon Feb 17 13:36:08 EST 2014



Public Input No. 96-NFPA 58-2014 [Section No. 2.3]

2.3 Other Publications.

2.3.1 API Publications.

American Petroleum Institute, 1220 L Street, NW., Washington, DC 20005-4070.

API-ASME *Code for Unfired Pressure Vessels for Petroleum Liquids and Gases*, Pre-July 1, 1961.

API Standard 607, *Fire Test for Quarter-Turn Valves and Valves Equipped with Non-Metallic Seats*, 2010.

API Standard 620, *Design and Construction of Large, Welded, Low-Pressure Storage Tanks*, 2008 with 2009, 2010, and 2012 Addenda.

2.3.2 ASCE Publications.

American Society of Civil Engineers, 1801 Alexander Bell Drive, Reston, VA 20191-4400.

ASCE 7, *Minimum Design Loads for Buildings and Other Structures*, 2010.

2.3.3 ASME Publications.

American Society of Mechanical Engineers **ASME International**, Two Park Avenue, New York, NY 10016-5990.

"Rules for the Construction of Unfired Pressure Vessels," Section VIII, ASME *Boiler and Pressure Vessel Code*, 2040 2013.

ASME B31.3, *Process Piping*, 2040 2012.

ASME B36.10M, *Welded and Seamless Wrought Steel Pipe*, 2004.

2.3.4 ASTM Publications.

ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM A 47, *Standard Specification for Ferritic Malleable Iron Castings*, 2009.

ASTM A 48, *Standard Specification for Gray Iron Castings*, 2008.

ASTM A 53/**A53M**, *Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless*, 2012.

ASTM A 106/**A106M**, *Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service*, 2014 2013.

ASTM A 395/**A395M**, *Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures*, 2009 2014.

ASTM A 513, *Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing*, 2042 2014.

ASTM A 536, *Standard Specification for Ductile Iron Castings*, 2009.

ASTM B 42, *Standard Specification for Seamless Copper Pipe, Standard Sizes*, 2010.

ASTM B 43, *Standard Specification for Seamless Red Brass Pipe, Standard Sizes*, 2009.

ASTM B 86, *Standard Specification for Zinc and Zinc-Aluminum (ZA) Alloy Foundry and Die Castings*, 2013.

ASTM B 88, *Standard Specification for Seamless Copper Water Tube*, 2009.

ASTM B 135, *Standard Specification for Seamless Brass Tube*, 2010.

ASTM B 280, *Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service*, 2008 2013.

ASTM D 2513, *Standard Specification for Thermoplastic Gas Pressure Pipe, Tubing and Fittings*, 2009. ASTM D 2513, *Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings*, 2042 2014.

ASTM D 2683, *Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing*, 2010.

ASTM D 3261, *Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing*, 2012.

ASTM E 119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, 2042 2012A.

ASTM F 1055, *Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene and Crosslinked Polyethylene (PEX) Pipe and Tubing*, 2013.

ASTM F 1733, *Standard Specification for Butt Heat Fusion Polyamide (PA) Plastic Fitting for Polyamide (PA) Plastic Pipe and Tubing*, 2007 2013.

2.3.5 CGA Publications.

Compressed Gas Association, 14501 George Carter Way, Suite 103, Chantilly, VA 20151-2923.

CGA C-3, *Guidelines for Visual Inspection and Requalification of Low Pressure Aluminum Compressed Gas Cylinders*, 2005, reaffirmed 2011.

CGA C-6, *Standard for Visual Inspection of Steel Compressed Gas Cylinders*, 2007 2013.

ANSI/CGA C-7, *Guide to the Preparation of Precautionary Labeling and Marking of Compressed Gas Containers*, 2011.

CGA S-1.1, *Pressure Relief Device Standards, Part 1—Cylinders for Compressed Gases*, 2044 2014.

CGA S-1.3, *Pressure Relief Device Standards, Part 3—Stationary Storage Containers for Compressed Gases*, 2008.

CGA V-1, *Standard Compressed Gas Cylinder Valve Outlet and Inlet Connections*, 2008 2013.

2.3.6 CSA America Publications.

CSA America, Inc., 8501 East Pleasant Valley Road, Cleveland, OH 44131-5575.

ANSI/CSA 6.26 (LC1), *Interior Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing*, 2005 reaffirmed 2011.

ANSI Z21.18/CSA 6.3, *Gas Appliance Regulators* **Part 1: Construction**, 2007 reaffirmed 2012.

ANSI Z21.80/CSA 6.22, *Standard for Line Pressure Regulators*, 2003 (Reaffirmed 2008 with 2012 addenda).

2.3.7 NBBPV-I-**NBBI** Publications.

National Board of Boiler and Pressure Vessel Inspectors, 1055 Crupper Avenue, Columbus, OH 43229.

ANSI/ **NBBI** **NB23**, *National Board Inspection Code*, 2044 2013.

2.3.8 UL Publications.

Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

ANSI/ UL 21, *Standard for LP-Gas Hose*, 2007, Revised 2010.

ANSI/ UL 125, *Standard for Flow Control Valves for Anhydrous Ammonia and LP-Gas (Other than Safety Relief)*, 2009, Revised 2011, **2014**.

ANSI/ UL 132, *Standard for Safety Relief Valves for Anhydrous Ammonia and LP-Gas*, 2007, Revised 2010.

ANSI/ UL 144, *Standard for LP-Gas Regulators*, 2012 **revised 2014**.

ANSI/ UL 147A, *Standard for Nonrefillable (Disposable) Type Fuel Gas Cylinder Assemblies*, 2005, Revised 2009, **2013**.

ANSI/ UL 147B, *Standard for Nonrefillable (Disposable) Type Metal Container Assemblies for Butane*, 2005, Revised 2008, **2013**.

ANSI/ UL 263, *Standard for Fire Tests of Building Construction and Materials*, 2011, **2014**.

ANSI/ UL 514B, *Standard for Conduit, Tubing, and Cable Fittings*, 2004, Revised 2009, **2012**.

ANSI/ UL 567, *Standard for Emergency Breakaway Fittings, Swivel Connectors, and Pipe-Connection Fittings for Petroleum Products and LP-Gas*, 2003, Revised 2011, **2012**.

ANSI/ UL 569, *Standard for Pigtails and Flexible Hose Connectors for LP-Gas*, 1995, Revised 2009, **2013**.

ANSI/ UL 651, *Standard for Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings*, 2011, Revised 2012, **2014**.

ANSI/ UL 1660, *Standard for Liquid-Tight Flexible Nonmetallic Conduit*, 2004, Revised 2008, **2013**.

ANSI/ UL 1769, *Standard for Cylinder Valves*, 2006, Revised 2011.

ANSI/ UL 2227, *Standard for Overfilling Prevention Devices*, 2007, Revised 2009.

2.3.9 U.S. Government Publications.

U.S. Government Printing Office, Washington, DC 20402.

Title 49, Code of Federal Regulations, Parts 173.301(h)(3), 173.315(n), and 192.283(b).

Title 49, Code of Federal Regulations, Part 192.281(e), "Transportation." (Also available from the Association of American Railroads, American Railroads Bldg., 1920 L Street, N.W., Washington, DC 20036 and American Trucking Assns., Inc., 2201 Mill Road, Alexandria, VA 22314.)

Federal Motor Carrier Safety Regulations.

Interstate Commerce Commission (ICC) *Rules for Construction of Unfired Pressure Vessels*, U.S. Department of Transportation, Washington, DC.

2.3.10 Other Publications.

Merriam-Webster's Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

Statement of Problem and Substantiation for Public Input

Updated editions years.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 97-NFPA 58-2014 [Section No. M.1.2]	

Submitter Information Verification

Submitter Full Name: Aaron Adamczyk

Organization: [Not Specified]

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Submission Date: Sun Jun 08 01:02:57 EDT 2014

**Public Input No. 148-NFPA 58-2014 [Section No. 2.3.4]****2.3.4** ASTM Publications.

ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM A 47, *Standard Specification for Ferritic Malleable Iron Castings*, 2009.

ASTM A 48, *Standard Specification for Gray Iron Castings*, 2008.

ASTM A 53, *Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless*, 2012.

ASTM A 106, *Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service*, 2011.

ASTM A 395, *Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures*, 2009.

ASTM A 513, *Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing*, 2012.

ASTM A 536, *Standard Specification for Ductile Iron Castings*, 2009.

ASTM B 42, *Standard Specification for Seamless Copper Pipe, Standard Sizes*, 2010.

ASTM B 43, *Standard Specification for Seamless Red Brass Pipe, Standard Sizes*, 2009.

ASTM B 86, *Standard Specification for Zinc and Zinc-Aluminum (ZA) Alloy Foundry and Die Castings*, 2013.

ASTM B 88, *Standard Specification for Seamless Copper Water Tube*, 2009.

ASTM B 135, *Standard Specification for Seamless Brass Tube*, 2010.

ASTM B 280, *Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service*, 2008.

ASTM D 2513, *Standard Specification for Thermoplastic Gas Pressure Pipe, Tubing and Fittings*, 2009.

ASTM D 2513, *Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings*, 2012.

ASTM D 2683, *Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing*, 2010.

ASTM D 3261, *Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing*, 2012.

ASTM E 119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, 2012a.

ASTM F 1055, *Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene and Crosslinked Polyethylene (PEX) Pipe and Tubing*, 2013.

ASTM F 1733, *Standard Specification for Butt Heat Fusion Polyamide (PA) Plastic Fitting for Polyamide (PA) Plastic Pipe and Tubing*, 2007.

Statement of Problem and Substantiation for Public Input

standard date update

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 150-NFPA 58-2014 [Section No. 5.2.7.1(B)]	
Public Input No. 151-NFPA 58-2014 [Section No. 6.4.4.10]	
Public Input No. 152-NFPA 58-2014 [Section No. 6.6.4.3]	
Public Input No. 153-NFPA 58-2014 [Section No. 10.3.1.3]	
Public Input No. 154-NFPA 58-2014 [Section No. 10.3.2.6]	

Submitter Information Verification

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Submittal Date: Fri Jun 27 18:21:34 EDT 2014

**Public Input No. 268-NFPA 58-2014 [Section No. 2.3.4]**2.3.4 ASTM Publications.

ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM A 47/A47M , *Standard Specification for Ferritic Malleable Iron Castings*, ~~2009~~ 99(2012) .

ASTM A 48/A48M , *Standard Specification for Gray Iron Castings*, ~~2008~~ 03(2012) .

ASTM A 53/A53M , *Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless*, 2012.

ASTM A 106/A106M , *Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service*, 2011 2014 .

ASTM A 395/A395M , *Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures*, ~~2009~~ 99(2014) .

ASTM A 513/A513M , *Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing*, 2012 2014 .

ASTM A 536, *Standard Specification for Ductile Iron Castings*, 84(2009) .

ASTM B 42, *Standard Specification for Seamless Copper Pipe, Standard Sizes*, 2010.

ASTM B 43, *Standard Specification for Seamless Red Brass Pipe, Standard Sizes*, ~~2009~~ 2014 .

ASTM B 86, *Standard Specification for Zinc and Zinc-Aluminum (ZA) Alloy Foundry and Die Castings*, 2013.

ASTM B 88, *Standard Specification for Seamless Copper Water Tube*, 2009.

ASTM B 135, *Standard Specification for Seamless Brass Tube*, 2010.

ASTM B 280, *Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service*, ~~2008~~ 2013 .

ASTM D 2513, *Standard Specification for Thermoplastic Gas Pressure Pipe, Tubing and Fittings*, 2009. (Not sure what standard this is. D2513 is also listed below)

ASTM D 2513, *Standard Specification for Polyethylene (PE) Gas Pressure Pipe, Tubing, and Fittings*, ~~2012~~ 2014e1 .

ASTM D 2683, *Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing*, ~~2010~~ 2010e3 .

ASTM D 3261, *Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing*, ~~2012~~ 2012e1 .

ASTM E 119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, ~~2012~~ 2012a .

ASTM F 1055, *Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene and Crosslinked Polyethylene (PEX) Pipe and Tubing*, 2013.

ASTM F 1733, *Standard Specification for Butt Heat Fusion Polyamide (PA) Plastic Fitting for Polyamide (PA) Plastic Pipe and Tubing*, 2007 2013 .

Statement of Problem and Substantiation for Public Input

Update the year date for standard(s)

Submitter Information Verification

Submitter Full Name: Steve Mawn

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City:

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Submittal Date: Mon Jul 07 09:18:52 EDT 2014

**Public Input No. 90-NFPA 58-2014 [Section No. 2.3.6]**

2.3.6 CSA America Publications.

CSA America, Inc., 8501 East Pleasant Valley Road, Cleveland, OH 44131-5575.

ANSI/CSA 6.26 (LC1), *Interior Fuel Gas Piping Systems Using Corrugated Stainless Steel Tubing*, 2005.

ANSI Z21.18/CSA 6.3, *Gas Appliance Regulators*, 2007.

ANSI Z21.80/CSA 6.22, *Standard for Line Pressure Regulators*, 2003 (Reaffirmed 2008).

ANSI LC4/CSA 6.32, *Press-connect Metallic Fittings for Use in Fuel Gas Distribution Systems*, 2013.

Statement of Problem and Substantiation for Public Input

This is the standard that defines the materials and the performance requirements for press-connect fittings to be used in fuel gas distribution systems. This standard is referenced in NFPA 54.

Related Public Inputs for This Document**Related Input****Relationship**

Public Input No. 91-NFPA 58-2014 [New Section after 3.3.25]

Public Input No. 92-NFPA 58-2014 [Section No. 6.9.3.5 [Excluding any Sub-Sections]]

Public Input No. 93-NFPA 58-2014 [Section No. 6.9.3.5(A)]

Submitter Information Verification

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Submittal Date: Mon May 19 14:47:45 EDT 2014

**Public Input No. 189-NFPA 58-2014 [Section No. 2.3.8]****2.3.8** UL Publications.

Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

ANSI/UL 21, *Standard for LP-Gas Hose*, 2007, Revised 2010.

ANSI/UL 125, *Standard for Flow Control Valves for Anhydrous Ammonia and LP-Gas (Other than Safety Relief)*, 2009, Revised 2011.

ANSI/UL 132, *Standard for Safety Relief Valves for Anhydrous Ammonia and LP-Gas*, 2007, Revised 2010.

ANSI/UL 144, *Standard for LP-Gas Regulators*, 2012.

ANSI/UL 147A, *Standard for Nonrefillable (Disposable) Type Fuel Gas Cylinder Assemblies*, 2005, Revised 2009.

ANSI/UL 147B, *Standard for Nonrefillable (Disposable) Type Metal Container Assemblies for Butane*, 2005, Revised 2008.

ANSI/UL 263, *Standard for Fire Tests of Building Construction and Materials*, 2011.

ANSI/UL 514B, *Standard for Conduit, Tubing, and Cable Fittings*, 2004, Revised 2009.

ANSI/UL 567, *Standard for Emergency Breakaway Fittings, Swivel Connectors, and Pipe-Connection Fittings for Petroleum Products and LP-Gas*, 2003, Revised 2011.

ANSI/UL 569, *Standard for Pigtails and Flexible Hose Connectors for LP-Gas*, 1995, Revised 2009.

ANSI/UL 651, *Standard for Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings*, 2011, Revised 2012.

ANSI/UL 1660, *Standard for Liquid-Tight Flexible Nonmetallic Conduit*, 2004, Revised 2008.

ANSI/UL 1769, *Standard for Cylinder Valves*, 2006, Revised 2011.

ANSI/UL 2227, *Standard for Overfilling Prevention Devices*, 2007, Revised 2009.

ANSI/UL 1484, *Standard for Residential Gas Detectors*, 2000, Revised 2010.

ANSI/UL 2034, *Standard for Single and Multiple Station Carbon Monoxide Detectors*, 2008, Revised 2009.

Statement of Problem and Substantiation for Public Input

Adding UL Standards for Carbon Monoxide Alarms (UL 2034) and Gas Detectors (UL 1484)

Submitter Information Verification

Submitter Full Name: DAVID BUDDINGH

Organization: BUDDINGH ASSOC

Affiliation: MTI Industries, Inc.

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City:

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Submittal Date: Wed Jul 02 13:39:17 EDT 2014

**Public Input No. 75-NFPA 58-2014 [Section No. 2.3.9]****2.3.9 U.S. Government Publications.**

U.S. Government Printing Office, Washington, DC 20402.

Title 49, Code of Federal Regulations, Parts 173.301(h)(3), 173.315(n), and 192.283(b).

Title 49, Code of Federal Regulations, Part 192.281(e), "Transportation." (Also available from the Association of American Railroads, American Railroads Bldg., 1920 L Street, N.W., Washington, DC 20036 and American Trucking Assns., Inc., 2201 Mill Road, Alexandria, VA 22314.)

Title 49, Code of Federal Regulations, Part 390.21

Federal Motor Carrier Safety Regulations.

Interstate Commerce Commission (ICC) *Rules for Construction of Unfired Pressure Vessels*, U.S. Department of Transportation, Washington, DC.

Statement of Problem and Substantiation for Public Input

Reference to 49 CFR 390.21 is added as a reference for an explanation of the "USDOT Number". USDOT proposes to add requirements for affixing labels identifying a commercial motor vehicle as propane-fueled on both sides of the vehicle. The labels would be affixed below or near the vicinity of the USDOT number, if the USDOT number is required. This would provide additional hazard warning to approaching emergency responders. Second, this would help commercial vehicle enforcement officers and inspectors identify the vehicle as propane-fueled.

Submitter Information Verification

Submitter Full Name: Quon Kwan

Organization: US Department of Transportation

Street Address:

City:

State:

Zip:

Submittal Date: Mon Mar 31 07:38:36 EDT 2014

**Public Input No. 48-NFPA 58-2014 [Sections 3.2.4, 3.2.5]****Sections 3.2.4, 3.2.5****3.2.4** Labeled.

Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

3.2.5 * Listed.

Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

3.2.4/3.2.5 . In the seventh line of each subsection delete "appropriate" because it is a vague and unenforceable term – see paragraph **2.2.2.1** . . and **Table 2.2.2.3** in the July 2004 Edition of the Manual of Style for NFPA Technical Comm ittee Documents.

Statement of Problem and Substantiation for Public Input

In the seventh line of each subsection delete "appropriate" because it is a vague and unenforceable term – see paragraph 2.2.2.1 and Table 2.2.2.3 in the July 2004 Edition of the Manual of Style for NFPA Technical Committee Documents.

Submitter Information Verification

Submitter Full Name: Samuel McTier

Organization: Propane Technologies, LLC

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City:

State:

Zip:

Submittal Date: Sun Feb 16 12:27:41 EST 2014

**Public Input No. 220-NFPA 58-2014 [Section No. 3.2.5]**

3.2.5 * _ Listed.

Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose. Where components must be listed, this is specifically indicated in the code; other terminology relating to standards, such as shall "meet", "comply with", etc. are intended to relate to the standard itself and do not imply a listing requirement.

Statement of Problem and Substantiation for Public Input

Resolve ambiguity, especially when referring to UL standards. Intent is to further clarify the difference between "component must be listed to UL standard" and "component must comply with UL standard".

Submitter Information Verification

Submitter Full Name: [Not Specified]

Organization: ROUSH CleanTech

Street Address:

City:

State:

Zip:

Submittal Date: Wed Jul 02 17:29:52 EDT 2014

**Public Input No. 196-NFPA 58-2014 [Section No. 3.3.3]**

3.3.3 – ANSI:
American National Standards Institute.

Statement of Problem and Substantiation for Public Input

The term "ANSI" is used in the NFPA 58 only in the name of referenced standards, i.e. ANSI/UL 1660, Standard for Liquid-Tight Flexible Nonmetallic Conduit. These standards are listed in Chapter 2, where the full name is included.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
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City:
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Zip:
Submission Date: Wed Jul 02 15:42:32 EDT 2014

**Public Input No. 273-NFPA 58-2014 [New Section after 3.3.5]****ASCE 7**

ASCE/SEI 7-10 Minimum Design Loads for Buildings and Other Structures

Statement of Problem and Substantiation for Public Input

This is based on the commonly used notation "ASCE 7" for the referenced standard ASCE/SEI 7-10 Minimum Design Loads for Buildings and Other Structures.

Submitter Information Verification**Submitter Full Name:** Daniel Howell**Organization:** FM Global**Street Address:****City:****State:****Zip:****Submittal Date:** Mon Jul 07 13:09:11 EDT 2014

**Public Input No. 94-NFPA 58-2014 [Section No. 3.3.5]****3.3.5 – API-ASME Container (or Tank).**

A container constructed in accordance with the pressure vessel code jointly developed by the American Petroleum Institute and the American Society of Mechanical Engineers.

Statement of Problem and Substantiation for Public Input

While the term "API-ASME container" is used in the code, and is needed in the code there is no reason to retain the term in Chapter 3 as it is explained in other locations in the code. Construction of pressure vessels under the API-ASME Code was not authorized after July 1, 1961. There are API-ASME code vessels in use today, and this proposal is not prevent their continued use. Annex D, Design of ASME and API-ASME Containers, provides detailed information on the API-ASME Code.

The term "API-ASME container" is used in 5.2.1.1, 5.2.1.2 (B), Table 5.2.4.2, 7.4.3.1 (4), 11.3.1.1, 11.3.1.4 (B), A.5.2.1.1. It is proposed separately to revise paragraph A.5.2.1.2 (B),

Paragraphs 5.2.1.1 and A.5.2.1.1 do not require revision as existing A.5.2.1.1 provides relevant information.

Table 5.2.4.2 does not require revision as it includes a footnote referencing Annex D for the API-ASME Code.

Paragraph 7.4.3.1 (4) does not require revision as it references 5.2.1.1.

Paragraph A.5.2.8.3, in a parenthetical statement, refers the reader to the API-ASME Code. It is proposed separately to change the reference to the ASME Code as the API-ASME code has not been allowed to be used for over 50 years (since July 1, 1961). Annex D, Design of ASME and API-ASME Containers, is not being revised at it has historical value.

Submitter Information Verification

Submitter Full Name: THEODORE LEMOFF

Organization: TLemoff Engineering

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Submittal Date: Thu Jun 05 19:36:10 EDT 2014

**Public Input No. 197-NFPA 58-2014 [Section No. 3.3.6]**

3.3.6 – ASME:
American Society of Mechanical Engineers.

Statement of Problem and Substantiation for Public Input

The term "ASME" is used in the NFPA 58 only in the name of referenced standards, i.e. ASME Boiler and Pressure Vessel Code, and in "ASME container". The referenced standards are listed in Chapter 2, where the full name is included. The term "ASME container" is not defined, but the term container is.

Given (1) the widespread understanding of the ASME name, and (2) the fact that ASME Code is defined including the phrase "American Society of Mechanical Engineers", the definition of "ASME" is not needed.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff

Organization: TLemoff Engineering

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City:

State:

Zip:

Submittal Date: Wed Jul 02 15:44:47 EDT 2014

**Public Input No. 198-NFPA 58-2014 [Section No. 3.3.9]**

3.3.9 – ASTM:
American Society for Testing and Materials.

Statement of Problem and Substantiation for Public Input

The term "ASTM" is used in the NFPA 58 only in the name of referenced standards, i.e. Statement. These standards are listed in Chapter 2, where the full name is included.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 15:48:04 EDT 2014

**Public Input No. 191-NFPA 58-2014 [New Section after 3.3.10]****Carbon Monoxide Alarm**

Carbon Monoxide Alarms shall be listed to UL 2034, *Standard for Single and Multiple Station Carbon*

Monoxide Detectors

Type your content here ...

Statement of Problem and Substantiation for Public Input

Defining Carbon Monoxide Alarms and ANSI UL standard that applies.

Submitter Information Verification

Submitter Full Name: DAVID BUDDINGH

Organization: BUDDINGH ASSOC

Affiliation: MTI Industries, Inc.

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City:

State:

Zip:

Submittal Date: Wed Jul 02 13:57:43 EDT 2014

**Public Input No. 87-NFPA 58-2014 [New Section after 3.3.10]**

3.3.10 Cabinet Heater. A portable unvented type heater with a self-contained propane supply.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58_Johnson_Doc_3.pdf	PI Form

Statement of Problem and Substantiation for Public Input

Cabinet heaters are allowed for emergency use indoors and the new ANSI Z21.11.3 standard for cabinet heaters that describes construction constraints shall be documented in NFPA 58 to establish the basis for a safe appliance. These added definitions correspond to other proposed changes adding Chapter 5 construction and Chapter 6 installation requirements.

Suggested renumbering: Use number 3.3.10 for cabinet heater by combining 3.3.6 and 3.3.7 since they are the same ASME definition to free up the number 3.3.10 for cabinet heater use. Add subparagraph 3.3.17.1 ahead of current universal cylinder subparagraph.

Submitter Information Verification

Submitter Full Name: Jessie Johnson

Organization: Blossman Gas Inc

Street Address:

City:

State:

Zip:

Submittal Date: Fri Apr 25 09:09:13 EDT 2014

**Public Input No. 199-NFPA 58-2014 [Section No. 3.3.12]**

3.3.12 – CGA:
The Compressed Gas Association.

Statement of Problem and Substantiation for Public Input

The term "CGA" is used in the NFPA 58 only in the name of referenced standards, i.e. Statement, i.e. CGA C-6, Standard for Visual Inspection of Steel Compressed Gas Cylinders. These standards are listed in Chapter 2, where the full name is included.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
Street Address:
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State:
Zip:
Submittal Date: Wed Jul 02 15:51:41 EDT 2014

**Public Input No. 88-NFPA 58-2014 [New Section after 3.3.17]**

3.3.17.1 Composite Cylinder. **A cylinder constructed with fully wrapped fiber reinforced material.**

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58_Johnson_Doc_3.pdf	PI Form

Statement of Problem and Substantiation for Public Input

Cabinet heaters are allowed for emergency use indoors and the new ANSI Z21.11.3 standard for cabinet heaters that describes construction constraints shall be documented in NFPA 58 to establish the basis for a safe appliance. These added definitions correspond to other proposed changes adding Chapter 5 construction and Chapter 6 installation requirements.

Suggested renumbering: Use number 3.3.10 for cabinet heater by combining 3.3.6 and 3.3.7 since they are the same ASME definition to free up the number 3.3.10 for cabinet heater use. Add subparagraph 3.3.17.1 ahead of current universal cylinder subparagraph.

Submitter Information Verification

Submitter Full Name: Jessie Johnson

Organization: Blossman Gas Inc

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City:

State:

Zip:

Submittal Date: Fri Apr 25 09:15:20 EDT 2014

**Public Input No. 145-NFPA 58-2014 [Section No. 3.3.17 [Excluding any Sub-Sections]]**

A container designed, constructed, tested, and marked in accordance with U.S. Department of Transportation specifications, Title 49, Code of Federal Regulations, or in accordance with a valid DOT special permit See section 5.2.2 .

Statement of Problem and Substantiation for Public Input

Definitions cannot contain requirements based on other codes, standards or regulations and the requirements must be in the body of the standard, per the NFPA Manual of Style.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 146-NFPA 58-2014 [Section No. 5.2.2]	

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler
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Zip:
Submittal Date: Fri Jun 27 18:05:23 EDT 2014

**Public Input No. 234-NFPA 58-2014 [Section No. 3.3.17.1]****3.3.17.1 Universal Cylinder.**

A cylinder that can be connected for service in either the vertical or the horizontal position, ~~so~~ such that the fixed maximum liquid level gauge, pressure relief device, filling and withdrawal appurtenances function properly in either position.

Statement of Problem and Substantiation for Public Input

This is a companion change to others that will permit cylinders marked DT to be filled in the vertical position or the horizontal position if the coupling where the gauge is installed is oriented to the maximum filling level while the cylinder is in the horizontal position. All universal engine fuel cylinder designs orient the dip tube location by the position of the fixed maximum liquid level gauge flange to the mounting slot in the cylinder collar

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 235-NFPA 58-2014 [Section No. 5.7.5.6]	
Public Input No. 236-NFPA 58-2014 [New Section after 7.2.2.11]	
Public Input No. 238-NFPA 58-2014 [Section No. 11.13.2.2]	

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki
Organization: National Propane Gas Association
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City:
State:
Zip:
Submittal Date: Thu Jul 03 14:27:18 EDT 2014

**Public Input No. 272-NFPA 58-2014 [Section No. 3.3.20]****3.3.20**

– Dispensing Station.

Fixed equipment in which LP-Gas is stored and dispensed into portable containers.

* **Dispenser.** An assembly used to mechanically transfer LP-Gas into cylinders, portable and mobile containers, and vehicle fuel containers.

A.3.3.20 Dispenser. A dispenser may include, but is not limited to , the following devices (mechanical or electronic): a pressure relief device, vapor separator, strainer, metering assembly, differential valve, meter register, control valves, hose, hose nozzle, controls, interlocking mechanism, locking mechanism, weigh scale and associated wiring, pipe fittings and housing.

3.3.20* Dispensing System. . . . An assembly of equipment for storing and mechanically transferring LP-gas from storage to cylinders, portable and mobile containers, and vehicle fuel containers.

A.3.3.21 The definition does not include “gravity filling,” where the difference in pressure between containers is used to transfer the liquid.

Statement of Problem and Substantiation for Public Input

The definition of “dispenser” is the broadest application of that term and includes dispensers used for filling cylinders, vehicle fuel dispensers and propane autogas dispensers within its scope. Although “vehicle fuel dispenser” is not defined, the common understanding of that term should be sufficient to inform the code user that it addresses all dispensers that are used to fill vehicle fuel containers, whether those vehicles are for over-the-road use or for off-road use.

Revising the definitions to use “dispensing system” rather than “dispensing station” is intended to remove references to “fixed equipment” and the notion that dispensing systems cannot be skid mounted systems that are moveable.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 274-NFPA 58-2014 [Section No. 3.3.78]	
Public Input No. 276-NFPA 58-2014 [Section No. 5.2.1.9]	
Public Input No. 280-NFPA 58-2014 [Section No. 6.5.2.1]	
Public Input No. 282-NFPA 58-2014 [Section No. 6.7.2.13]	
Public Input No. 288-NFPA 58-2014 [Section No. 6.25]	
Public Input No. 296-NFPA 58-2014 [Section No. 6.27.1]	
Public Input No. 297-NFPA 58-2014 [Section No. 7.2.3.4]	
Public Input No. 298-NFPA 58-2014 [Section No. 8.1.1]	
Public Input No. 299-NFPA 58-2014 [Section No. A.8.4.1]	
Public Input No. 303-NFPA 58-2014 [Section No. 8.4.1.2]	

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki

Organization: National Propane Gas Association

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jul 07 12:57:33 EDT 2014

**Public Input No. 91-NFPA 58-2014 [New Section after 3.3.25]****TITLE OF NEW CONTENT**

Type your content here ...Fitting, Press-Connect. A type of fitting that is directly attached to tube/pipe or fittings by mechanical deformation of the tube/pipe or fitting, or combination thereof, with a fitting manufacturer approved pressing tool creating a seal and a restrained connection. These fittings typically include an elastomeric seal and may incorporate a corrosion resistant mechanical grip ring. [ANSI/CSA 6.32 (LC4)]

Statement of Problem and Substantiation for Public Input

This is the definition used in the standard for press-connect fittings. NFPA 58 currently includes no definition.

Related Public Inputs for This Document**Related Input**

[Public Input No. 90-NFPA 58-2014 \[Section No. 2.3.6\]](#)

Relationship

This is the definition for the proposed referenced standard addition.

Submitter Information Verification

Submitter Full Name: CURTIS DADY

Organization: VIEGA

Street Address:

City:

State:

Zip:

Submittal Date: Mon May 19 15:08:49 EDT 2014

**Public Input No. 190-NFPA 58-2014 [New Section after 3.3.28]****Gas Detector**

LP Gas detectors shall be listed to UL 1484 - Residential Gas Detectors, except for gas detection systems installed in propane powered vehicles.

Type your content here ...

Statement of Problem and Substantiation for Public Input

Defining Gas Detector. Note Gas detection system are not currently covered by UL 1484.

Submitter Information Verification

Submitter Full Name: DAVID BUDDINGH

Organization: BUDDINGH ASSOC

Affiliation: MTI Industries, Inc.

Street Address:

City:

State:

Zip:

Submittal Date: Wed Jul 02 13:53:50 EDT 2014

**Public Input No. 163-NFPA 58-2014 [Section No. 3.3.30]**

3

3.30 - GPA.

~~Gas Processors Association.~~**Statement of Problem and Substantiation for Public Input**

The term "GPA" is not used in the mandatory chapters of NFPA 58. The term is used in Annexes, but the NFPA Manual of Style requires that a term be used in the numbered chapters of the document for a definition to be included in Chapter 3.

Submitter Information Verification**Submitter Full Name:** Theodore Lemoff**Organization:** TLemoff Engineering**Street Address:****City:****State:****Zip:****Submittal Date:** Mon Jun 30 12:46:46 EDT 2014

**Public Input No. 200-NFPA 58-2014 [Section No. 3.3.31]**

3.3.31 – ICC.

~~U.S. Interstate Commerce Commission.~~

Statement of Problem and Substantiation for Public Input

The term "ICC" is used in 5.2.1 (C), 11.3.1.3, and in Chapter 2. In each case the following is used, "Interstate Commerce Commission (ICC)". This shows that the term "ICC" is not needed, and separate proposals are being made to delete "ICC" where the phrase "Interstate Commerce Commission" is used.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff

Organization: TLemoff Engineerig

Street Address:

City:

State:

Zip:

Submittal Date: Wed Jul 02 15:54:00 EDT 2014

**Public Input No. 129-NFPA 58-2014 [New Section after 3.3.34]****TITLE OF NEW CONTENT**

Type your content here ...New definition - Isolated location. A location that is godforsaken or so remote that nothing that happens there would ever affect anyone.

Statement of Problem and Substantiation for Public Input

The term "isolated location" is used in the code but is not defined. This is an attempt to make the term more quantifiable and enforceable. :-)

Submitter Information Verification

Submitter Full Name: Richard Fredenburg

Organization: State of North Carolina

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City:

State:

Zip:

Submittal Date: Thu Jun 26 17:33:14 EDT 2014

**Public Input No. 202-NFPA 58-2014 [Section No. 3.3.39]**

3.3.39 * _ Low Emission Transfer.

~~Establishes a maximum fugitive emissions standard for certain product transfer operations~~

A method of transfer of LP-Gas liquid that limits the amount of propane released during the transfer process .

Statement of Problem and Substantiation for Public Input

The definition as currently written is not a definition. The definition can not establish a maximum figure.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff

Organization: TLemoff Engineering

Street Address:

City:

State:

Zip:

Submittal Date: Wed Jul 02 15:57:45 EDT 2014

**Public Input No. 77-NFPA 58-2014 [New Section after 3.3.40]****LPG**

LPG is the abbreviation for LP-gas or liquefied petroleum gas.

Statement of Problem and Substantiation for Public Input

The definition of LPG is added in order to accommodate a proposal to allow a diamond label, "LPG" as an alternative to the existing required diamond label, "Propane."

Submitter Information Verification

Submitter Full Name: Quon Kwan

Organization: US Department of Transportation

Street Address:

City:

State:

Zip:

Submittal Date: Mon Mar 31 07:57:14 EDT 2014

**Public Input No. 170-NFPA 58-2014 [Section No. 3.3.40]****3.3.40 – LP-Gas System.**

~~An assembly consisting of one or more containers with a means for conveying LP-Gas from a container to dispensing or consuming devices that incorporates components that control the quantity, flow, pressure, and physical state (liquid or vapor) of the LP-Gas.~~

Statement of Problem and Substantiation for Public Input

Statement: The definition was added in the 1972 edition of NFPA 58, which was a total revision which brought the code into its current format and introduced the term "LP-Gas System".

1. The term "LP-Gas System" is used many times in NFPA 58; however there are no requirements for LP-Gas systems in the NFPA 58.

2. Merriam Webster's on line dictionary defines "System" as "a group of related parts that move or work together". "Liquefied Petroleum Gas (LP-Gas) is defined in 3.3.38.

Therefore the term defined is a combination of another defined term and a word that is commonly understood with a clear dictionary definition.

3. The NFPA Manual of Style states that where terms are not defined in Section 3.3,

"they shall be defined using their ordinarily accepted meanings within the context in which they are used. Webster's Collegiate Dictionary, 11th edition, shall be the source for the ordinarily accepted meaning."

As the term "LP-Gas is defined in NFPA 58, and the word "system" is commonly understood and the definition in Merriam Webster's Collegiate Dictionary is the commonly understood definition, the definition of "LP-Gas System is not needed and should be deleted in accordance with the NFPA Manual of Style.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff

Organization: TLemoff Engineering

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jun 30 16:43:26 EDT 2014

**Public Input No. 204-NFPA 58-2014 [Section No. 3.3.49]****3.3.49 Overfilling Prevention Device- (OPD) .**

A safety device that is designed to provide an automatic means to prevent the filling of a container in excess of the maximum permitted filling limit.

Statement of Problem and Substantiation for Public Input

The term "OPD" is used only in 5.7.3.3, which states in part "an overfilling prevention device (OPD) ". It is proposed separately to revise 5.7.3.3 by deleting "OPD". With that change, the definition is not needed.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff

Organization: TLemoff Engineering

Street Address:

City:

State:

Zip:

Submittal Date: Wed Jul 02 16:00:52 EDT 2014

**Public Input No. 231-NFPA 58-2014 [Section No. 3.3.57]****3.3.57 Portable Tank- ~~(or Skid Tank)~~ .**

A container of more than 1000 lb (454 kg) water capacity that is equipped with protected container appurtenances, is used to transport LP-Gas, and is designed and fabricated with permanently mounted skids or runners or is fabricated and installed within a full framework.

Statement of Problem and Substantiation for Public Input

I am submitting this proposal on behalf of the Skid Tank Task Force. Section 3.3.57 defines a container that is designed so it can be used to transport LP gas. It does not accurately describe skid tanks, which are typically containers that are designed and fabricated with permanently mounted skids or runners and are not designed to transport LP gas.

Submitter Information Verification

Submitter Full Name: John King

Organization: Federated Mutual Insurance Company

Street Address:

City:

State:

Zip:

Submittal Date: Thu Jul 03 13:53:49 EDT 2014

**Public Input No. 147-NFPA 58-2014 [Section No. 3.3.65.6]****3.3.65.6 Line Pressure Regulator.**

A pressure regulator with no internal overpressure protection devise for LP-gas vapor service designed for installation inside a building to reduce a nominal inlet pressure.

5.8.2 Pressure regulators

5.8.2.1 A line pressure regulator shall be constructed in accordance with ANSI Z21.80/CSA 6.22, *Standard for Line Pressure Regulators*, with- shall exhibit no integral overpressure protection device for LP-Gas vapor service and shall be designed for installation inside a building to reduce a nominal 2 psig (14 kPag) inlet pressure to 14 in. w.c. (4.0 kPa) or less.

Statement of Problem and Substantiation for Public Input

Definitions cannot contain requirements based on other codes, standards or regulations and the requirements must be in the body of the standard, per the NFPA Manual of Style.

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler

Organization: GBH International

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City:

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Submittal Date: Fri Jun 27 18:13:16 EDT 2014

**Public Input No. 195-NFPA 58-2014 [Section No. 3.3.65.6]****3.3.65.6 Line Pressure Regulator.**

A pressure regulator in ~~accordance~~ with ANSI Z21.80/CSA 6.22, ~~Standard for Line Pressure Regulators~~, with no integral overpressure protection device for LP-Gas vapor service designed for installation inside a building to reduce a nominal 2 psig (14 kPag) inlet pressure to 14 in. w.c. (4.0 kPa) or less.

Statement of Problem and Substantiation for Public Input

1. It is not permitted to cite standards in a definition per the NFPA Manual of Style, which states:
2.3.2.4* References to other documents or sections of a document, notes, lists, footnotes, cautions, warnings, or figures shall not be permitted in definitions.
2. The citation in the definition is redundant as reference to ANSI Z21.80/CSA 6.22 is included in 5.8.1.1

Submitter Information Verification

Submitter Full Name: Theodore Lemoff

Organization: TLemoff Engineering

Street Address:

City:

State:

Zip:

Submittal Date: Wed Jul 02 15:39:12 EDT 2014

**Public Input No. 232-NFPA 58-2014 [Section No. 3.3.68]**

[3.3.68](#) Skid Tank.

See [3.3.57](#), ~~Portable Tank~~. A container that is designed and fabricated with permanently mounted skids or runners and is not designed to transport LP gas.

Statement of Problem and Substantiation for Public Input

I am submitting this proposal on behalf of the Skid Tank Task Force. This change provides a definition of skid tank that is consistent with the standards to which skid tanks are manufactured, and that is consistent with their common usage (i.e., as a container that is not used to transport LP gas).

Submitter Information Verification

Submitter Full Name: John King

Organization: Federated Mutual Insurance Company

Street Address:

City:

State:

Zip:

Submittal Date: Thu Jul 03 14:06:45 EDT 2014

**Public Input No. 76-NFPA 58-2014 [New Section after 3.3.74]****TITLE OF NEW CONTENT**

USDOT Number

The USDOT Number is the number that is required to be marked on both sides (right and left) of a commercial motor vehicle in accordance with Title 49, Code of Federal Regulations Part 390.21.

Statement of Problem and Substantiation for Public Input

A definition of the "USDOT Number" is added. USDOT proposes to add requirements for affixing labels identifying a commercial motor vehicle as propane-fueled on both sides of the vehicle. The labels would be affixed below or near the vicinity of the USDOT number, if the USDOT number is required. This would provide additional hazard warning to approaching emergency responders. Second, this would help commercial vehicle enforcement officers and inspectors identify the vehicle as propane-fueled.

Submitter Information Verification**Submitter Full Name:** Quon Kwan**Organization:** US Department of Transportation**Street Address:****City:****State:****Zip:****Submittal Date:** Mon Mar 31 07:51:13 EDT 2014

**Public Input No. 201-NFPA 58-2014 [Section No. 3.3.74]**

3.3.74 – UL.
Underwriters Laboratories Inc.

Statement of Problem and Substantiation for Public Input

The term "UL" is used in the NFPA 58 only in the name of referenced standards, i.e. ANSI/UL 144, Standard for LP-Gas Regulators. These standards are listed in Chapter 2, where the full name is included.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff
Organization: TLemoff Engineering
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City:
State:
Zip:
Submittal Date: Wed Jul 02 15:56:10 EDT 2014

**Public Input No. 95-NFPA 58-2014 [Section No. 3.3.75.4]****3.3.75.4 Filler Valve.**

A valve that is designed to allow liquid flow into only into a container.

Statement of Problem and Substantiation for Public Input

Statement: This proposal intends to clarify the definition. As written, the definition of filler valve could be misinterpreted to make it applicable to valves on small cylinders that are used to both fill and empty cylinders, such as on 20 pound cylinders used for gas grills. Such misinterpretation would lead to additional requirements in paragraph 5.7.4.1 (D) (7) to be applied, which is not correct. Filler valves are used on larger cylinders and on ASME containers only to add liquid propane to the cylinder or ASME container, and the additional requirements of 5.7.4.1 (D) (7) are intended for filler valves used only to add liquid propane to containers. While this clarification is not needed for experienced code users, it will keep those less knowledgeable from making an error.

Submitter Information Verification

Submitter Full Name: THEODORE LEMOFF

Organization: TLemoff Engineering

Street Address:

City:

State:

Zip:

Submittal Date: Thu Jun 05 19:46:05 EDT 2014

**Public Input No. 274-NFPA 58-2014 [Section No. 3.3.78]**3.3.78 Vehicle Fuel Dispenser.

~~A device or system~~ dispenser designed to transfer ~~and measure~~ LP-Gas into engine fuel and mobile containers on vehicles.

3.3.78.1* Propane Autogas Dispenser. A type of vehicle fuel dispenser that is equipped specifically for dispensing liquid propane into containers permanently mounted on over-the-road vehicles.

A.3.3.78.1 Propane Autogas Dispenser. Propane Autogas systems are specifically designed to fuel over-the-road vehicles utilizing low emission transfer equipment. Autogas dispensers are not designed to fill portable cylinders, since fixed maximum liquid level gauges may not be used in low emission transfer settings.

Statement of Problem and Substantiation for Public Input

The proposal introduces the term "propane autogas dispenser," which is a subset of vehicle fuel dispenser. The term "autogas" was introduced a few years ago in the U.S. propane industry to designate the use of propane as an approved alternative fuel to gasoline and diesel for over-the-road vehicles only.

Note that because propane autogas dispensers are a subset of "vehicle fuel dispensers," all the requirements for vehicle fuel dispensers apply equally to propane autogas dispensers. Vehicle fuel dispensers are any dispensers that provide fuel to any on-road or off-road vehicle or to mobile containers on those vehicles, such as containers serving recreational vehicles.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 272-NFPA 58-2014 [Section No. 3.3.20]	
Public Input No. 288-NFPA 58-2014 [Section No. 6.25]	
Public Input No. 294-NFPA 58-2014 [New Section after 6.25.4]	

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki
Organization: National Propane Gas Association
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 13:14:45 EDT 2014



Public Input No. 132-NFPA 58-2014 [New Section after 3.3.81]

Definitions to be added with the addition of a new Ch 12 on Autogas

Distribution block : Connection point between the fuel line and fuel rail that may also include connection for other devices such as pressure or temperature sensing.

Fuel rail : A pipe or duct that connects the fuel injection devices.

Fuel rails hose (injector hose) : A device used to convey fuel to and from the injector.

Gauge (when referring to the liquid level in containers) :

Electronic liquid-level sensor : An electronic device inserted in the tank to provide an electric signal indicative of the level of the fluid in the tank, which may use either the OEM, or an auxiliary indicator for displaying the liquid level.

Capacitance : A variable-liquid-level gauge that uses a measure of capacitance to indicate the liquid level of the tank

Magneto -Restrictive : A variable-liquid-level gauge, which utilizes a linear resistor array assembly in the tank, with a float mounted magnet, which slides on the array to vary the resistance, thus indicating the liquid level of the tank.

Injector : See Propane injector device.

Manifold tank : A tank that consists of two or more tanks, as fabricated by the original manufacturer, interconnected by rigid, integral, non-removable liquid and vapor passages and braced to form a single rigid unit, and certified under ASME Section VIII as a single pressure vessel.

Multi-Valve / Multi-Function valve or Combination valve : A manifold or valve body, which contains multiple valves in a single opening, or multiple functions in the assembly of the integral body, manifold or flange, as opposed to individual valves installed in separate openings

Power supply bushing : A device used to supply power to such items as fuel pumps, actuators, and electronic level sensors.

Pressure-balanced tee : A device for connecting two tanks that, in the event that the two tank pressures become unequal, draws liquid propane from the tank with the higher pressure until both tank pressures equalize.

Pressure Gland Fitting : A sealed fitting, installed in a tank opening, or multi-function valve body, which seals electrical conductors passing from the inside to the outside of the pressure containment area, for the purposes of supplying electrical signals or operating voltage to electrical/electronic components located inside the pressure containment area of a pressure vessel.

Propane injector device : A device to inject propane, in either liquid or vapor state, into the manifold or cylinder of an engine.

Unibody / Unit-Body : A vehicle utilizing a unibody chassis, a body and frame integral construction, as opposed to a separate chassis with a body mounted.

Statement of Problem and Substantiation for Public Input

The addition of the definitions is part of the proposed addition of a new Chapter 12 on Autogas applications - please refer to the substantiation of that submission.

Submitter Information Verification

Submitter Full Name: Steven Younis

Organization: Steven E. Younis PE, Inc.

Affiliation: Propane Education & Research Council

Street Address:

City:

State:

Zip:

Submittal Date: Thu Jun 26 22:36:33 EDT 2014

**Public Input No. 275-NFPA 58-2014 [New Section after 3.3.81]****3.3.82 Ground Snow Load**

The ground snow load (Lb/ft^2), as specified in Chapter 7 *Snow Loads* of ASCE 7, which represents the 2% annual probability of exceedance or 50-year mean recurrence interval; also known as the "50-year ground snow load". For regions where the ground snow load is not provided in ASCE 7 (CS or Case Studies regions), the ground snow load shall be determined based on the provisions of Section 7.2 of ASCE 7.

Statement of Problem and Substantiation for Public Input

This is based on the definition of ground snow load in Section 7.2 of ASCE 7-10.

Submitter Information Verification

Submitter Full Name: Daniel Howell

Organization: FM Global

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jul 07 13:18:54 EDT 2014

**Public Input No. 182-NFPA 58-2014 [Section No. 4.2]****4.2** LP-Gas Odorization.**4.2.1***

All LP-Gases shall be odorized prior to ~~delivery to a bulk plant shipment from a pipeline or storage terminal~~ by the addition of a warning agent of such character that the gases are detectable, by a distinct odor, to a concentration in air of not over one-fifth the lower limit of flammability.

4.2.2

~~Odorization- The addition of the odorant shall not be required if it is harmful in the use or further processing of the LP-Gas or if such odorization will serve no useful purpose as a warning agent in such further use or processing~~ be documented at the point of odorization.

4.2.3*

~~If odorization is required, the~~ The presence of the odorant shall be ~~determined~~ verified by sniff-testing or other means, and the results shall be documented as follows:

- (1) When LP-Gas is delivered to a bulk plant
- (2) When shipments of LP-Gas bypass the bulk plant

4.2.4 Odorization shall not be required if it is harmful in the use or further processing of the LP-Gas or if such odorization will serve no useful purpose as a warning agent in such further use or processing.

Statement of Problem and Substantiation for Public Input

There have been reports of some shipments of unodorized LP-Gas leaving pipeline and storage terminals in railcars or transports. Although it is an infrequent occurrence, it seems clear that checking and documenting that odorant is present before the gas leaves a pipeline or storage terminal is necessary.

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki

Organization: National Propane Gas Association

Street Address:

City:

State:

Zip:

Submittal Date: Tue Jul 01 16:28:54 EDT 2014

**Public Input No. 221-NFPA 58-2014 [New Section after 4.5.2]****GAS DETECTORS.**

Gas appliance installers, propane companies and qualified LP gas service personnel shall recommend the installation of one or more propane gas detectors to the end user. A record of the end users acknowledgement as to their understanding of this recommendation is to be retained by the service provider and updated at a minimum every three years.

Gas appliance manufacturers shall recommend the installation of one or more gas detectors in their instruction/owners manuals and shall supply a separate sign off sheet about gas detector use for the appliance installer to review with the end user.

Statement of Problem and Substantiation for Public Input

The Propane Education and Research Council (PERC) states in <http://www.usepropane.com/safe-source-of-energy/homeowner-safety-information/> "We recommend that you consider installing one or more propane gas detectors. This is important if you or others in your home have difficulty smelling propane, or if appliances are in little-used areas in your home where the smell of propane might not be detected. Detectors can provide an additional measure of security."

Generally this message is included in Propane Education pamphlets that are mailed to propane customers. The message is also often included on receipts and other printed materials. Despite these efforts very few end users appear to be aware of the propane industries recommendation to install gas alarms.

This proposal would help raise the level of awareness of the industries recommendation by requiring the end user to acknowledge it in some manner. It could be done during service calls/appliance installation with a specific information sheet explaining the need for alarms that a customer would need to sign off on. It might be done electronically. What is important is that the end user understands the industry recommendation to consider installing propane detectors.

NOTE: Supporting material is available for review at NFPA Headquarters.

Submitter Information Verification

Submitter Full Name: DAVID BUDDINGH

Organization: BUDDINGH ASSOC

Street Address:

City:

State:

Zip:

Submittal Date: Wed Jul 02 17:49:51 EDT 2014

**Public Input No. 194-NFPA 58-2014 [New Section after 4.6]****TITLE OF NEW CONTENT****4.7 Portable Fire Extinguisher**

Where portable fire extinguishers are required, they shall :

- (A) Be approved.
- (B) Be rated in accordance with NFPA 10, *Standard for Portable Fire Extinguishers*.
- (C) Be considered as meeting the requirements of each letter class shown where they have more than one letter classification and have a minimum capacity of dry chemical as specified elsewhere in this code with a B:C or A:B:C rating.

Statement of Problem and Substantiation for Public Input

Portable fire extinguishers are addressed in several paragraphs in NFPA 58, creating much duplication of text and sizing requirements. Creating a new paragraph 4.7 standardizes the specifications/requirements for a portable fire extinguisher into one location. The ratings of the fire extinguishers in related proposals have been changed to correspond to NFPA 10-2013, the latest edition of that standard. Note that NFPA 10 no longer specifies the quantity of extinguishing agent in the extinguisher, but does provide information (see NFPA 10, Table G.2) for determining equivalent ratings based on the amount of extinguishing agent. Because experience in the field has shown that authorities having jurisdiction most often refer to the quantity of extinguishing agent in the canister, we are proposing to keep that required information in the code.

Each individual paragraph where fire extinguishers are required will now address the specific application and reference the new text in proposed 4.7 while keeping the size/rating requirements, thus minimizing the duplication of text.

"Approved" has been removed from paragraphs 6.24.8.1, 6.27.4.2, 8.5.1, 8.5.2, 9.3.5.2, and 9.4.7.1 as "approved" is now part of the requirements listed in new paragraph 4.7(A).

Paragraphs 6.24.8.2, 6.27.4.3, 8.5.4, 9.3.5.2, and 9.4.7.2 have been deleted as they are now covered in 4.7(C).

The following references from NFPA 10 are useful for understanding the new rating and marking system: Table G.2; Section 5.4.1.3; A.5.4.1.2; Table 6.2.1.1 and Table 6.3.1.1.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 206-NFPA 58-2014 [Sections 6.24.8.1, 6.24.8.2]	
Public Input No. 210-NFPA 58-2014 [Sections 6.27.4.2, 6.27.4.3]	
Public Input No. 212-NFPA 58-2014 [Section No. 8.5]	
Public Input No. 217-NFPA 58-2014 [Sections 9.3.5.1, 9.3.5.2]	
Public Input No. 218-NFPA 58-2014 [Sections 9.4.7.1, 9.4.7.2]	
Public Input No. 219-NFPA 58-2014 [Section No. A.9.4.7]	

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki
Organization: National Propane Gas Association
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jul 02 15:38:43 EDT 2014

**Public Input No. 276-NFPA 58-2014 [Section No. 5.2.1.9]**5.2.1.9

~~Containers in dispensing stations.~~ Dispensing systems not located in LP-Gas bulk plants or industrial plants shall have an aggregate water capacity not greater than 30,000 gal (114 m³).

Statement of Problem and Substantiation for Public Input

This is an editorial change to the code based on the change to the definition as described in P.I. 272.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 272-NFPA 58-2014 [Section No. 3.3.20]	

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki
Organization: National Propane Gas Association
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 13:26:58 EDT 2014

**Public Input No. 146-NFPA 58-2014 [Section No. 5.2.2]****5.2.2** Cylinders.

5.2.2.1 * – Cylinders shall be containers designed, constructed, tested, and marked in accordance with U.S. Department of Transportation

specifications, Title 49, Code of Federal Regulations, or in accordance with a valid DOT special permit.

5.2.2.2* Cylinders shall be continued in service and transported in accordance with DOT regulations.

5.2.2.2 – 3

A cylinder with an expired requalification date shall not be refilled until it is requalified by the methods prescribed in DOT regulations.

A.5.2.2.2 See CGA C-6, Standard for Visual Inspection of Steel Compressed Gas Cylinders, or CGA C-6.3, Guidelines for Visual Inspection

and Requalification of Low Pressure Aluminum Compressed Gas Cylinders, for further information regarding cylinder inspection.

Statement of Problem and Substantiation for Public Input

Definitions cannot contain requirements based on other codes, standards or regulations and the requirements must be in the body of the standard, per the NFPA Manual of Style. The definition has been moved to the requirements section.

Related Public Inputs for This Document**Related Input****Relationship**

Public Input No. 145-NFPA 58-2014 [Section No. 3.3.17 [Excluding any Sub-Sections]]

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Submittal Date: Fri Jun 27 18:08:04 EDT 2014

**Public Input No. 150-NFPA 58-2014 [Section No. 5.2.7.1(B)]****(B)**

Steel supports shall be protected against fire exposure with a material having a fire resistance rating of at least 2 hours, in accordance with ASTM E119 .

Statement of Problem and Substantiation for Public Input

The standard test method for fire resistance rating must be specified. Moreover, ASTM E119 is referenced in chapter 3 but not mentioned in this portion of the code.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 148-NFPA 58-2014 [Section No. 2.3.4]	
Public Input No. 151-NFPA 58-2014 [Section No. 6.4.4.10]	
Public Input No. 152-NFPA 58-2014 [Section No. 6.6.4.3]	

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**Public Input No. 205-NFPA 58-2014 [Section No. 5.7.2.5(B)]**

(B)

Containers of 40,000 gal (151 m³) or more water capacity shall be equipped with either a spring-loaded pressure relief valve or a pilot-operated pressure relief valve, as follows:

- (1) The pilot-operated relief valve shall be combined with, and controlled by, a self-actuated, direct, spring-loaded pilot valve that complies with [Table 5.7.2.5\(A\)](#).
- (2) ~~The use of a pilot-operated pressure relief valve shall be approved.~~
- (3) Pilot-operated pressure relief valves shall be inspected and maintained by persons with training and experience and shall be tested for operation at intervals not exceeding 5 years.

Statement of Problem and Substantiation for Public Input

There is no reason to require that the use of pilot-operated pressure relief valves be approved. These are commonly used on larger containers and the writer is not aware of any conditions that should require special treatment that would require them to be approved. It is further noted that no information is provided in the code or annex to guide the AHJ in what should be considered for approval. As an alternate to deleting the requirement, criteria for the AHJ could be added to Annex A.

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**Public Input No. 103-NFPA 58-2014 [Section No. 5.7.3.5]****5.7.3.5**

The following types of cylinders shall be exempt from the requirements of [5.7.3.1](#) through [5.7.3.4](#) ~~for installing a listed overfilling prevention device~~ :

- (1) Cylinders used in industrial truck service and cylinders identified and used for industrial welding and cutting gases
- (2) Cylinders manufactured prior to October 1, 1998, and designed for use in the horizontal position and where an overfilling prevention device is not available

Statement of Problem and Substantiation for Public Input

Section 5.7.3.1 through 5.7.3.4 lists requirements for fixed maximum liquid level gauge, valve outlet connections, and OPD. The current wording could be interpreted that the exemption only applies to the OPD.

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Submittal Date: Fri Jun 13 09:34:52 EDT 2014



Public Input No. 3-NFPA 58-2013 [Section No. 5.7.4]

5.7.4 Container Valves and Other Appurtenances.**5.7.4.1**

Containers of 4000 gal (15.2 m³) water capacity or less shall comply with 5.7.4.1(A) through 5.7.4.1(D).

(A)

—

Underground containers and

The following containers shall be permitted to be equipped with external pressure relief valves:

(1) Underground ASME containers

(2) ASME containers originally equipped with external pressure relief valves

shall be permitted to have external pressure relief valves.

(

B

3)

—

ASME containers

having a propane capacity not greater than 100

with 125 gal (0.

45

5 m³).

shall be permitted to have an external pressure relief valve. The external pressure relief valve shall be permitted to be

water capacity or less, having a pressure relief valves integrated as part of a multiple

—

function valve

—

(C B)

Containers of 2001 gal through 4000 gal (7.6 m³ through 15.2 m³) water capacity in bulk plant and in other than bulk plant or industrial plant service shall be fitted with valves and other appurtenances in accordance with 5.7.4.2.

(D) –

Containers in other than bulk plant or industrial plant service shall be fitted with valves and other appurtenances in accordance with 8.1, Table 5.7.4.1(D B) and the following:

- (1) Shutoff, filler, check, and excess-flow valves for ASME containers shall comply with ANSI/UL 125, *Standard for Flow Control Valves for Anhydrous Ammonia and LP-Gas (Other than Safety Relief)*.
- (2) Shutoff valves used on DOT cylinders shall comply with ANSI/UL 1769, *Standard for Cylinder Valves*.
- (3) Containers of greater than 125 gal through 4000 gal (0.5 m³ through 15.2 m³) water capacity shall be provided with an actuated liquid withdrawal excess-flow valve with a connection not smaller than ¾ in. NPT (19 mm), and the container connection shall not be smaller than ¾ in. NPT (19 mm).
- (4) An actuated liquid withdrawal excess-flow valve shall not be required on container connections equipped for liquid withdrawal with a positive shutoff valve that is located as close to the container as practical in combination with an excess-flow valve installed in the container connection.
- (5) The actuated liquid withdrawal excess-flow valve shall not be connected for continuous use unless the valve is recommended by the manufacturer for such service.
- (6) An overfilling prevention device shall not be required for engine fuel cylinders used on industrial (and forklift) trucks powered by LP-Gas or for engine fuel cylinders used on vehicles (including floor maintenance machines) having LP-Gas-powered engines mounted on them.
- (7) A filler valve shall incorporate one of the following:
 - (a) Double backflow check valves of the spring-loaded type
 - (b) Manual shutoff valve with an internal backflow check valve of the spring-loaded type
 - (c) Combination single backflow check valve of the spring-loaded type and an overfilling prevention device designed for containers
- (8) Manual shutoff valves in vapor service shall be equipped with one of the following:
 - (a) ~~Orifice~~ An orifice between the container contents and the shutoff valve outlet, not exceeding 5/16 in. (8 mm) in diameter, and an approved regulator directly attached, or attached with a flexible connector, to the manual shutoff valve outlet
 - (b) Excess An excess -flow valve
- (9) Overfilling prevention devices shall be required on cylinders having 4 lb through 40 lb (1.8 kg through 18 kg) propane capacity for vapor service. (See 5.7.3.)
- (10) Cylinders greater than 40 lb through 100 lb (18 kg through 45 kg) propane capacity filled by volume shall have a fixed maximum liquid level gauge.
- (11) ~~Pressure~~ Full internal pressure relief valves installed or flush-type full internal pressure relief valves shall be installed in multiple function valves in that are used with single opening cylinders used in industrial truck service and shall have the springs and guiding mechanism on the container pressure side of the seats, so that the springs and guiding mechanism shall not be exposed to the atmosphere.
- (12) Multiple function valves installed on single opening cylinders used in industrial truck service shall meet the following requirements:
 - (a) ~~When required by 5.7.2.14, the multiple function valve in accordance~~ Cylinders complying with 5.7.2.14 shall have the full internal or flush-type full internal pressure relief valve exchanged with a replacement multiple function valve that incorporates the full internal or flush-type full internal pressure relief valve as described in 5.7.4.1(D B)(11) and 5.7.4.1(B)(12).
 - (b) The multiple function valve with the full internal or flush-type full internal pressure relief valve shall be permitted to have the means to be replaced without removing the multiple function valve from the cylinder.
 - (c) The multiple function valve shall incorporate an internal excess-flow valve installed inside the container for the liquid or vapor withdrawal service valve outlet.
 - (d) The multiple function valve shall incorporate a weak section on the service valve outlet connection.
 - (e) The multiple function valve shall incorporate an internal excess-flow valve installed inside the container that shall not restrict the flow to the full internal or flush-type full internal pressure relief valve.
 - (f) The multiple function valve shall be listed.

Table 5.7.4.1(D B) Container Connection and Appurtenance Requirements for Containers Used in Other Than Bulk Plants and Industrial Plants

Part	Appurtenance	1	2	3
		Cylinders 2 lb Through 420 lb Propane Capacity	Stationary ASME Containers ≤4000 gal Water Capacity ^a	DOT and ASME Engine Fuel and Mobile Containers
A	Vapor shutoff valve ^b	R (CGA 555 outlet prohibited)	R	R with internal excess-flow valve
B	Liquid shutoff valve ^b	R with CGA 555 outlet and internal excess-flow valve	R with internal excess flow valve	R with internal excess-flow valve
D	Pressure relief valve	R (See 5.7.2.2.)	R ^c (See 5.7.4.1(B).)	R with full internal or flush-type full internal pressure relief valve
E	Fixed maximum liquid level gauge	R (filled by volume) R (filled by weight) ≤40 lb and >100 lb (See 5.7.4.1(D)(10).)	R	R
F	Overfilling prevention device	R (4 lb through 40 lb) (See 5.7.3.)	NR	R (ASME only) (See 5.7.4.1(D)(6).)
G	Actuated liquid withdrawal excess-flow valve	NR	R (≥125 gal) (See 5.7.4.1(D)(3), (4), and (5).)	NR
H	Float gauge	NR	R (>124 gal only)	NR

Part	Appurtenance	1	2	3
		<u>Cylinders 2 lb Through 420 lb Propane Capacity</u>	<u>Stationary ASME Containers ≤4000 gal Water Capacity^a</u>	<u>DOT and ASME Engine Fuel and Mobile Containers</u>
I	Filler valve [See 5.7.4.1(D)(7).]	R (for ≥100 lb cylinders that are filled on site at the point of use)	R	R (for ASME containers only)

For SI units, 1 lb = 0.454 kg; 1 gal = 0.0045 m³.

R: Required. NR: Not required.

^aAll ASME container capacities are water capacity.

^bWhere installed.

^cAboveground ASME containers, internal spring-type pressure relief valves only, except as stated in 5.7.4.1(A) and 5.7.4.1(B).

5.7.4.2

ASME containers greater than 4000 gal (15.2 m³) water capacity shall be fitted with valves and other appurtenances in accordance with 5.7.4.2(A) through 5.7.4.2(I) and Table 5.7.4.2.

Table 5.7.4.2 Connection and Appurtenance Requirements for New and Existing Container Installations in Bulk Plants and Industrial Plants

Service		
2001-gal through 4000-gal W.C.* (7.6 m ³ through 15.2 m ³)		
Greater Than 4000 gal W.C.* (>15.2 m ³)	Requirements for Containers of Greater Than 4000 gal W.C. (>15.2 m ³) With and Without Internal Valves [†]	
	Without Existing Internal Valves (by 7/1/11)	With Existing Internal Valves
	Option A, Option B, or Option C	
Vapor inlet	Option A, Option B, or Option C	
Option A, Option B, or Option C	See Note	
Vapor outlet	Option B or Option C	
Option B or Option C	See Note	
Liquid inlet	Option	
A, Option B, or Option C	Option D, Option E, Option F, or Option G	
D or Option E	RT	
Liquid outlet	Option	
B or Option C	Option E or Option H	
E	RT	

Option A: Positive shutoff valve installed as close as practical to a backflow check valve installed in the container.

Option B: Positive shutoff valve installed as close as practical to an excess-flow valve installed in the container and sized in accordance with 5.7.8.1(H).

Option C: Internal valve installed in the container or an excess-flow valve in accordance with 5.7.4.2(I).

Option D: Positive shutoff valve installed as close as practical to a backflow check valve designed for the intended application and installed in the container.

Option E: Internal valve installed in the container equipped for remote closure and automatic shutoff using thermal (fire) activation within 5 ft (1.5 m) of valve or an excess-flow valve in accordance with 5.7.4.2(I).

Option F: Emergency shutoff valve equipped for remote closure and automatic shutoff using thermal (fire) activation installed in the line upstream as close as practical to an existing positive shutoff valve/excess-flow valve combination.

Option G: Backflow check valve designed for the intended application and installed in the line upstream as close as practical to the existing positive shutoff valve/excess-flow valve combination.

Option H: Emergency shutoff valve equipped for remote closure and automatic shutoff using thermal (fire) activation, installed in the line downstream as close as practical to an existing positive shutoff valve/excess-flow valve combination.

RT: Equipping an existing internal valve for remote closure and automatic shutoff using thermal (fire) actuation within 5 ft (1.5 m) of the internal valve.

Note: Vapor connections on containers installed prior to the effective date of the 2001 edition of NFPA 58 are not required to be modified.

*Applicable to installations constructed on or after the effective date of this code.

[†]Applicable to installations constructed prior to the effective date of this code.

(A)

Vapor withdrawal openings shall be equipped with either of the following:

- (1) A positive shutoff valve located as close to the container as practical in combination with an excess-flow valve installed in the container
- (2) An internal valve

(B)

Liquid withdrawal openings in new installations shall be equipped with an internal valve that is fitted for remote closure and automatic shutoff using thermal (fire) actuation where the thermal element is located within 5 ft (1.5 m) of the internal valve.

(C)

Liquid withdrawal openings in existing installations where the container is equipped with an internal valve that is not fitted for remote closure and automatic shutoff using thermal (fire) actuation shall be equipped for remote and thermal closure by July 1, 2003.

(D)

Liquid withdrawal openings in existing installations shall be equipped with either of the following by July 1, 2011:

- (1) An internal valve that is fitted for remote closure and automatic shutoff using thermal (fire) actuation where the thermal element is located within 5 ft (1.5 m) of the internal valve
- (2) An emergency shutoff valve that is installed in the line downstream as close as practical to a positive shutoff valve in combination with an excess-flow valve installed in the container

(E)

Vapor inlet openings shall be equipped with either of the following:

- (1) A positive shutoff valve that is located as close to the container as practical in combination with either a backflow check valve or an excess-flow valve installed in the container
- (2) An internal valve

(F)

Liquid inlet openings in new installations shall be equipped with either of the following:

- (1) An internal valve that is fitted for remote closure and automatic shutoff using thermal (fire) actuation where the thermal element is located within 5 ft (1.5 m) of the internal valve
- (2) A positive shutoff valve that is located as close to the container as practical in combination with a backflow check valve that is designed for the intended application and is installed in the container

(G)

Liquid inlet openings in existing installations where the container is equipped with an internal valve that is not fitted for remote closure and automatic shutoff using thermal (fire) actuation shall be equipped for remote and thermal closure by July 1, 2003.

(H)

Liquid inlet openings in existing installations shall be equipped with any of the following by July 1, 2011:

- (1) An internal valve that is fitted for remote closure and automatic shutoff using thermal (fire) actuation where the thermal element is located within 5 ft (1.5 m) of the internal valve
- (2) An emergency shutoff valve that is installed in the line upstream as close as practical to a positive shutoff valve in combination with an excess-flow valve installed in the container
- (3) A positive shutoff valve that is located as close to the container as practical in combination with a backflow check valve that is designed for the intended application and is installed in the container
- (4) A backflow check valve that is designed for the intended application and is installed in the line upstream as close as practical to a positive shutoff valve in combination with an excess-flow valve installed in the container

(I)

Container openings that are not compatible with internal valves shall be permitted to utilize both an excess-flow valve installed in the container and a valve complying with API Standard 607, *Fire Test for Quarter-Turn Valves and Valves Equipped with Non-Metallic Seats*, with the following features:

- (1) The valve shall be activated either hydraulically or pneumatically and shall fail in the closed position.
- (2) The valve shall be equipped for remote closure and thermal actuation with a thermal element located within 5 ft (1.5 m) of the valve.

5.7.4.3

~~ASME containers of 2001-gal-through- over 4000 gal (7.6 m³ through- 15.2 m³) water capacity used for bulk plants and industrial plants shall also be fitted equipped with valves and other appurtenances in accordance the following appurtenances and shall comply with Table 5.7.4.2.~~

~~5.7.4.4 –~~

~~ASME containers over 4000-gal (15.2 m³) water capacity shall also be equipped with the following appurtenances :~~

- (1) An internal spring-type, flush-type full internal pressure relief valve, or external pressure relief valve (see Annex E)
- (2) A fixed maximum liquid level gauge
- (3) A float gauge, rotary gauge, slip tube gauge, or a combination of these gauges
- (4) A pressure gauge
- (5) A temperature gauge

5.7.4.5 4

The appurtenances specified in ~~Table 5.7.4.1(D) and 5.7.4.3 - B)~~ shall comply with the following:

- (1) Manual shutoff valves shall be designed to provide positive closure under service conditions.
- (2) Excess-flow check- valves shall be designed to close automatically at the rated flows of vapor or liquid specified by the manufacturer.
- (3) Excess-flow valves shall be designed with a bypass that shall not exceed a No. 60 drill size opening to allow equalization of pressure.
- (4) Excess-flow valves of less than ½ in. NPT (13 mm) shall have a bypass that limits propane vapor flow to 10 scf/hr at 100 psig (690 kPag).
- (5) Backflow check valves shall be of the spring-loaded or weight-loaded type with in-line or swing operation and shall close when the flow is either stopped or reversed.
- (6) Internal valves (see 3.3.75.6, *Internal Valve*), either manually or remotely operated and designed to remain closed except during operating periods, shall be considered positive shutoff valves.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
Proposed_TIA_1116_58_docx	Balloted TIA

Statement of Problem and Substantiation for Public Input

NOTE: This public input originates from Tentative Interim Amendment 58-14-3 (TIA 1116) issued by the Standards Council on October 22, 2013 and per the NFPA Regs. needs to be reconsidered by the Technical Committee for the next edition of the Document.

This TIA is necessary for a couple reasons. First, it will make the code consistent in the manner that it addresses containers in different size categories and uses. For example, the Technical Committee agreed that a bulk plant should be defined based on the size of the storage containers and the service that those containers are providing. In this case, a bulk plant is defined in 3.3.10 with a minimum storage container size greater than 4,000 gallons water capacity. Therefore, it is necessary to make the changes described above by striking current paragraph 5.7.4.3.

The proposed TIA will also clarify and condense the language in 5.7.4.1 (A), (B) and (C). Also, the terms "full internal or flush-type full internal" are used to describe specific relief valves and therefore are needed to provide clarification as to the types of safety relief valves that are permitted in specific services. Both terms are defined in 3.3.75.7.2 and 3.3.75.7.3. These changes are proposed to 5.7.4.1, 11.4.1 and 11.13.2.9.

It is significant to note that the proposed TIA is based on Comment 58-25, which was accepted in principle at the meeting but did not receive sufficient support during the letter ballot to sustain the action of the committee at the meeting. Several negative voters commented that the proposed changes were needed in order to maintain consistency within the 2014 edition of the code. Subsequently, a NITMAM was proposed at the NFPA Technical Session but it did not achieve the required majority.

Emergency Nature: The emergency nature can be easily demonstrated in this case. The NFPA Regulations Governing Committee Projects includes criteria for determining emergency nature. The appropriate criterion would be in paragraph 5.3 (b): "The document contains a conflict within the document or with another NFPA document."

As mentioned above, original paragraph 5.7.4.3 and original Table 5.7.4.2 contain requirements that are no longer valid based on the definition of "Bulk Plant" in 3.3.10. The definition of bulk plant requires a storage container with greater than 4,000 gallons water capacity. Both 5.7.4.3 and Table 5.7.4.2 contain text from previous editions, which did not include a minimum container size for the definition of "bulk plant." Because the offending previous text relies upon a threshold container size of 2,001 gallons for bulk plant service, a conflict now exists within the 2014 edition of NFPA 58.

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Submittal Date: Thu Oct 31 08:49:16 EDT 2013

**Public Input No. 225-NFPA 58-2014 [New Section after 5.7.4.1]****Add a new Section 5.7.4.1 and renumber subsequent paragraphs accordingly**

5.7.4.1 Containers of 2 lb water capacity or less shall comply with 5.7.4.1 (A) through (D).

(A) Cylinders 2 lb or less shall be constructed in accordance with DOT specifications.

(B) The cylinders shall either have a shutoff valve, or a self-closing valve to prevent flow when the cylinder is not connected for use.

(C) The cylinder shall have a pressure relief device in accordance with DOT requirements.

(D) ASME containers of 2 lb water capacity or less shall be constructed in accordance with the ASME Boiler and Pressure Vessel Code.

Statement of Problem and Substantiation for Public Input

Currently Section 5.7.4.1 does not adequately cover portable cylinders with a capacity of 2 lb. and smaller. Paragraph 5.7.4.1 is applicable to all propane and butane containers of 4,000 gallons and less, however there are no requirements specific to 2 lb and smaller. The size range of cylinders 2 lb. and smaller includes 1 pound cylinders constructed to DOT Specification 39, aerosol type containers of butane constructed to DOT specifications 2P and 2Q, and butane cigarette lighters. These do are not required to have some of the appurtenances required in NFPA 58, 5.7.4.1. For example 5.7.4.1 (D) (8) requires that manual shutoff valves in vapor service used with cylinders 2 lb and smaller have either a 5/16" flow orifice or and excess flow valve. There are millions of disposable 1 lb propane cylinders that are not equipped with manual shutoff valves. They are equipped with check valves, and unfortunately some enforcement officials have interpreted that a check valve is not a manual shutoff valve.

Submitter Information Verification

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Submittal Date: Thu Jul 03 07:06:27 EDT 2014

**Public Input No. 256-NFPA 58-2014 [New Section after 5.7.4.1(D)]****5.7.4.1 Add new text.**

(E) Containers having water capacities greater than 1,000 gallons and not exceeding 4,000 gallons utilizing a liquid withdrawal opening for liquid service shall be equipped with one of the following:

- (1) An internal valve fitted for remote closure and automatic shutoff equipped with thermal activation
- (2) An emergency shutoff valve fitted for remote closure and automatic shutoff equipped with thermal activation, installed in a line downstream as close as practical to a positive shutoff valve in combination with an excess-flow valve installed in the container

(3) Container openings that are not compatible with internal valves shall be permitted to utilize both an excess-flow valve installed at the container and a valve complying with API Standard 607, *Fire Test for Quarter-Turn Valves and Valves Equipped with Non-Metallic Seats*, with the following features:

- (a) The valve shall be activated either hydraulically or pneumatically and shall fail in the closed position
- (b) The valve shall be equipped for remote closure and equipped with thermal actuation.

(F) Remote actuation devices required in (1), (2) and (3) shall be located not less than 10 feet or more than 100 ft. along a path of egress from the liquid transfer point into the container.

(G) For existing installations, the requirements in (A) shall be complied with by January 1, 2021.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Table_5.7.4.1_D.docx	This is part of the P.I. 256	

Statement of Problem and Substantiation for Public Input

Cargo tanks are being removed from bobtails and being utilized as stationary storage with more frequency as larger cargo tank vehicles are being put into service. NFPA 58 provides protection for liquid withdrawal valving on containers > 4000 gallon w.c. and on dispensers. The liquid withdrawal openings shall be equipped with either:

- an internal valve fitted for remote closure and automatic shutoff using thermal actuation, or
- a positive shutoff valve that is located as close to the container as practical in combination with an excess-flow valve installed in the container, plus an emergency shutoff valve that is fitted for remote closure and installed downstream in the line as close as practical to the positive shutoff valve
- a positive shutoff valve that is located as close to the container as practical in combination with an excess-flow valve installed in the container, plus a fire safe thermally protected and remotely activated ball valve that is fitted for remote closure and installed downstream in the line as close as practical to the positive shutoff valve

This is not currently required in NFPA 58 for tanks with liquid withdrawal if they are < 4000 gallons, as long as they are not used in bulk plant service or as a dispenser. Dispensers are addressed in 6.25, which requires internal valves or emergency shutoff valves for that service. However, containers used in liquid withdrawal applications, for example at schools, grain elevators, farms, may pose potential safety risks similar to those found in bulk plant and industrial plant service that are currently required to be equipped with remote and thermal actuation by Table 5.7.4.2.

The impact to the LP-gas Industry, should there be a failure in the liquid piping system, could be very dramatic without a method to provide for remote closure or automatic shutoff through thermal actuation.

The requirements in proposed 5.7.4.1 (A)(4) are modified from the requirement for a minimum distance of 25 feet from the point of transfer for both internal valves (6.11.4.1) and emergency shutoff valves (6.12.12.3) in recognition of the fact that the containers addressed by the proposal are not installed in typical bulk plant environments, but may be installed at sites where it is difficult to comply with the 25 ft. requirement.

Submitter Information Verification

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Submittal Date: Thu Jul 03 18:07:29 EDT 2014

Table 5.7.4.1 (D)

Column 3	Appurtenance	Column 1	Column 2
<u>Part J</u>	<u>Internal Valve with Remote Closure</u>	<u>NR</u>	<u>R</u>
<u>NR</u>	<u>and automatic shutoff using thermal activation</u>		<u>See 5.7.4.1</u>
<u>(E).</u>			<u>(F) and (G)</u>

PI No. 101 Section 5.7.4.1(D)

Containers in other than bulk plant or industrial plant service shall be fitted with valves and other appurtenances in accordance with [Table 5.7.4.1\(D\)](#) and the following:

- (1) Shutoff, filler, check, and excess-flow valves for ASME containers shall comply with ANSI/UL 125, *Standard for Flow Control Valves for Anhydrous Ammonia and LP-Gas (Other than Safety Relief)*.
- (2) Shutoff valves used on DOT cylinders shall comply with ANSI/UL 1769, *Standard for Cylinder Valves*.
- (3) Containers of 125 gal through 4000 gal (0.5 m³ through 15.2 m³) water capacity shall be provided with an actuated liquid withdrawal excess-flow valve with a connection not smaller than ¾ in. NPT (19 mm), and the container connection shall not be smaller than ¾ in. NPT (19 mm).
- (4) An actuated liquid withdrawal excess-flow valve shall not be required on container connections equipped for liquid withdrawal with a positive shutoff valve that is located as close to the container as practical in combination with an excess-flow valve installed in the container connection.
- (5) The actuated liquid withdrawal excess-flow valve shall not be connected for continuous use unless the valve is recommended by the manufacturer for such service.
- (6) An overfilling prevention device shall not be required for engine fuel cylinders used on industrial (and forklift) trucks powered by LP-Gas or for engine fuel cylinders used on vehicles (including floor maintenance machines) having LP-Gas-powered engines mounted on them.
- (7) A filler valve shall incorporate one of the following:
 - (a) Double backflow check valves of the spring-loaded type
 - (b) Manual shutoff valve with an internal backflow check valve of the spring-loaded type
 - (c) Combination single backflow check valve of the spring-loaded type and an overfilling prevention device designed for containers
- (8) Manual shutoff valves in vapor service shall be equipped with one of the following:
 - (a) Orifice between the container contents and the shutoff valve outlet, not exceeding ⅝ in. (8 mm) in diameter, and an approved regulator directly attached, or attached with a flexible connector, to the manual shutoff valve outlet
 - (b) Excess-flow valve
- (9) Overfilling prevention devices shall be required on cylinders having 4 lb through 40 lb (1.8 kg through 18 kg) propane capacity for vapor service. (See [5.7.3.](#))
- (10) Cylinders greater than 40 lb through 100 lb (18 kg through 45 kg) propane capacity filled by volume shall have a fixed maximum liquid level gauge.
- (11) Pressure relief valves installed in multiple function valves in single opening cylinders used in industrial truck service shall have the springs and guiding mechanism on the container pressure side of the seats, so that the springs and guiding mechanism shall not be exposed to the atmosphere.
- (12) Multiple function valves installed on single opening cylinders used in industrial truck service shall meet the following requirements:
 - (a) When required by [5.7.2.14](#), the multiple function valve in accordance with [5.7.2.14](#) shall have the pressure relief valve exchanged with a replacement multiple function valve that incorporates the pressure relief valve described in [5.7.4.1\(D\)](#) (11).
 - (b) The multiple function valve pressure relief valve shall be permitted to have the means to be replaced without removing the multiple function valve from the cylinder.
 - (c) The multiple function valve shall incorporate an internal excess-flow valve for the liquid or vapor withdrawal service valve outlet.
 - (d) The multiple function valve shall incorporate a weak section on the service valve outlet connection.
 - (e) The multiple function valve shall incorporate an internal excess-flow valve that shall not restrict the flow to the pressure relief valve.
 - (f) The multiple function valve shall be listed.

Table 5.7.4.1(D) Container Connection and Appurtenance Requirements for Containers Used in Other Than Bulk Plants and Industrial Plants

Part	Appurtenance	1	2	3
		Cylinders 2 lb Through 420 lb Propane Capacity	Stationary ASME Containers ≤4000 gal Water Capacity ^a	DOT and ASME Engine Fuel and Mobile Containers
A	Vapor shutoff valve ^b	R (CGA 555 outlet prohibited)	R	R with internal excess-flow valve
B	Liquid shutoff valve ^b	R with CGA 555 outlet and internal excess-flow valve	R with internal excess flow valve	R with internal excess-flow valve
D	Pressure relief valve	R (See 5.7.2.2.)	R ^c (See 5.7.4.1(B).)	R with full internal or flush-type full internal pressure relief valve
E	Fixed maximum liquid level gauge	R (filled by volume) R (filled by weight, ≤40 lb and >100 lb) (See 5.7.4.1(D)(10).)	R	R
F	Overfilling prevention device	R (4 lb through 40 lb) (See 5.7.3.)	NR	R (ASME only) (See 5.7.4.1(D)(6).)
G	Actuated liquid withdrawal excess-flow valve	NR	R (≥125 gal) (See 5.7.4.1(D)(3), (4), and (5).)	NR
H	Float gauge	NR	R (>124 gal only)	NR
I	Filler valve (See 5.7.4.1(D)(7).)	R (for ≥100 lb cylinders that are filled on site at the point of use)	R	R (for ASME containers only)

For SI units, 1 lb = 0.454 kg; 1 gal = 0.0045 m³.

R: Required. NR: Not required.

^aAll ASME container capacities are water capacity.

^bWhere installed.

^cAboveground ASME containers, internal spring-type pressure relief valves only, except as stated in 5.7.4.1(A) and 5.7.4.1(B).

^dAboveground containers 1001 gallons through 4000 gallons shall have as an option an external pressure relief valve.

Statement of Problem and Substantiation for Public Input

External relief valves are an option on tanks > 4001 gallons.

Most relief valve manufacturers recommend the relief valves be replaced at 10 year intervals.

While there is a certain amount of risk/hazard having an external relief valve that can be minimized by tank location and protecting the tank from traffic. There is probably a higher degree of risk/hazard associated with having to completely empty and purge a tank in order to change a relief. It is also a very lengthy and costly process that requires either vacuuming the tank or else flaring a significant product. The tank then has to be either vacuumed again or else purged. The required time to complete this process can also have a detrimental impact on the user to be out of product for the duration of the repair.

Section 5.7.4.1 A states that external valves can be used on tanks that were originally equipped. However it is often hard to determine what type of relief valve the tanks were originally equipped with.

The threshold of 1001 gallons was chosen because it is common practice to transport partially filled containers of 1000 gallons or less moving to and from installations, or to and from bulk plants.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 102-NFPA 58-2014 [Section No. 5.7.4.1(D)]	

Submitter Information Verification

Submitter Full Name: KAREN KOENIG

Organization: Compressed Gas Association, Inc.

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City:

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Submittal Date: Fri Jun 13 08:48:32 EDT 2014

PI NO. 102 Section 5.7.4.1(D)

Containers in other than bulk plant or industrial plant service shall be fitted with valves and other appurtenances in accordance with [Table 5.7.4.1\(D\)](#) and the following:

- (1) Shutoff, filler, check, and excess-flow valves for ASME containers shall comply with ANSI/UL 125, *Standard for Flow Control Valves for Anhydrous Ammonia and LP-Gas (Other than Safety Relief)*.
- (2) Shutoff valves used on DOT cylinders shall comply with ANSI/UL 1769, *Standard for Cylinder Valves*.
- (3) Containers of 125 gal through 4000 gal (0.5 m³ through 15.2 m³) water capacity shall be provided with an actuated liquid withdrawal excess-flow valve with a connection not smaller than ¾ in. NPT (19 mm), and the container connection shall not be smaller than ¾ in. NPT (19 mm).
- (4) An actuated liquid withdrawal excess-flow valve shall not be required on container connections equipped for liquid withdrawal with a positive shutoff valve that is located as close to the container as practical in combination with an excess-flow valve installed in the container connection.
- (5) The actuated liquid withdrawal excess-flow valve shall not be connected for continuous use unless the valve is recommended by the manufacturer for such service.
- (6) An overfilling prevention device shall not be required for engine fuel cylinders used on industrial (and forklift) trucks powered by LP-Gas or for engine fuel cylinders used on vehicles (including floor maintenance machines) having LP-Gas-powered engines mounted on them.
- (7) A filler valve shall incorporate one of the following:
 - (a) Double backflow check valves of the spring-loaded type
 - (b) Manual shutoff valve with an internal backflow check valve of the spring-loaded type
 - (c) Combination single backflow check valve of the spring-loaded type and an overfilling prevention device designed for containers
- (8) Manual shutoff valves in vapor service shall be equipped with one of the following:
 - (a) Orifice between the container contents and the shutoff valve outlet, not exceeding ⅝ in. (8 mm) in diameter, and an approved regulator directly attached, or attached with a flexible connector, to the manual shutoff valve outlet
 - (b) Excess-flow valve
- (9) Overfilling prevention devices shall be required on cylinders having 4 lb through 40 lb (1.8 kg through 18 kg) propane capacity for vapor service. (See [5.7.3.](#))
- (10) Cylinders greater than 40 lb through 100 lb (18 kg through 45 kg) propane capacity filled by volume shall have a fixed maximum liquid level gauge.
- (11) Pressure relief valves installed in multiple function valves in single opening cylinders used in industrial truck service shall have the springs and guiding mechanism on the container pressure side of the seats, so that the springs and guiding mechanism shall not be exposed to the atmosphere.
- (12) Multiple function valves installed on single opening cylinders used in industrial truck service shall meet the following requirements:
 - (a) When required by [5.7.2.14](#), the multiple function valve in accordance with [5.7.2.14](#) shall have the pressure relief valve exchanged with a replacement multiple function valve that incorporates the pressure relief valve described in [5.7.4.1\(D\)](#) (11).
 - (b) The multiple function valve pressure relief valve shall be permitted to have the means to be replaced without removing the multiple function valve from the cylinder.
 - (c) The multiple function valve shall incorporate an internal excess-flow valve for the liquid or vapor withdrawal service valve outlet.
 - (d) The multiple function valve shall incorporate a weak section on the service valve outlet connection.
 - (e) The multiple function valve shall incorporate an internal excess-flow valve that shall not restrict the flow to the pressure relief valve.
 - (f) The multiple function valve shall be listed.

Table 5.7.4.1(D) Container Connection and Appurtenance Requirements for Containers Used in Other Than Bulk Plants and Industrial Plants

Part	Appurtenance	1	2	3
		Cylinders 2 lb Through 420 lb Propane Capacity	Stationary ASME Containers ≤4000 gal Water Capacity ^a	DOT and ASME Engine Fuel and Mobile Containers
A	Vapor shutoff valve ^b	R (CGA 555 outlet prohibited)	R	R with internal excess-flow valve
B	Liquid shutoff valve ^b	R with CGA 555 outlet and internal excess-flow valve	R with internal excess flow valve	R with internal excess-flow valve
D	Pressure relief valve	R (See 5.7.2.2.)	R ^c (See 5.7.4.1(B).)	R with full internal or flush-type full internal pressure relief valve
E	Fixed maximum liquid level gauge	R (filled by volume) R (filled by weight, ≤40 lb and >100 lb) (See 5.7.4.1(D)(10).)	R	R
F	Overfilling prevention device	R (4 lb through 40 lb) (See 5.7.3.)	NR	R (ASME only) (See 5.7.4.1(D)(6).)
G	Actuated liquid withdrawal excess-flow valve	NR	R (≥125 gal) (See 5.7.4.1(D)(3), (4), and (5).)	NR
H	Float gauge	NR	R (>124 gal only)	NR
I	Filler valve (See 5.7.4.1(D)(7).)	R (for ≥100 lb cylinders that are filled on site at the point of use)	R	R (for ASME containers only)

For SI units, 1 lb = 0.454 kg; 1 gal = 0.0045 m³.

R: Required. NR: Not required.

^aAll ASME container capacities are water capacity.

^bWhere installed.

^cAboveground ASME containers, internal or external spring-type pressure relief valves only shall be used, except as stated in 5.7.4.1(A) and 5.7.4.1(B).

Statement of Problem and Substantiation for Public Input

To provide enforceable language.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 101-NFPA 58-2014 [Section No. 5.7.4.1(D)]	

Submitter Information Verification

Submitter Full Name: KAREN KOENIG

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Submittal Date: Fri Jun 13 08:53:13 EDT 2014

PI No. 226 Section 5.7.4.1(D)

Containers in other than bulk plant or industrial plant service shall be fitted with valves and other appurtenances in accordance with [Table 5.7.4.1\(D\)](#) and the following:

- (1) Shutoff, filler, check, and excess-flow valves for ASME containers shall comply with ANSI/UL 125, *Standard for Flow Control Valves for Anhydrous Ammonia and LP-Gas (Other than Safety Relief)*.
- (2) Shutoff valves used on DOT cylinders shall comply with ANSI/UL 1769, *Standard for Cylinder Valves*.
- (3) Containers of 125 gal through 4000 gal (0.5 m³ through 15.2 m³) water capacity shall be provided with an actuated liquid withdrawal excess-flow valve with a connection not smaller than 3/4 in. NPT (19 mm), and the container connection shall not be smaller than 3/4 in. NPT (19 mm).
- (4) An actuated liquid withdrawal excess-flow valve shall not be required on container connections equipped for liquid withdrawal with a positive shutoff valve that is located as close to the container as practical in combination with an excess-flow valve installed in the container connection.
- (5) The actuated liquid withdrawal excess-flow valve shall not be connected for continuous use unless the valve is recommended by the manufacturer for such service.
- (6) An overfilling prevention device shall not be required for engine fuel cylinders used on industrial (and forklift) trucks powered by LP-Gas or for engine fuel cylinders used on vehicles (including floor maintenance machines) having LP-Gas-powered engines mounted on them.
- (7) A filler valve shall incorporate one of the following:
 - (a) Double backflow check valves of the spring-loaded type
 - (b) Manual shutoff valve with an internal backflow check valve of the spring-loaded type
 - (c) Combination single backflow check valve of the spring-loaded type and an overfilling prevention device designed for containers
- (8) Manual shutoff valves in vapor service shall be equipped with one of the following:
 - (a) Orifice between the container contents and the shutoff valve outlet, not exceeding 5/16 in. (8 mm) in diameter, and an approved regulator directly attached, or attached with a flexible connector, to the manual shutoff valve outlet
 - (b) Excess-flow valve
- (9) Overfilling prevention devices shall be required on cylinders having 4 lb through 40 lb (1.8 kg through 18 kg) propane capacity for vapor service. (*See 5.7.3.*)
- (10) Cylinders greater than 40 lb through 100 lb (18 kg through 45 kg) propane capacity filled by volume shall have a fixed maximum liquid level gauge.
- (11) Pressure relief valves installed in multiple function valves in single opening cylinders used in industrial truck service shall have the springs and guiding mechanism on the container pressure side of the seats, so that the springs and guiding mechanism shall not be exposed to the atmosphere.
- (12) Multiple function valves installed on single opening cylinders used in industrial truck service shall meet the following requirements:
 - (a) When required by [5.7.2.14](#), the multiple function valve in accordance with [5.7.2.14](#) shall have the pressure relief valve exchanged with a replacement multiple function valve that incorporates the pressure relief valve described in [5.7.4.1\(D\)\(11\)](#).
 - (b) The multiple function valve pressure relief valve shall be permitted to have the means to be replaced without removing the multiple function valve from the cylinder.
 - (c) The multiple function valve shall incorporate an internal excess-flow valve for the liquid or vapor withdrawal service valve outlet.
 - (d) The multiple function valve shall incorporate a weak section on the service valve outlet connection.
 - (e) The multiple function valve shall incorporate an internal excess-flow valve that shall not restrict the flow to the pressure relief valve.
 - (f) The multiple function valve shall be listed.

Table 5.7.4.1(D) Container Connection and Appurtenance Requirements for Containers Used in Other Than Bulk Plants and Industrial Plants

Part	Appurtenance	<u>1</u>	<u>2</u>	<u>3</u>
		<u>Cylinders 2 lb Through 420 lb Propane Capacity</u>	<u>Stationary ASME Containers ≤4000 gal Water Capacity^a</u>	<u>DOT and ASME Engine Fuel and Mobile Containers</u>
A	Vapor shutoff valve ^b	R (CGA 555 outlet prohibited)	R	R with internal excess-flow valve
B	Liquid shutoff valve ^b	R with CGA 555 outlet and internal excess-flow valve	R with internal excess flow valve	R with internal excess-flow valve
D	Pressure relief valve	R (<i>See 5.7.2.2.</i>)	R ^c (<i>See 5.7.4.1(B).</i>)	R with full internal or flush-type full internal pressure relief valve
E	Fixed maximum liquid level gauge	R (filled by volume) R (filled by weight, ≤40 lb and >100 lb) (<i>See 5.7.4.1(D)(10).</i>)	R	R
F	Overfilling prevention device	R (4 lb through 40 lb) (<i>See 5.7.3.</i>)	NR	R (ASME only) (<i>See 5.7.4.1(D)(6).</i>)
G	Actuated liquid withdrawal excess-flow valve	NR	R (≥125 gal) (<i>See 5.7.4.1(D)(3), (4), and (5).</i>)	NR
H	Float gauge	NR	R (>124 gal only)	NR
I	Filler valve (<i>See 5.7.4.1(D)(7).</i>)	R (for ≥100 lb cylinders that are filled on site at the point of use)	R	R (for ASME containers only)

For SI units, 1 lb = 0.454 kg; 1 gal = 0.0045 m³.

R: Required. NR: Not required.

^aAll ASME container capacities are water capacity.

^bWhere installed.

^cAboveground ASME containers, internal spring-type pressure relief valves only, except as stated in 5.7.4.1(A) and 5.7.4.1(B).

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
NFPA_58_Proposal_Tabke.pdf	RevisedTable 5.7.4.2 (D)	

Statement of Problem and Substantiation for Public Input

Currently Section 5.7.4.1 does not adequately cover portable cylinders with a capacity of 2 lb. and smaller. Paragraph 5.7.4.1 is applicable to all propane and butane containers of 4,000 gallons and less, however there are no requirements specific to 2 lb and smaller. The size range of cylinders 2 lb. and smaller includes 1 pound cylinders constructed to DOT Specification 39, aerosol type containers of butane constructed to DOT specifications 2P and 2Q, and butane cigarette lighters. These do are not required to have some of the appurtenances required in NFPA 58, 5.7.4.1. For example 5.7.4.1 (D) (8) requires that manual shutoff valves in vapor service used with cylinders 2 lb and smaller have either a 5/16" flow orifice or and excess flow valve. There are millions of disposable 1 lb propane cylinders that are not equipped with manual shutoff valves. They are equipped with check valves, and unfortunately some enforcement officials have interpreted that a check valve is not a manual shutoff valve.

In addition editorial changes are made to include a row "C", and to delete "for" in 2 places for editorial consistence.

Submitter Information Verification

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Affiliation: Flame King

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Submittal Date: Thu Jul 03 07:19:14 EDT 2014

Revise Table 5.7.4.1 (D) to read:

Table 5.7.4.1 (D) Container Connection and Appurtenance Requirements for Containers Used in Other Than Bulk Plants and Industrial Plants

		<u>1</u>	<u>4 2</u>	<u>2 3</u>	<u>3 4</u>
Part	Appurtenance	<u>Containers ≤ 2 lb.</u>	Cylinders 2 lb Through 420 lb Propane Capacity	Stationary ASME Containers ≤4000 gal Water Capacity^a	DOT and ASME Engine Fuel and Mobile Containers
A	Vapor shutoff valve ^b	<u>NR</u> (CGA 555 outlet prohibited)	R (CGA 555 outlet prohibited)	R with internal excess flow valve	R with internal excess-flow valve
B	Liquid shutoff valve ^b	<u>NR</u> Where installed, CGA 555 outlet required	R with CGA 555 outlet and internal excess-flow valve	R with internal excess flow valve	R with internal excess-flow valve
D <u>C</u>	Pressure relief valve	<u>As required by DOT Specifications</u>	R (See 5.7.2.2.)	R ^c [See 5.7.4.1(B).]	R with full internal or flush-type full internal pressure relief valve
D E	Fixed maximum liquid level gauge	R (filled by volume) <u>NR (filled by weight)</u>	R (filled by volume) R (filled by weight, ≤40 lb and >100 lb)	R [See 5.7.4.1(D)(10).]	R
E F	Overfilling prevention device	<u>NR</u>	R (4 lb through 40 lb) (See 5.7.3.)	NR	R (ASME only) [See 5.7.4.1(D)(6).]
F G	Actuated liquid withdrawal excess-flow valve	<u>NR</u>	NR	R (≥125 gal) [See 5.7.4.1(D)(3), (4), and (5).]	NR
G H	Float gauge	<u>NR</u>	NR	R (>124 gal only)	NR
H I	Filler valve [See 5.7.4.1(D)(7).]	<u>NR</u>	R (for ≥100 lb cylinders that are filled on site at the point of use)	R	R (for ASME containers only)

**Public Input No. 213-NFPA 58-2014 [Section No. 5.7.4.4]**5.7.4.4

ASME containers over 4000 gal (15.2 m³) water capacity shall also be equipped with the following appurtenances:

- (1) - ~~An internal spring type, flush type full internal pressure relief valve, or external pressure relief valve. (see Annex E.)~~
- (2) A fixed maximum liquid level gauge
- (3) A float gauge, rotary gauge, slip tube gauge, or a combination of these gauges
- (4) A pressure gauge
- (5) A temperature gauge

Statement of Problem and Substantiation for Public Input

This requirement is redundant to 5.7.2.1 which states: "ASME containers shall be equipped with one or more pressure relief valves that are designed to relieve vapor".

Submitter Information Verification

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Submittal Date: Wed Jul 02 16:27:04 EDT 2014

**Public Input No. 257-NFPA 58-2014 [Section No. 5.7.4.4]**5.7.4.4

ASME containers over 4000 gal (15.2 m³) water capacity shall also be equipped with the following appurtenances:

- (1) An internal spring-type, flush-type full internal pressure relief valve, or external pressure relief valve (*see Annex E*)
- (2) A fixed maximum liquid level gauge
- (3) A float gauge, rotary gauge, slip tube gauge, or a combination of these gauges
- (4) A pressure gauge
- (5) A temperature gauge for aboveground containers only

Statement of Problem and Substantiation for Public Input

The proposal seeks to eliminate the requirement for a temperature gauge on underground or mounded containers over 4,000 gallons. Temperature gauges on larger aboveground containers provide some safety benefit in that they allow the operator to prevent overfilling the container by temperature-compensating for the fill percentage. Changes in atmospheric temperature and solar irradiance have an effect on the ambient temperature of the container and the gas within. These changes then increase or decrease the volumetric fill level of the container.

Underground containers, on the other hand, are not greatly affected by changes in atmospheric temperature or solar irradiance. The temperature of the container and its contents tend to remain the same as the surrounding soil. Therefore, the temperature gauge on the underground container has no safety or utility benefit.

Removing the requirement for temperature gauges on underground containers greater than 4,000 water gallon capacity will create a consistent requirement for all underground containers, as currently there is no requirement for temperature gauges on underground containers less than 4,000 gallons water capacity.

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki

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Submittal Date: Thu Jul 03 18:21:57 EDT 2014

**Public Input No. 235-NFPA 58-2014 [Section No. 5.7.5.6]****5.7.5.6**

Cylinders equipped with a fixed maximum liquid level gauge where the dip tube is not welded to the inside of the cylinder shall be permanently marked adjacent to ~~on~~ the gauge cylinder collar .

(A)

Cylinders ~~designed to be filled in one position~~ shall be marked as follows:

- (1) The marking shall be the letters "DT" followed by the dip tube length to the nearest tenth of an inch.
- (2) The dip tube length shall be measured from the top center of the cylinder boss or coupling where the gauge is installed to the maximum permitted filling level.

(B) –

~~Universal cylinders, where the dip tube is not welded to the inside of the cylinder and that are permitted to be filled in either the vertical or horizontal position, shall be marked as follows:~~

- (1) ~~- Vertical filling: With the letters VDT followed by the vertical distance (to the nearest tenth of an inch), measured from the top center of the coupling where the gauge is installed to the maximum permitted filling level~~
- (2) ~~- Horizontal filling: With the letters HDT followed by the vertical distance (to the nearest tenth of an inch), measured from the centerline of the coupling opening into which the gauge is installed located at the maximum filling level in the horizontal position, to the inside top of the cylinder~~

Statement of Problem and Substantiation for Public Input

This change will permit cylinders marked DT to be filled in the vertical position or the horizontal position if the coupling where the gauge is installed is oriented to the maximum filling level while the cylinder is in the horizontal position. All universal engine fuel cylinder designs orient the dip tube location by the position of the fixed maximum liquid level gauge flange to the mounting slot in the cylinder collar

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 234-NFPA 58-2014 [Section No. 3.3.17.1]	
Public Input No. 236-NFPA 58-2014 [New Section after 7.2.2.11]	
Public Input No. 238-NFPA 58-2014 [Section No. 11.13.2.2]	

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki
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Submittal Date: Thu Jul 03 14:32:41 EDT 2014

**Public Input No. 259-NFPA 58-2014 [Section No. 5.7.8.7]**5.7.8.7

Every ASME storage container of more than 2000-4000 gal (7.15-2 m³) water capacity shall be provided with a pressure gauge.

Statement of Problem and Substantiation for Public Input

The current changes in the 2014 edition to redefining bulk plants as having containers no smaller than 4,000 gallon water capacity has left other sections in the code that need to be changed to reflect the new requirements.

All references to "2,000 gallons" were reviewed with the idea of changing those references to 4,000 gallons if technically warranted. Several sections were not changed because it was determined the code would not be improved from the standpoint of improving safety. The sections proposed to be changed by this proposal will result in greater fire safety overall for propane installations. In addition, the changes to several paragraphs in Section 6.6.3 will correlate with the changes that were made to Table 6.6.3.3 (A) in the 2014 edition.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 260-NFPA 58-2014 [Section No. 6.6.3.1]	
Public Input No. 261-NFPA 58-2014 [Section No. 6.6.3.3(D)]	
Public Input No. 262-NFPA 58-2014 [Section No. 6.6.3.8]	

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki
Organization: National Propane Gas Association
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Zip:
Submittal Date: Sat Jul 05 19:07:30 EDT 2014

**Public Input No. 255-NFPA 58-2014 [New Section after 5.9.1.4]****TITLE OF NEW CONTENT**

5.9.1.5 Piping, fittings, and valves that are damaged or worn so that they are prone to leaks are to be repaired or replaced.

Statement of Problem and Substantiation for Public Input

The specifications for piping, fittings, and valves are specified, but this equipment wears and gets damaged. There is nothing in the LP-Gas Code that requires worn or damaged equipment to be repaired or replaced. This will provide that requirement.

Submitter Information Verification

Submitter Full Name: Richard Fredenburg

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Submittal Date: Thu Jul 03 17:40:10 EDT 2014

**Public Input No. 208-NFPA 58-2014 [Section No. 5.9.6.3]**

5.9.6.3 –

Hose and quick connectors shall be approved.

Statement of Problem and Substantiation for Public Input

Criteria are not provided in the code or annex to guide the AHJ in the approval of hoses and quick connectors. As an alternate to deleting the requirement, text could be added to the code or Annex A to provide information to the AHJ.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff

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Submittal Date: Wed Jul 02 16:14:12 EDT 2014

**Public Input No. 254-NFPA 58-2014 [New Section after 5.16]****TITLE OF NEW CONTENT**

5.17 Reserved

Statement of Problem and Substantiation for Public Input

The chapter alignment between chapters 5 and 6 slipped in the 2014 edition. This is part of the effort to realign the chapters.

This alignment was introduced in the 2004 edition of the LP-Gas Code so that requirements in chapter 5 would align with installation requirements for the same equipment in chapter 6. This has made it easier to find all of the requirements for the types of equipment in both chapters 5 and 6, saving a lot of time looking for these requirements.

It is the intent of this PI to make the alignment a continuing thing with each edition.

Submitter Information Verification

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Submittal Date: Thu Jul 03 17:30:08 EDT 2014

**Public Input No. 209-NFPA 58-2014 [Section No. 5.17.1.3(C)]**

(C)

Aluminum shall be used only for cylinders, gaskets, regulators, ~~approved~~ meters, and indirect electric vaporizers.

Statement of Problem and Substantiation for Public Input

As written, aluminum is allowed to be used in approved meters, but aluminum is not allowed for a meter that is not approved. No criteria are provided in the code or annex to guide the AHJ in the approval of the aluminum products in the requirement. As an alternate to deletion, criteria could be provided in the code or annex for the approval of the aluminum system components covered by the paragraph, or the requirement could be revised to require approval of aluminum in all meters.

Submitter Information Verification

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Submittal Date: Wed Jul 02 16:16:24 EDT 2014

**Public Input No. 227-NFPA 58-2014 [New Section after 5.17.8]****TITLE OF NEW CONTENT**

Type your content here ...

Add to NFPA 58 Section 5.17.9 (New Section)

Section 5.17.9 to contain the following:

5.17.9 LP-Gas Filtration Systems. LP-Gas filtration systems that are not integral to a container, container appurtenances or dispenser nozzle shall meet service pressure ratings in Table 5.17.1.2 and be constructed of non-porous, non-particle generating materials listed in Table 5.17.1.3; which shall be resistant to the action of LP-Gas under service conditions.

Statement of Problem and Substantiation for Public Input

The new NFPA Section 5.17.9 is being proposed to define the pressure requirements and material of construction for a LP-Gas filtration system. The need for a LP-Gas filtration system is being driven by industrial requirements of LP-Gas purity that exceed even that specified by ASTM D 1835 Standard Specification for LP-Gases. The equipment will be used to detect and/or filter out the components from LP-Gas which are considered undesirable. For example, carbon based compounds other than propane that have a carbon chain number of C12 or greater (heavy ends) and inorganic particulate matter (sediment, rust) greater than 5 microns in diameter would be considered undesirable components for some applications.

Submitter Information Verification**Submitter Full Name:** Jonathan Parsons**Organization:** Donaldson Company, Inc.**Affiliation:** N/A**Street Address:****City:****State:****Zip:****Submittal Date:** Thu Jul 03 10:41:56 EDT 2014

**Public Input No. 85-NFPA 58-2014 [New Section after 5.20.7]****5.20.8 Cabinet heaters and composite cylinders shall be listed and meet the following requirements:**

(A) Cabinet heaters shall have a maximum propane input rating of 15,000 Btu/hr and shall comply with Gas-fired Room Heaters, ANSI Z21.11.3, Volume III, Propane-fired Portable Emergency Use Heater Systems.

(B) Cabinet heaters shall be supplied with propane from only listed composite cylinders and shall utilize a cylinder valve that complies with UL 1796 Standard for Cylinder Valves and incorporate an overfilling prevention device complying with UL2227 Standard for Overfilling Prevention Devices.

(C) Composite cylinders that are used with cabinet heaters shall have a maximum weight capacity of 19 lb (8.7 kg) of propane [nominal 43 lb (19 kg) water capacity].

(D) The composite cylinder shall be located in a separate compartment from the heating element.

(E) Cabinet heaters shall utilize a listed integral two-stage regulator that shall comply with ANSI/UL144 Standard for LP-Gas Regulators that operate with a maximum outlet pressure setting that does not exceed a nominal 2 psig.

(F) Cabinet heater integral two-stage regulators shall not be equipped with a pressure relief valve in either stage.

(G) Cabinet heater integral two-stage regulators shall utilize separate vent limiting features on each stage that comply with ANSI Z21.18/CSA 6.3 Standard for Gas Appliance Pressure Regulators.

(H) Cabinet heaters shall utilize a CGA 793 appliance side connection complying with CGA Publication V-1 Standard for Compressed Gas Cylinder Valve Outlet and Inlet Connections that are listed to the UL 2061 Standard for Adapters and Cylinder Connection Devices or ANSI Z21.81/CSA 6.25 Standard for Cylinder Connection Devices.

5.20.9 Modification of the cabinet heater CGA 793 connection or the use of an adapter that allows an alternate fuel source or allows the use of steel or aluminum cylinders to supply the cabinet heater shall be prohibited.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58_Johnson_Doc_1.pdf	PI Form

Statement of Problem and Substantiation for Public Input

Cabinet heaters are allowed for emergency use indoors and the new ANSI Z21.11.3 standard for cabinet heaters that describes construction constraints shall be documented in NFPA 58 to establish the basis for a safe appliance. These added construction requirements correspond to other proposed changes adding Chapter 3 definitions and Chapter 6 installation requirements.

Submitter Information Verification

Submitter Full Name: Jessie Johnson
Organization: Blossman Gas Inc
Street Address:
City:
State:
Zip:
Submittal Date: Thu Apr 24 13:30:46 EDT 2014

**Public Input No. 277-NFPA 58-2014 [Section No. 5.22.1]**5.22.1

~~The dispenser.~~ Vehicle fuel dispensers shall have a maximum design pressure rating equal to or greater than the ~~maximum.~~ normal operating discharge pressure ~~from the pump and bypass valve, if provided, of the pumping system..~~

Statement of Problem and Substantiation for Public Input

Because 5.22.1 addresses only vehicle fuel dispensers, the clarification to the text is needed to avoid extractions "out of context." In addition, since 6.18.2.3 requires pumps to incorporate a means to limit the "normal operating discharge pressure," the same terminology is being proposed for this section

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki

Organization: National Propane Gas Association

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jul 07 13:33:16 EDT 2014

**Public Input No. 106-NFPA 58-2014 [Section No. 6.3.3.1]****6.3.3.1**

The minimum separation distances specified in [Table 6.3.1.1](#) between containers and buildings of ~~other than woodframe~~ noncombustible construction devoted exclusively to gas manufacturing and distribution operations shall be reduced to 10 ft (3 m).

Statement of Problem and Substantiation for Public Input

Rather than specify a specific type of construction, why not say what the intent is? When you say "other than woodframe construction," your intent almost certainly is for "noncombustible construction." With the wide variety of materials used for construction, the intent should be clearly specified. There are many construction materials that are not woodframe but are combustible. If a builder used some combustible material other than wood to build a building, they could argue that they met the requirement when they did not meet the intent.

Submitter Information Verification

Submitter Full Name: Richard Fredenburg

Organization: State of North Carolina

Street Address:

City:

State:

Zip:

Submittal Date: Thu Jun 19 17:16:17 EDT 2014

**Public Input No. 89-NFPA 58-2014 [Section No. 6.4.3]****6.4.3** General Requirements for Underground and Mounded ASME Containers .**6.4.3.1**

The sides of adjacent containers shall be separated in accordance with [Table 6.3.1.1](#) but shall not be separated by less than 3 ft (1 m).

6.4.3.2

Where containers are installed parallel with ends in line, the number of containers in one group shall not be limited.

6.4.3.3

Where more than one row of containers is installed, the adjacent ends of the containers in each row shall be separated by not less than 10 ft (3 m).

Statement of Problem and Substantiation for Public Input

Some people think that these General Requirements apply to all installations. The addition clarifies that these General Requirements apply only to Underground or Mounded ASME Containers

Submitter Information Verification

Submitter Full Name: William Young

Organization: Superior Energy Systems, Ltd.

Street Address:

City:

State:

Zip:

Submittal Date: Wed Apr 30 16:24:50 EDT 2014

**Public Input No. 243-NFPA 58-2014 [Section No. 6.4.4.5]****6.4.4.5**

LP-Gas containers shall be located at least 10 ft (3 m) from the centerline of the wall of diked areas containing [Class I](#) flammable or [Class II](#) combustible liquids.

Statement of Problem and Substantiation for Public Input

This proposal will make the terminology consistent in the manner that the code refers to these two hazardous materials. A related change will provide some examples in Annex A of Class I liquids and Class II liquids.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 244-NFPA 58-2014 [New Section after A.6.4.4.4]	

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki

Organization: National Propane Gas Association

Street Address:

City:

State:

Zip:

Submittal Date: Thu Jul 03 15:00:13 EDT 2014

**Public Input No. 151-NFPA 58-2014 [Section No. 6.4.4.10]****6.4.4.10**

Where protective structures having a minimum fire resistance rating of 2 hours, in accordance with ASTM E119, interrupt the line of sight between uninsulated portions of the oxygen or hydrogen containers and the LP-Gas containers, no minimum distance shall apply.

Statement of Problem and Substantiation for Public Input

The standard test method for fire resistance rating must be specified. Moreover, ASTM E119 is referenced in chapter 3 but not mentioned in this portion of the code.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 148-NFPA 58-2014 [Section No. 2.3.4]	
Public Input No. 150-NFPA 58-2014 [Section No. 5.2.7.1(B)]	
Public Input No. 152-NFPA 58-2014 [Section No. 6.6.4.3]	

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler

Organization: GBH International

Street Address:

City:

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Submittal Date: Fri Jun 27 18:28:42 EDT 2014

**Public Input No. 327-NFPA 58-2014 [Section No. 6.4.4.13]****6.4.4.13**

An aboveground LP-Gas container and any of its parts shall not be located within 6 ft (1.8 m) distances of a vertical plane beneath overhead electric power lines that are over 600 volts, nominal, with voltages listed in Table 6.4.4.13.

Table 6.4.4.13 Vertical Plane Separation for Overhead Alternating Current Power Lines

Power Line Voltage **Vertical Plane Separation Distances**

	<u>Feet</u>	<u>M eters</u>
Nominal 600 to 15kV Class Distribution	6.0	2.0
<u>Transmission Line Voltages</u>		
69kV	25.0	7.6
115kV to 345kV	50.0	15.0
500kV	100.0 or greater	30.0 or greater
Direct Current Line 500kW	100.0 or greater	30.0 or greater

6.4.4.15 Above ground and below ground mounded stationary ASME containers shall not be located inside perimeter of an energized high voltage substation and 25 feet (7.6 meters) away from perimeter of an energized substation perimeter and 100 feet (30.0 meters) or greater from high voltage power circuit breakers, transformers, and capacitor banks. No ASME containers located outside energized substation connected to substation ground mat but can have a separate ground mat with grounding rod.

(A) Stationary above ground ASME containers located 50 feet (15.0 meters) from metal fences, exposed wire, pipe, and electrically conductive objects that are adjacent or pass under high voltage transmission tower structures, and footings.

(B) The clearances in Table 6.4.4.13 applies to energized substations.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58_Schowe_Proposed_Changes_Form_772014.PDF	PI Form

Statement of Problem and Substantiation for Public Input

The existing fire code does not address clearances from power lines greater than 15 kV class power lines and propane tanks. In past, our agency had discovered that a contractor had installed propane tanks in a high voltage substation yard. In addition, cell phone companies have installed small propane engine generator near our high voltage transmission lines on our right of way. The present NFPA 58 does not address these situations.

Submitter Information Verification

Submitter Full Name: HARVEY SCHOWE

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City:

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Submittal Date: Thu Jul 10 12:37:34 EDT 2014

**Public Input No. 228-NFPA 58-2014 [Section No. 6.4.4.14]**6.4.4.14 * _~~Refrigerated LP-Gas containers shall be located within an impoundment in accordance with Section 12.5 .~~**Statement of Problem and Substantiation for Public Input**

6.4.4.14 should be deleted because it applies to refrigerated LP-Gas containers. According to 6.1.2 (1), Chapter 6 (and thus 6.4.4.14) does not apply to refrigerated containers.

Submitter Information Verification**Submitter Full Name:** John King**Organization:** Federated Mutual Insurance Company**Street Address:****City:****State:****Zip:****Submittal Date:** Thu Jul 03 11:19:37 EDT 2014



Public Input No. 188-NFPA 58-2014 [Section No. 6.5.2.1]

6.5.2.1

If the point of transfer of containers located outdoors in stationary installations is not located at the container, it shall be located in accordance with [Table 6.5.2.1](#).

Table 6.5.2.1 Distance Between Point of Transfer and Exposures

Part	Exposure	Minimum Horizontal Distance	
		ft	m
A	Buildings, ^a mobile homes, recreational vehicles, and modular homes with at least 1-hour fire-rated walls ^b	10 ^c	3.1
B	Buildings ^a with other than at least 1-hour fire-rated walls ^b	25 ^c	7.6 ^c
C	Building wall openings or pits at or below the level of the point of transfer	25 ^c	7.6 ^c
D	Line of adjoining property that can be built upon	25 ^c	7.6 ^c
E	Outdoor places of public assembly, including schoolyards, athletic fields, and playgrounds	50 ^c	15 ^c
F	Public ways, including public streets, highways, thoroughfares, and sidewalks		
	(1) From points of transfer in LP-Gas dispensing stations and at vehicle fuel dispensers	10	3.1
	(2) From other points of transfer	25 ^c	7.6 ^c
G	Driveways ^d	5	1.5
H	Mainline railroad track centerlines	25	7.6
I	Containers ^e other than those being filled	10	3.1
J	Flammable and Class II combustible liquid ^f dispensers and the fill connections of containers	10 ^c	3.1 ^c
K	Flammable and Class II combustible liquid aboveground containers and filling connections of underground containers	20	6.1
L	Stored or accumulated combustible materials	10	3.1

^aFor the purpose of the table, buildings also include structures such as tents and box trailers at construction sites.

^bSee ASTM E 119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, or ANSI/UL 263, *Standard for Fire Tests for Building Construction and Materials*.

^cSee 6.5.3.4.

^dNot applicable to driveways and points of transfer at vehicle fuel dispensers.

^eNot applicable to filling connections at the storage container or to dispensing vehicle fuel dispenser units of 4000 gal (15.2 m³) water capacity or less when used for filling containers not mounted on vehicles.

^fNFPA 30, *Flammable and Combustible Liquids Code*, defines these as follows: Flammable liquids include those having a flash point below 100°F (37.8°C) and having a vapor pressure not exceeding 40 psia (276 kPa) at 100°F (37.8°C). Class II combustible liquids include those having a flash point at or above 100°F (37.8°C) and below 140°F (60°C).

Statement of Problem and Substantiation for Public Input

Some points of transfer are in congested areas where other materials are stored or allowed to accumulate. Some of these materials are combustible solids. There are already precedents for separation of combustible liquid containers and dispensers from an LP-Gas point of transfer and for separation of stored or accumulated combustible materials from LP-Gas containers. It is logical to extend these precedents to separation of combustible materials from a point of transfer. This is not so much to protect the point of transfer as much as it is to protect transfers that occur at that location and the attending personnel..

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
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City:
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Submittal Date: Tue Jul 01 18:17:31 EDT 2014



Public Input No. 280-NFPA 58-2014 [Section No. 6.5.2.1]

6.5.2.1

If the point of transfer of containers located outdoors in stationary installations is not located at the container, it shall be located in accordance with [Table 6.5.2.1](#).

Table 6.5.2.1 Distance Between Point of Transfer and Exposures

Part	Exposure	Minimum Horizontal Distance	
		ft	m
A	Buildings , ^a mobile homes, recreational vehicles, and modular homes with at least 1-hour fire-rated walls ^b	10 ^c	3.1
B	Buildings ^a with other than at least 1-hour fire-rated walls ^b	25 ^c	7.6 ^c
C	Building wall openings or pits at or below the level of the point of transfer	25 ^c	7.6 ^c
D	Line of adjoining property that can be built upon	25 ^c	7.6 ^c
E	Outdoor places of public assembly, including schoolyards, athletic fields, and playgrounds	50 ^c	15 ^c
F	Public ways, including public streets, highways, thoroughfares, and sidewalks		
	(1) From points of transfer in		
	transfer for LP-Gas dispensing stations and at vehicle fuel dispensers		
	systems	10	3.1
	(2) From other points of transfer		25 ^c 7.6 ^c
G	Driveways ^d		5 1.5
H	Mainline railroad track centerlines		25 7.6
I	Containers ^e other than those being filled		10 3.1
J	Flammable and Class II combustible liquid ^f dispensers and the fill connections of containers	10 ^c	3.1 ^c
K	Flammable and Class II combustible liquid aboveground containers and filling connections of underground containers	20	6.1

^aFor the purpose of the table, buildings also include structures such as tents and box trailers at construction sites.

^bSee ASTM E 119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, or ANSI/UL 263, *Standard for Fire Tests for Building Construction and Materials*.

^cSee 6.5.3.4.

^dNot applicable to driveways and points of transfer at vehicle fuel dispensers.

^eNot applicable to filling connections at the storage container or to dispensing- vehicle fuel dispenser units of 4000 gal (15.2 m³) water capacity or less when used for filling containers not mounted on vehicles.

^fNFPA 30, *Flammable and Combustible Liquids Code*, defines these as follows: Flammable liquids include those having a flash point below 100°F (37.8°C) and having a vapor pressure not exceeding 40 psia (276 kPa) at 100°F (37.8°C). Class II combustible liquids include those having a flash point at or above 100°F (37.8°C) and below 140°F (60°C).

Statement of Problem and Substantiation for Public Input

This proposal will correlate with the terminology change proposed in P.I. 272. Since vehicle fuel dispensers are a subset of dispensing systems, there is no need to list them. In addition, the change to Note e is editorial.

Related Public Inputs for This Document

Related Input	Relationship
Public Input No. 272-NFPA 58-2014 [Section No. 3.3.20]	

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki
 Organization: National Propane Gas Association
 Street Address:
 City:
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 Zip:
 Submittal Date: Mon Jul 07 13:48:28 EDT 2014

**Public Input No. 260-NFPA 58-2014 [Section No. 6.6.3.1]****6.6.3.1**

Horizontal ASME containers designed for permanent installation in stationary aboveground service shall be placed on masonry or other noncombustible structural supports located on concrete or masonry foundations with the container supports.

(A)

Where saddles are used to support the container, they shall allow for expansion and contraction and prevent an excessive concentration of stresses.

(B)

Where structural steel supports are used, they shall comply with [6.6.3.3](#).

(C)

Containers of more than ~~2000-4000~~ gal (~~7.15.6-2~~ m³) water capacity shall be provided with concrete or masonry foundations formed to fit the container contour or, if furnished with saddles in compliance with [Table 6.6.3.3\(A\)](#), shall be placed on flat-topped foundations.

(D)

Containers of ~~2000-4000~~ gal (~~7.15.6-2~~ m³) water capacity or less shall be installed either on concrete or masonry foundations formed to fit the container contour or in accordance with [6.6.3.1\(E\)](#).

(E)

Containers of ~~2000-4000~~ gal (~~7.15.6-2~~ m³) water capacity or less and equipped with attached supports complying with [Table 6.6.3.3\(A\)](#) shall be installed on a fire-resistive foundation if the bottoms of the horizontal members of the container saddles, runners, or skids are more than 12 in. (300 mm) above grade.

(F)

Containers of ~~2000-4000~~ gal (~~7.15.6-2~~ m³) water capacity or less shall not be mounted with the outside bottom of the container shell more than 5 ft (1.5 m) above the surface of the ground.

(G)

Containers of 4000 gal (15.2 m³) water capacity or less installed with combined container-pump assemblies on a common base complying with [Table 6.6.3.3\(A\)](#) shall be placed either on paved surfaces or on concrete pads at ground level within 4 in. (100 mm) of ground level.

Statement of Problem and Substantiation for Public Input

The current changes in the 2014 edition to redefining bulk plants as having containers no smaller than 4,000 gallon water capacity has left other sections in the code that need to be changed to reflect the new requirements.

All references to "2,000 gallons" were reviewed with the idea of changing those references to 4,000 gallons if technically warranted. Several sections were not changed because it was determined the code would not be improved from the standpoint of improving safety. The sections proposed to be changed by this proposal will result in greater fire safety overall for propane installations. In addition, the changes to several paragraphs in Section 6.6.3 will correlate with the changes that were made to Table 6.6.3.3 (A) in the 2014 edition.

Related Public Inputs for This Document**Related Input****Relationship**

[Public Input No. 259-NFPA 58-2014 \[Section No. 5.7.8.7\]](#)

[Public Input No. 261-NFPA 58-2014 \[Section No. 6.6.3.3\(D\)\]](#)

[Public Input No. 262-NFPA 58-2014 \[Section No. 6.6.3.8\]](#)

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki

Organization: National Propane Gas Association

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Submittal Date: Sat Jul 05 19:10:07 EDT 2014

**Public Input No. 320-NFPA 58-2014 [New Section after 6.6.3.1(A)]****TITLE OF NEW CONTENT**

6.6.3.1(A) ASME containers shall be set upon a firm foundation or otherwise be firmly secured.

Statement of Problem and Substantiation for Public Input

This is a resubmittal of a proposal for the 2014 edition. I will not repeat the incident that raised this concern other than to say a person died because the tank he just filled was not on a firm foundation and it slid down the hill. This proposal was defeated at the ROP and ROC stages, but passed as a certified amending motion at the NFPA general membership meeting. After that it received a clear majority vote of the committee, but one or two votes short of the supermajority required.

The precedent for setting containers on a "firm foundation" or "be firmly secured" has been in force for tens of years for cylinders. Even though there are many requirements for saddles and concrete pads for ASME containers, nowhere does it require the saddle or pad to be on a firm footing.

Submitter Information Verification

Submitter Full Name: Richard Fredenburg

Organization: State of North Carolina

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jul 07 23:22:56 EDT 2014

**Public Input No. 82-NFPA 58-2014 [Section No. 6.6.3.1(G)]**

(G)

Containers of 4000 gal (15.2 m³) water capacity or less installed with combined container-pump assemblies on a common base complying with [Table 6.6.3.3\(A\)](#) shall ~~be placed either on paved surfaces or on concrete pads at~~ be fastened to concrete foundations or supports at ground level within 4 in. (100 mm) of ground level.

Statement of Problem and Substantiation for Public Input

Provides for securing of combined container/dispensing assemblies to prevent from movement. Current language would allow for the placement on small masonry blocks which can move for various reasons causing electrical connections to break.

Submitter Information Verification

Submitter Full Name: Kelly Nicoello

Organization: Western Regional Fire Code Dev

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City:

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Zip:

Submittal Date: Tue Apr 01 19:06:40 EDT 2014

**Public Input No. 265-NFPA 58-2014 [New Section after 6.6.3.3(B)]****TITLE OF NEW CONTENT**

6.6.3.3 (B)(1). Skid tanks with a water capacity equal to or exceeding 4,000 gallons may be installed with the height of the container bottom up to 18 inches above concrete foundations provided additional supports are provided that would help bear the load if a tank settles under fire conditions.

Statement of Problem and Substantiation for Public Input

I am submitting this proposal on behalf of the Skid Tank Task Force. Internal valves are required for tanks of this size. This proposal is an attempt to provide sufficient clearance to install internal valves, which provide an automatic means of stopping the flow of product from a container under fire conditions. It is believed by some members of the task force that the thermal actuation feature of internal valves makes coating skid tank supports with a material with a 2 hour fire resistance rating unnecessary.

Submitter Information Verification

Submitter Full Name: John King

Organization: Federated Mutual Insurance Company

Street Address:

City:

State:

Zip:

Submittal Date: Sun Jul 06 09:10:42 EDT 2014

**Public Input No. 261-NFPA 58-2014 [Section No. 6.6.3.3(D)]**

(D)

Horizontal ASME containers of 2000- 4000 gal (7.15-6.2 m³) or less, on foundations in their installed condition, shall meet the following conditions:

- (1) Structurally support the containers when subject to deteriorating environmental effects including, but not limited to, ambient temperature of -40°F to 150°F (-40°C to 66°C) or local conditions if outside this range, ultraviolet rays, radiant heat from fires, and moisture
- (2) Be of either noncombustible or self-extinguishing material (per the definition in NFPA 99, *Health Care Facilities Code*, 3.3.163)

Statement of Problem and Substantiation for Public Input

The current changes in the 2014 edition to redefining bulk plants as having containers no smaller than 4,000 gallon water capacity has left other sections in the code that need to be changed to reflect the new requirements.

All references to "2,000 gallons" were reviewed with the idea of changing those references to 4,000 gallons if technically warranted. Several sections were not changed because it was determined the code would not be improved from the standpoint of improving safety. The sections proposed to be changed by this proposal will result in greater fire safety overall for propane installations. In addition, the changes to several paragraphs in Section 6.6.3 will correlate with the changes that were made to Table 6.6.3.3 (A) in the 2014 edition.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 259-NFPA 58-2014 [Section No. 5.7.8.7]	
Public Input No. 260-NFPA 58-2014 [Section No. 6.6.3.1]	
Public Input No. 262-NFPA 58-2014 [Section No. 6.6.3.8]	

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki
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Submittal Date: Sat Jul 05 19:13:58 EDT 2014

**Public Input No. 291-NFPA 58-2014 [Section No. 6.6.3.6]****6.6.3.6 –****In locations where the**

~~monthly maximum~~

snow depth

~~of snow accumulation, as determined from the National Weather Service or other published statistics~~

, based on the ground snow load, is more than the height of aboveground containers, excluding the dome cover, the following requirements shall apply:

(1) A stake or other marking shall be installed higher than the

~~average snow cover depths, up to a height of 15 ft (4.6 m).~~

snow depth based on the ground snow load, and

(2) The container shall be installed to prevent its movement or damage, or otherwise prevent any adverse affect on proper operation,, resulting from snow accumulation or snow loading .

Snow depth (ft), based on the ground snow load (Lb/ft^2), and snow density (Lb/ft^3) shall be determined as follows:

Snow depth = (Ground Snow Load) / (Snow Density)

where

Snow density = (0.13*Ground Snow Load) ¹⁴

For example, if the ground snow load is 50 Lb/ft^2 , then the snow density is 20.5 Lb/ft^3 and the snow depth is 2.44 ft.

—

Statement of Problem and Substantiation for Public Input

This is based on the NFPA FPRF funded research report study entitled "Quantifying Heavy Snow Load in NFPA 58" completed in June 2014.

Submitter Information Verification

Submitter Full Name: Daniel Howell

Organization: FM Global

Street Address:

City:

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Zip:

Submittal Date: Mon Jul 07 14:04:26 EDT 2014

**Public Input No. 262-NFPA 58-2014 [Section No. 6.6.3.8]****6.6.3.8**

Portable tanks of ~~2000-4000~~ gal (~~7.15 .6-2~~ m³) water capacity or less that comply with [5.2.7.3](#) shall be installed in accordance with [6.6.3.1\(E\)](#).

Statement of Problem and Substantiation for Public Input

The current changes in the 2014 edition to redefining bulk plants as having containers no smaller than 4,000 gallon water capacity has left other sections in the code that need to be changed to reflect the new requirements.

All references to "2,000 gallons" were reviewed with the idea of changing those references to 4,000 gallons if technically warranted. Several sections were not changed because it was determined the code would not be improved from the standpoint of improving safety. The sections proposed to be changed by this proposal will result in greater fire safety overall for propane installations. In addition, the changes to several paragraphs in Section 6.6.3 will correlate with the changes that were made to Table 6.6.3.3 (A) in the 2014 edition.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 259-NFPA 58-2014 [Section No. 5.7.8.7]	
Public Input No. 260-NFPA 58-2014 [Section No. 6.6.3.1]	
Public Input No. 261-NFPA 58-2014 [Section No. 6.6.3.3(D)]	

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki
Organization: National Propane Gas Association
Street Address:
City:
State:
Zip:
Submittal Date: Sat Jul 05 19:17:12 EDT 2014

**Public Input No. 270-NFPA 58-2014 [Section No. 6.6.4]**6.6.4 Installation of Vertical ASME Containers.6.6.4.1

Vertical ASME containers of 125 (0.5 m³) gallons water capacity or less shall be installed upon a firm foundation.

6.6.4.2 Vertical ASME containers of

over 125

125 (0.5 m³) gallons water capacity or less shall not be in contact with the soil.

6.6.4.3

Vertical ASME containers greater than 125 gal (0.5 m³) water capacity designed for permanent installation in stationary aboveground service shall be installed on reinforced concrete or steel structural supports on reinforced concrete foundations that are designed to meet the loading provisions established in [5.2.4.3](#).

6.6.4.2.4

The requirements in [6.6.4.3.5](#) through [6.6.4.5.7](#) shall also apply to the installation of vertical ASME containers greater than 125 gallons water capacity.

6.6.4.3.5

Steel supports shall be protected against fire exposure with a material that has a fire resistance rating of at least 2 hours, except that continuous steel skirts that have only one opening that is 18 in. (460 mm) or less in diameter shall have fire protection applied to the outside of the skirts.

6.6.4.4.6

Vertical ASME containers used in liquid service shall not be manifolded to horizontal ASME containers.

6.6.4.5.7

Vertical ASME containers of different dimensions shall not be manifolded together.

Statement of Problem and Substantiation for Public Input

Currently NFPA 58 is silent regarding the installation of vertical ASME containers of 125 gallons water capacity or less. These proposed requirements will address that shortcoming.

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki

Organization: National Propane Gas Association

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jul 07 11:50:23 EDT 2014

**Public Input No. 152-NFPA 58-2014 [Section No. 6.6.4.3]****6.6.4.3**

Steel supports shall be protected against fire exposure with a material that has a fire resistance rating of at least 2 hours, in accordance with ASTM E119, except that continuous steel skirts that have only one opening that is 18 in. (460 mm) or less in diameter shall have fire protection applied to the outside of the skirts.

Statement of Problem and Substantiation for Public Input

The standard test method for fire resistance rating must be specified. Moreover, ASTM E119 is referenced in chapter 3 but not mentioned in this portion of the code.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 151-NFPA 58-2014 [Section No. 6.4.4.10]	
Public Input No. 150-NFPA 58-2014 [Section No. 5.2.7.1(B)]	
Public Input No. 148-NFPA 58-2014 [Section No. 2.3.4]	
Public Input No. 153-NFPA 58-2014 [Section No. 10.3.1.3]	

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler
Organization: GBH International
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Zip:
Submittal Date: Fri Jun 27 18:32:05 EDT 2014

**Public Input No. 282-NFPA 58-2014 [Section No. 6.7.2.13]****6.7.2.13**

Pressure relief devices installed in underground containers ~~in serving dispensing stations systems~~ shall be piped vertically upward to a point at least 10 ft (3 m) above the ground.

Statement of Problem and Substantiation for Public Input

This proposal correlates with P.I. 272 and incorporates the new terminology introduced by that proposal.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 272-NFPA 58-2014 [Section No. 3.3.20]	

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki
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Street Address:
City:
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Zip:
Submittal Date: Mon Jul 07 13:55:50 EDT 2014



Public Input No. 183-NFPA 58-2014 [Section No. 6.8.1.1]

6.8.1.1

First-stage, high-pressure, automatic changeover, integral 2 psi service, integral two-stage, and single-stage regulators where allowed shall be installed in accordance with 6.8.1.1(A) through 6.8.1.1(D).

(A)

Regulators connected to single container permanent installations shall be installed with one of the following methods:

- (1) ~~- Directly attached -~~ Attached to the vapor service valve ~~using metallic pipe, tubing, fittings or adaptors that do not exceed 60 inches in total length.~~
- (2) Attached to the vapor service valve with a single flexible metallic connector

(B)

Regulators connected to cylinders in other than stationary installations shall be installed with one of the following methods:

- (1) ~~- Directly attached -~~ Attached to the vapor service valve ~~using metallic pipe, tubing, fittings or adaptors that do not exceed 60 inches in total length.~~
- (2) Attached to the vapor service valve with a single flexible metallic connector
- (3) Attached to the vapor service valve with a single flexible hose connector

(C)

Regulators connected to manifolded containers shall be installed with the following methods:

- (1) Installations shall comply with 6.9.3.8.
- (2) The regulator shall be ~~directly- attached or attached-~~ with a pipe or a single flexible metallic connector to the vapor service manifold piping outlet.
- (3) The connection between the container service valve outlet and the inlet side of the manifold piping shall be installed with one of the following methods:

~~Directly attached~~

- (a) ~~-~~ Attached with a metallic fitting
- (b) ~~-~~ Attached with a single flexible metallic connector
- (c) ~~-~~ Attached with a flexible hose connector connected to a cylinder in other than stationary installations

(D)

Regulators installed on vaporizer outlets shall be installed with one of the following methods:

- (1) ~~- Directly attached -~~ Attached using metallic pipe, tubing, fittings or adaptors that do not exceed 60 inches in total length.
- (2) Attached with a single flexible metallic connector

(E)

Regulators connected to underground or mounded containers shall be permitted to be attached to the vapor service valve with a flexible hose connector providing electrical isolation between the container and metallic piping system that complies with ANSI/UL 569, *Standard for Pigtailed and Flexible Hose Connectors for LP-Gas*, and is recommended by the manufacturer for underground service.

Statement of Problem and Substantiation for Public Input

Questions have been raised as to what the term "directly attached" means when referring to the attachment of regulators to a container vapor shutoff valve or piping as found in 6.8.1.1 and 6.8.1.2 in the 2014 Edition of NFPA 58.

The phrase "directly attached" can imply that part A must connect to part B without the use of part C. However, most regulators have female connections and most container valves also have female connections which require a third component to connect the two together.

The new text proposed for 6.8.1.1 and 6.8.1.2 will clarify that pipe, tubing, fittings or adaptors can be used as long as they do not exceed the length permitted by 3.3.25 for flexible connectors, which currently are permitted to be used to connect regulators to the vapor distribution system.

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki

Organization: National Propane Gas Association

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City:

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Zip:

Submission Date: Tue Jul 01 16:53:58 EDT 2014

**Public Input No. 104-NFPA 58-2014 [Section No. 6.9.2.2]****6.9.2.2**

LP-Gas vapor piping systems shall be sized and installed to provide a supply of gas to meet the maximum demand of all gas utilization equipment using [Table 15.1\(a\)](#) through [Table 15.1\(q\)](#) - or, [engineering methods](#), or [sizing tables included in a piping system manufacturer's installation instructions](#) .:

Statement of Problem and Substantiation for Public Input

The CSST sizing tables in the Code were developed to cover all CSST manufacturers' products. As the different manufacturers' products are not identical, some will have higher flow capacities than stated in the tables. Each manufacturer's sizing table is reviewed by the listing laboratory as part of the listing process. By allowing individual manufacturers' sizing tables to be used there are cases in which the installer may be able to use smaller tubing sizes to provide the needed flow of fuel gas.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff

Organization: TLemoff Engineering

Affiliation: Omega Flex

Street Address:

City:

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Submittal Date: Thu Jun 19 14:35:26 EDT 2014

**Public Input No. 92-NFPA 58-2014 [Section No. 6.9.3.5 [Excluding any Sub-Sections]]**

Metallic pipe joints shall be permitted to be threaded, flanged, welded, ~~or brazed using~~ brazed, or press-connected using pipe and fittings that comply with [5.9.3](#), [5.9.4](#), and [6.9.3.5\(A\)](#) through [6.9.3.5\(H\)](#).

Statement of Problem and Substantiation for Public Input

Press-connect fittings complying with ANSI/CSA 6.32 (LC4) are included in NFPA 54 Section 5.6.8.2 Tubing Joints. The 2007 version of the standard (ANSI LC4) was limited to copper and copper alloy fittings for tubing but the 2012 version, published January of 2013, includes steel and stainless steel fittings for pipe. Fuel gas pipe < or = 125 PSIG is included in the scope of NFPA 58. This verbiage is needed for appropriate reference within the body of the standard.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 90-NFPA 58-2014 [Section No. 2.3.6]	Applicable location within the standard.

Submitter Information Verification

Submitter Full Name: CURTIS DADY
Organization: VIEGA
Street Address:
City:
State:
Zip:
Submittal Date: Mon May 19 15:19:41 EDT 2014

**Public Input No. 93-NFPA 58-2014 [Section No. 6.9.3.5(A)]**

(A)

Metallic threaded, welded, and ~~brazed pipe~~ brazed, and press-connected pipe joints shall be in accordance with [Table 6.9.3.5\(A\)](#).

Table 6.9.3.5(A) Types of Metallic Pipe Joints in LP-Gas Service

<u>Service</u>	<u>Schedule 40</u>	<u>Schedule 80</u>
<u>Liquid</u>	<u>Welded or brazed</u>	<u>Threaded, welded, or brazed</u>
<u>Vapor, ≤125 psig</u> <u>(≤0.9 MPag)</u>	<u>Threaded, welded, or brazed</u>	<u>Threaded, welded, brazed, or</u>
<u>brazed</u>		
<u>press-connected</u>		
<u>Vapor, ≥125 psig</u> <u>(≥0.9 MPag)</u>	<u>Welded or brazed</u>	<u>Threaded, welded, or brazed</u>

Statement of Problem and Substantiation for Public Input

Press-connect fittings complying with ANSI/CSA 6.32 (LC4) are included in NFPA 54 Section 5.6.8.2 Tubing Joints. The 2007 version of the standard (ANSI LC4) was limited to copper and copper alloy fittings for tubing but the 2012 version, published January of 2013, includes steel and stainless steel fittings for pipe. Fuel gas pipe < or = 125 PSIG is included in the scope of NFPA 58. This verbiage is needed for appropriate reference within the body of the standard.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 90-NFPA 58-2014 [Section No. 2.3.6]	

Submitter Information Verification

Submitter Full Name: CURTIS DADY

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Submittal Date: Mon May 19 15:27:17 EDT 2014

**Public Input No. 42-NFPA 58-2013 [Section No. 6.9.3.14]****6.9.3.14**

Metallic piping shall be protected against corrosion in accordance with [6.9.3.14\(A\)](#) through [6.9.3.14\(C\)](#).

(A)

Piping and tubing of 1 in. (25 mm) nominal diameter or smaller shall be protected in accordance with [6.17.1](#) or [6.17.2](#).

(B)

Piping and tubing larger than 1 in. (25 mm) nominal diameter and installed above ground shall be protected in accordance with [6.17.1](#).

(C)

~~Steel piping larger than 1 in. (25 mm) nominal diameter.~~ Metallic piping installed underground shall have a cathodic protection system in accordance with [6.17.2\(C\)](#) unless technical justification is approved by the authority having jurisdiction.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58_Mahre_6.9.3.14_a_b_c_PI42.pdf	input form

Statement of Problem and Substantiation for Public Input

Metallic piping such as listed in 5.9.3(1)(2)(3)(4)(5) is used by the propane industry in sizes less than 1 in. (25 mm) nominal diameter. When the installer determines that metallic piping be used in residential installations from the storage container underground to the structure and interconnected to the second stage regulator the most common sizes are 1/2 in. and 3/4 in. Schedule 40 pipe. This revised text corrects an oversight by the technical committee that all underground metallic pipe requires cathodic protection.

Submitter Information Verification

Submitter Full Name: Bill Mahre

Organization: Propane Technical Services

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Submittal Date: Tue Dec 10 14:29:20 EST 2013

**Public Input No. 253-NFPA 58-2014 [New Section after 6.9.6.1]****Use of Hose 6.9.6.1 and renumber others following**

Hose shall be prohibited for use in a vapor piping system serving appliances except where installed in accordance with 6.8.1.1(B)(3), 11.7.3, 6.21.3, 6.24.5.1.

Statement of Problem and Substantiation for Public Input

Hose being used as piping system components such as service lines in permanently installed fixed piping systems. The definition of piping systems is very broad and would include cylinder exchange systems, construction heat systems and portable appliance systems. Hose can only be used in certain piping systems. Where piping systems are supplying fuel gas to utilization equipment hose can be used only as flexible connectors for cylinders on an exchange basis, for portable appliances, and agricultural buildings with less than 5 psi.

NFPA 58 Section 6.9 Piping Systems give us guidance on Installation of Metallic Pipe, Tubing, and Fittings, Installation of Polyamide and Polyethylene Pipe, Tubing and Fittings, Valves in Polyamide and Polyethylene Piping Systems & Flexible Connectors. I think it's reasonable to assume if the intent of the Committee was to allow hose other than for flexible connectors and portable appliances there would be a sub-section on hose within section NFPA 58-6.9. Piping Systems.

Additionally, NFPA 58-6.9.3.9(B) prohibits hose to be used to permanently interconnect containers and the interconnection is considered a component of a piping system. Commentary suggests the prohibition is necessary because hose is more likely to degrade over time. I think it's reasonable to assume since the Committee's intent is to prohibit hose as a piping system component (interconnection of containers) it would also be prohibited to use hose as a piping system component (service or supply line).

Neither the International Fuel Gas Code nor NFPA 54 allows hose as a piping system service line. Hose as a piping system service line or component in permanently installed fixed piping systems should be clearly prohibited in NFPA 58.

When supplying fuel gas to utilization, equipment hose should not be used except when necessary. Hose should only be used for portable appliances, construction heat, as pigtailed in cylinder exchange, and agricultural buildings.

Due to the cost effectiveness and the ease of installation industry may consider using hose as an option for permanently installed fixed piping system components if not clearly prohibited by code. I have personally witnessed multiple times hose installed as an above ground service line running from the container across the lawn to residences. I have also witnessed hose as a service line installed through a building wall to a space heater in a residence where the container was <125 gallons and installed next to the building.

Submitter Information Verification

Submitter Full Name: Jay Hardwick

Organization: State Fire Marshal

Street Address:

City:

State:

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Submittal Date: Thu Jul 03 17:06:20 EDT 2014

**Public Input No. 271-NFPA 58-2014 [Section No. 6.11.4.1]****6.11.4.1**

At least one remote shutdown station for internal valves in liquid service shall be installed

not

in accordance with the following:

(1) Not less than 25 ft

(7

(1) .

6-m)

(1) . or more than 100 ft

(30-m)

(1) . from the liquid transfer point

.

(1)

(2) Not closer than 25 feet to the internal valves that are being controlled

(3) Along a path of egress from the liquid transfer point

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
P.I._271_Clarification.docx	This is the proposal in total. The system was formatting the proposal in a weird way so this document is a more accurate translation.	

Statement of Problem and Substantiation for Public Input

There is an inconsistency between the requirements for remote shutdown stations operating internal valves and remote shutoff devices for ESV's in Section 6.12.12.2. This proposal will eliminate that inconsistency.

The function of a remote shutoff station is to allow a person to safely operate the shutoff. A leak in that location would require an operator to enter an unsafe area in order to trip the remote shutoff station.

There may be several paths of egress from the facility. This proposal recognizes trained employees will be knowledgeable about the location of the shutoff.

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki

Organization: National Propane Gas Association

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jul 07 12:13:00 EDT 2014

Proposal:

Modify NFPA 58 as follows:

6.11.4.1 At least one remote shutdown station for internal valves in liquid service shall be installed ~~not less than 25 ft. or more than 100 ft. from the liquid transfer point.~~ in accordance with the following:

- (1) Not less than 25 ft. or more than 100 ft. from the liquid transfer point
- (2) Not closer than 25 feet to the internal valves that are being controlled
- (3) Along a path of egress from the liquid transfer point

Substantiation:

There is an inconsistency between the requirements for remote shutdown stations operating internal valves and remote shutoff devices for ESV's in Section 6.12.12.2. This proposal will eliminate that inconsistency.

The function of a remote shutoff station is to allow a person to safely operate the shutoff. A leak in that location would require an operator to enter an unsafe area in order to trip the remote shutoff station.

There may be several paths of egress from the facility. This proposal recognizes trained employees will be knowledgeable about the location of the shutoff.

**Public Input No. 185-NFPA 58-2014 [New Section after 6.11.5]****TITLE OF NEW CONTENT**

6.11.6 The identifying sign for the remote emergency shutoff device in 6.11.5 shall be firmly attached adjacent to the device.

Statement of Problem and Substantiation for Public Input

Inspectors have found on multiple occasions that the sign identifying a remote emergency shutoff device has blown away or is otherwise missing. When it was found, it was clear that the sign was never attached in place. Sometimes they were set on a ledge or behind some conduit. The wind had blown it away. For a remote station to be useful, it must be identified, even after moderate winds have come through.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 184-NFPA 58-2014 [New Section after 6.12.12.3]	

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: State of North Carolina
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jul 01 17:55:54 EDT 2014

**Public Input No. 184-NFPA 58-2014 [New Section after 6.12.12.3]****TITLE OF NEW CONTENT**

The identifying sign for the remote emergency shutoff device in 6.12.12.1 shall be firmly attached adjacent to the device.

Statement of Problem and Substantiation for Public Input

Inspectors have found on multiple occasions that the sign identifying a remote emergency shutoff device has blown away or is otherwise missing. When it was found, it was clear that the sign was never attached in place. Sometimes they were set on a ledge or behind some conduit. The wind had blown it away. For a remote station to be useful, it must be identified, even after moderate winds have come through.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 185-NFPA 58-2014 [New Section after 6.11.5]	
Public Input No. 186-NFPA 58-2014 [New Section after 6.25.3.9]	
Public Input No. 187-NFPA 58-2014 [New Section after 6.25.3.18]	

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
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Zip:
Submittal Date: Tue Jul 01 17:45:41 EDT 2014

**Public Input No. 98-NFPA 58-2014 [Section No. 6.14.1.1]****6.14.1.1**

After installation or modification, piping systems (including hose) shall be proven free of leaks ~~by performing a pressure test~~ at not less than the normal operating pressure.

Statement of Problem and Substantiation for Public Input

Substantial changes were made to "Testing Piping Systems" in the 2014 edition of NFPA 58. Definitions for "pressure test" and "leak check" were added to Chapter 3, and because of these definitions there is now a conflict between the definitions and code requirements. By definition the "pressure test" is an operation performed to verify the gastight integrity of GAS PIPING, while the "leak check" is an operation performed on a GAS PIPING SYSTEM to verify that the SYSTEM does not leak. NFPA 58 defines a gas PIPING SYSTEM as: 3.3.53 Piping Systems. Pipe, tubing, hose, and flexible rubber or metallic hose connectors with valves and fittings made into complete systems for conveying LP-Gas from one point to another in either the liquid or the vapor state at various pressures.

The requirement in 6.14.1.1 is inconsistent with the definition provided, since it requires a pressure test on a piping SYSTEM. Once piping is connected to a propane tank, pigtail, regulator(s), appliance(s), pump, bulkhead, etc. (a complete system) it is no longer piping - but a piping system. The requirement for a pressure test is not a leak check, which is what 6.14.1.1 now requires. Material in Annex A further verifies the difference between a leak check and a pressure test: A.6.15.2 Refer to Annex L for suggested methods for performing a leak check. A leak check differs from a pressure test in that the leak check procedure is used to prove that a SYSTEM is free of leaks that could pose a hazard, such as uncapped piping ends or piping corrosion failure, whereas a pressure test is used to test the integrity of the piping SYSTEM at normal or elevated pressure at the time of installation or after modification. . .

Previous editions of NFPA 58 simply required the piping system to be proven free of leaks at not less than normal operating pressure, which is what I am requesting 6.14.1.1 to be changed back to. By doing this there is no limitation on how to test the piping system to be free of leaks (whether it is a vapor or liquid system).

By making this change, several other sections will require changes also. [6.14.2.1, 6.24.5.1(M)]

Since "pressure test" is referenced in numerous sections of NFPA 58 and has different requirements based on application (hose, field-assembled risers, the Scope of NFPA 54) the definition should not be removed from Chapter 3 [3.3.59, 5.9.6.4(D), 6.14.3, 11.7.3.4(B), A.6.15.2].

Submitter Information Verification

Submitter Full Name: Thomas Dunn

Organization: Iowa Propane Gas Association

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jun 09 11:28:57 EDT 2014

**Public Input No. 99-NFPA 58-2014 [Section No. 6.14.2.1]**6.14.2.1

Where new branches are installed, only the newly installed branch(es) shall be required to be ~~pressure tested~~ tested at not less than the normal operating pressure .

Statement of Problem and Substantiation for Public Input

See substantiation to proposed change to 6.14.1.1 - that change would prompt the proposed change provided to 6.14.2.1

Submitter Information Verification

Submitter Full Name: Thomas Dunn

Organization: Iowa Propane Gas Association

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jun 09 11:59:34 EDT 2014

**Public Input No. 304-NFPA 58-2014 [New Section after 6.16.1]****6.16.2**

Where the ground snow load is equal to or exceeds 30 psf and where the location is exposed to sliding snow from a roof: piping, regulators, meters, and other equipment installed in the piping system shall be protected from the effects of sliding snow.

Locations exposed to sliding snow shall be defined as any location within a horizontal distance of 15 ft from a roof eave or edge where the roof is sloped downward toward the roof edge or eave.

Statement of Problem and Substantiation for Public Input

This is based on the NFPA FPRF funded research report study entitled "Quantifying Heavy Snow Load in NFPA 58" completed in June 2014. The 15 ft limit is based on the current provisions in ASCE 7-10 for the horizontal limit for sliding snow surcharge load from a high sloped roof imposed on a low flat or low-sloped roof.

Submitter Information Verification

Submitter Full Name: Daniel Howell

Organization: FM Global

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jul 07 14:42:04 EDT 2014

**Public Input No. 248-NFPA 58-2014 [Section No. 6.16.1]****6.16.1 ***

In areas where the ground snow load is equal to or exceeds ~~175~~ exceeds 35 psf (~~855~~ 170 kg/m²), piping, regulators, meters, and other equipment installed in the piping system shall be protected from the forces of accumulated snow and ice and snow shedding from other structures .

Statement of Problem and Substantiation for Public Input

Incorporate information from Fire Protection Research Foundation report. Report indicates, "2) In relation to wall mounted equipment provisions, it is recommended that the 50 year MRI ground snow load trigger value be somewhere in the 30 to 40 psf range." Current thresholds are significantly above this recommendation.

Submitter Information Verification

Submitter Full Name: Timothy Myers

Organization: Exponent, Inc.

Street Address:

City:

State:

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Submittal Date: Thu Jul 03 15:52:50 EDT 2014

**Public Input No. 300-NFPA 58-2014 [Section No. 6.16.1]**6.16.1 * _

In areas where the ground snow load is equal to or exceeds ~~175 psf (855 kg/m²)~~ exceeds 100 psf , piping, regulators, meters, and other equipment installed in the piping system shall be protected from the forces of accumulated snow.

Statement of Problem and Substantiation for Public Input

This is based on the NFPA FPRF funded research report study entitled "Quantifying Heavy Snow Load in NFPA 58" completed in June 2014.

Submitter Information Verification

Submitter Full Name: Daniel Howell

Organization: FM Global

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jul 07 14:39:03 EDT 2014

**Public Input No. 165-NFPA 58-2014 [Section No. 6.17.2]****6.17.2**

Except Corrosion protection for underground and mounded containers (~~see~~ shall be installed in accordance with 6.6.6), all materials and equipment that are buried or mounded shall comply with one of the requirements in 6.17.2(A) through 6.17.2(C).

(A)

Materials and equipment shall be made of corrosion-resistant material that are suitable for the environment in which they will be installed.

(B)

Materials and equipment shall be manufactured with a corrosion-resistant coating or have a coating applied prior to being placed into service.

(C)

Materials and equipment shall have a cathodic protection system installed and maintained in accordance with 6.17.3.

Statement of Problem and Substantiation for Public Input

It is proposed to revise the requirement editorially to provide a positive statement, rather than an exception. Exceptions are discouraged by the NFPA Manual of Style.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff

Organization: TLemoff Engineering

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jun 30 12:56:29 EDT 2014

**Public Input No. 214-NFPA 58-2014 [Section No. 6.17.2 [Excluding any Sub-Sections]]**

Except Corrosion protection for underground and mounded containers (~~see~~ shall be in accordance with 6.6.6), all materials and equipment that are buried or mounded shall comply with one of the requirements in [6.17.2\(A\)](#) through [6.17.2\(C\)](#).

Statement of Problem and Substantiation for Public Input

: It is proposed to revise the requirement editorially to provide a positive statement, rather than an exception. Exceptions are discouraged by the NFPA Manual of Style.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff

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Submittal Date: Wed Jul 02 16:30:52 EDT 2014

**Public Input No. 105-NFPA 58-2014 [Section No. 6.18.2.1]****6.18.2.1**

Pumps shall be installed on a suitable and adequate foundation in accordance with the pump manufacturers' installation instructions.

Statement of Problem and Substantiation for Public Input

There are installations which have no support for the pump. It sits directly on the ground. This often causes excessive vibration, and potential leakage.

Submitter Information Verification

Submitter Full Name: William Young

Organization: Superior Energy Systems, Ltd.

Street Address:

City:

State:

Zip:

Submittal Date: Thu Jun 19 14:50:51 EDT 2014

**Public Input No. 284-NFPA 58-2014 [Section No. 6.18.2.3(D)]**

(D)

A pump operating control or disconnect switch shall be located near the pump, and remote control points shall be provided for other plant operations such as container filling, loading or unloading of cargo tank vehicles and railroad tank cars, or operation of the ~~engine-fuel~~-dispenser.

Statement of Problem and Substantiation for Public Input

This proposal will ensure that the requirements of this section applies to all dispenser installations, not just those used for engine fuel.

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki

Organization: National Propane Gas Association

Street Address:

City:

State:

Zip:

Submittal Date: Mon Jul 07 13:58:49 EDT 2014

**Public Input No. 130-NFPA 58-2014 [Section No. 6.19.4.2(A)]****(A)**

The enclosure shall have at least two means of emergency egress, ~~except as follows~~ unless all of the following conditions are met :

- (1) The fenced or otherwise enclosed area is not over 100 ft² (9 m²).
- (2) The point of transfer is within 3 ft (1 m) of the gate.
- (3) Containers are not filled within the enclosure.

Statement of Problem and Substantiation for Public Input

The requirements of 6.19.4.2 (A) are confusing in that it is not clear if they are an "and" or "or" listing. An informal interpretation made by NFPA staff in 2012 or 2013 expressed that if any one condition existed, then the requirement is for two means of egress. As an AHJ, I have had to explain to our inspectors and to the operators of sites where transfers occur that it is logical that if any one listed condition is present, then an additional way to escape is needed in case a transfer goes bad.

Submitter Information Verification

Submitter Full Name: Richard Fredenburg
Organization: State of North Carolina
Street Address:
City:
State:
Zip:
Submittal Date: Thu Jun 26 17:46:20 EDT 2014

**Public Input No. 86-NFPA 58-2014 [Section No. 6.20.8]**6.20.8 Temporary Heating and Food Service Appliances in Buildings in Emergencies.6.20.8.1

Cylinders shall ~~not~~ be permitted to be used in buildings for temporary emergency heating purposes except when all of the following conditions are met:

- (1) The permanent heating system is temporarily out of service.
- (2) Heat is necessary to prevent damage to the buildings or contents.
- (3) The cylinders and heaters comply with, and are used and transported in accordance with, [6.20.2](#) through [6.20.4](#).
- (4) The temporary heating equipment is not left unattended.
- (5) Air for combustion and ventilation is provided in accordance with NFPA 54, *National Fuel Gas Code*.

6.20.8.2

When a public emergency has been declared and gas, fuel, or electrical service has been interrupted, portable listed LP-Gas commercial food service appliances meeting the requirements of [6.20.9.4](#) shall be permitted to be temporarily used inside affected buildings.

6.20.8.3

The portable appliances used shall be discontinued and removed from the building at the time the permanently installed appliances are placed back in operation.

6.20.8.4 When a public emergency has been declared and gas, fuel, or electrical service has been interrupted, portable listed cabinet heaters utilizing listed composite cylinders shall be permitted to be temporarily used inside affected buildings. [See [6.20.1.2](#), [6.20.1.2\(A\)](#) through (C), and [6.20.3.6](#)].

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
58_Johnson_Doc_2.pdf	PI Form

Statement of Problem and Substantiation for Public Input

Add a new paragraph 6.20.8.4 to differentiate temporary food service appliance requirements from cabinet heater appliance requirements used inside affected buildings. Editorial changes to 6.20.8.1 for clarity.

Cabinet heaters are allowed for emergency use indoors and the new ANSI Z21.11.3 standard for cabinet heaters that describes construction constraints shall be documented in NFPA 58 to establish the basis for a safe appliance. These added installation requirements correspond to other proposed changes adding Chapter 3 definitions and Chapter 5 construction requirements.

Submitter Information Verification

Submitter Full Name: Jessie Johnson

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Submittal Date: Fri Apr 25 08:59:02 EDT 2014

**Public Input No. 83-NFPA 58-2014 [Section No. 6.20.8.2]**6.20.8.2

~~When a public emergency has been declared and gas, fuel, or electrical service has been interrupted, portable listed LP-Gas commercial food service appliances meeting the requirements of 6.20.9.4 shall~~

In the event of a declared emergency or when lack of access to a permanently installed fuel supply exists, attended and supervised, portable or fixed cooking equipment shall be permitted to be temporarily used inside affected buildings in accordance with 6.20.9.4.

Statement of Problem and Substantiation for Public Input

The current problem exists in the catering world that the allowed 10oz bottles do not provide enough btu's to operate a food service operation for any period of time and in fact may present a larger hazard as they are typically used in an open flame table top application and require frequent changing often times while the other table top burners are still going. This change along with a few others would standardize the codes for caterers and restaurants that would like a temporary omelot bar or other station to allow for up to two 20lb tanks to be installed via hoses in accordance with 6.20.2.5 to equipment that is suitable for feeding large crowds. The two 20lb tanks would allow for service through the meal time and prevent having to change out in the middle of a shift. Two tanks as opposed to one or a smaller 5 or 10lb tank would also prevent freezing of regulators or hoses minimizing hazard.

As you are aware propane bottles up to 100lbs are allowed in buildings under certain applications such as 6.20.2.1. Pyro technics are even allowed with up to 5lb bottles. All under proper supervision of course. There are countless examples of 20lb bottles or larger being utilized indoors under proper supervision and installation. The food service industry is in need of a standard that allows for safe utilization but would increase the capacity of the containers.

The standardization that is sought is this:

To allow up to two 20lb propane bottles per cooking appliance. Device must be properly leak tested using the soap method or commercially available leak test solution. Manager or at least one operator on site must have passed a propane certification course offered by many suppliers. Bottles must be physically attached to the appliance via commercially available cables to prevent hose strain. Appliance must be supervised at all times. A 5lb minimum ABC fire extinguisher must be on site (1 per appliance.)

This same standardization could be utilized in outdoor catering as well except to allow for larger tanks.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 84-NFPA 58-2014 [Section No. 6.20.9.4]	

Submitter Information Verification

Submitter Full Name: Paul Werkowitch

Organization: Chris Cakes STL (a commercial catering operation)

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Submission Date: Mon Apr 21 10:43:59 EDT 2014

**Public Input No. 84-NFPA 58-2014 [Section No. 6.20.9.4]****6.20.9.4**

Cylinders used with commercial food service appliances shall be used inside restaurants and in attended commercial food catering operations in accordance with the following:

- (1) Cylinders and appliances shall be listed.
- (2) Commercial food service appliances shall not have more than two 40-oz (296 ml) nonrefillable butane gas cylinders, each having a maximum capacity of 1.08 lb (0.490 kg); 20lb propane cylinders per appliance.
- (3) Cylinders shall comply with ANSI/UL 147B, *Standard for Nonrefillable (Disposable) Type Metal Container Assemblies for Butane* all applicable construction for 20lb or smaller bottles determined by application.
- (4) Cylinders shall be connected directly to the appliance and shall not be manifolded, or via hoses in accordance with 6.20.2.5.
- (5) Cylinders shall be an integral part of the listed, approved, commercial food service device and shall be connected without the use of a rubber hose, only be used on a temporary basis for temporary, portable, attended equipment.
- (6) Manager on site or operator of appliance must have passed a propane safety course as provided by a licensed propane supplier.
- (7) All appliances must be leak tested utilizing soap or commercially available leak test solution.
- (8) There must be a sprinkler system, extinguishing system or a minimum 5lb ABC fire extinguisher per appliance.
- (9) Cylinders must be physically attached to appliance with commercially available cable to prevent hose strain. The hoses and installation must comply with 6.21.3
- (10) Appliance must be locked in place via wheel locks or physically in touch with ground to prevent sliding or rolling.
- (11) Appliance and cylinders must be installed on smooth, level ground in a manner that will prevent accidental tipping or interference with connections or bottles.
- (12) Appliances shall have a shut off valve immediately accessible to operator.
- (13) Appliances must be located away from flammable objects in accordance with 6.20.3.4
- (14) Storage of cylinders shall be in accordance with 8.3.1.

Statement of Problem and Substantiation for Public Input

Please see my public input for 83-NFPA 58-2014 which has a full explanation.

In the commercial food service business there is a need for more btu's available for serving large crowds. We believe it can be safely accomplished and may in fact be safer than using multiple table top cookers that are open flame and are used by so many operations. The small bottles require frequent changing during meal service when you are busiest which causes rushing and possible room for error. They also require multiple bottles not in use to be accessible then when you are done with a bottle you have a trash bag full of "empties." To allow use of 5, 10 and 20lb refillable bottles many problems would be solved for restaurants and the catering industry.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 83-NFPA 58-2014 [Section No. 6.20.8.2]	correspond to each other update each to clarify and reflect each other.

Submitter Information Verification

Submitter Full Name: Paul Werkowitch
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**Public Input No. 100-NFPA 58-2014 [Section No. 6.24.5.1(M)]**

(M)

Piping systems, including hose, shall be ~~pressure tested and~~ proven free of leaks in accordance with Section 6.14.

Statement of Problem and Substantiation for Public Input

See substantiation to proposed change to 6.14.1.1 - that change would prompt the proposed changes provided to 6.14.2.1, and 6.24.5.1(M).

Submitter Information Verification

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Submittal Date: Mon Jun 09 12:03:08 EDT 2014

**Public Input No. 142-NFPA 58-2014 [New Section after 6.24.7.11]**

Propane Detectors.

All vehicles equipped with a propane appliance shall be equipped with a propane detector listed and marked on the device as being suitable for use in recreational vehicles / unconditioned areas under the requirements of ANSI/UL 1484 and installed according to the terms of its listing.

Statement of Problem and Substantiation for Public Input

Early warning of potential gas leaks can be provided by installation of a LP gas detector. Many cities require gas detectors in Mobile Food Vehicles. Gas detectors have been required in all RV's since 1996, per NFPA 1192 section 6.4.8. Over 5 million gas detectors have been installed in RV's, providing an extra level of effective and reliable protection from potential gas leaks. Any vehicle with a gas appliance on board is subject to the risk of a potential gas leak, adding a gas detector requirement would provide early warning and additional safety.

NOTE: Supporting material is available for review at NFPA Headquarters.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 143-NFPA 58-2014 [New Section after 6.24.7.11]	

Submitter Information Verification

Submitter Full Name: DAVID BUDDINGH

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Submittal Date: Fri Jun 27 12:12:58 EDT 2014

**Public Input No. 206-NFPA 58-2014 [Sections 6.24.8.1, 6.24.8.2]****Sections 6.24.8.1, 6.24.8.2****6.24.8.1**

Mobile units including mobile kitchens and catering vehicles that contain hot plates and other cooking equipment shall be provided with at least one ~~approved~~ portable fire extinguisher ~~rated~~ in accordance with NFPA 10, *Standard for Portable Fire Extinguishers*, ~~at not less than 10~~ 4.7 with a minimum rating of 10 -B:C.

6.24.8.2

~~Where fire extinguishers have more than one letter classification, they shall be considered as meeting the requirements of each letter class.~~

Statement of Problem and Substantiation for Public Input

Portable fire extinguishers are addressed in several paragraphs in NFPA 58, creating much duplication of text and sizing requirements. Creating a new paragraph 4.7 standardizes the specifications/requirements for a portable fire extinguisher into one location. The ratings of the fire extinguishers in related proposals have been changed to correspond to NFPA 10-2013, the latest edition of that standard. Note that NFPA 10 no longer specifies the quantity of extinguishing agent in the extinguisher, but does provide information (see NFPA 10, Table G.2) for determining equivalent ratings based on the amount of extinguishing agent. Because experience in the field has shown that authorities having jurisdiction most often refer to the quantity of extinguishing agent in the canister, we are proposing to keep that required information in the code.

Each individual paragraph where fire extinguishers are required will now address the specific application and reference the new text in proposed 4.7 while keeping the size/rating requirements, thus minimizing the duplication of text.

"Approved" has been removed from paragraphs 6.24.8.1, 6.27.4.2, 8.5.1, 8.5.2, 9.3.5.2, and 9.4.7.1 as "approved" is now part of the requirements listed in new paragraph 4.7(A).

Paragraphs 6.24.8.2, 6.27.4.3, 8.5.4, 9.3.5.2, and 9.4.7.2 have been deleted as they are now covered in 4.7(C).

The following references from NFPA 10 are useful for understanding the new rating and marking system: Table G.2; Section 5.4.1.3; A.5.4.1.2; Table 6.2.1.1 and Table 6.3.1.1.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 194-NFPA 58-2014 [New Section after 4.6]	As stated in Substantiation

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki
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Submittal Date: Wed Jul 02 16:09:16 EDT 2014



Public Input No. 288-NFPA 58-2014 [Section No. 6.25]

6.25 Vehicle Fuel Dispenser and Dispensing Stations Dispensing Systems .6.25.1 Application.6.25.1.1

Section 6.25 includes the location, installation, and operation of vehicle fuel dispensers and dispensing ~~stations~~ systems .

6.25.1.2

The provisions of Sections 6.2 and 6.3 , as modified by Section 6.25 , shall apply.

6.25.2 Location.6.25.2.1

Location of vehicle fuel dispensers and dispensing ~~stations~~ systems shall be in accordance with Table 6.5.2.1 .

6.25.2.2

Vehicle fuel dispensers and dispensing ~~stations~~ systems shall be located away from pits in accordance with Table 6.5.2.1 , with no drains or blow-offs from the unit directed toward or within 15 ft (4.6 m) of a sewer system's opening.

6.25.3 General Installation Provisions.6.25.3.1

Vehicle fuel dispensers and dispensing ~~stations~~ systems shall be installed in accordance with the manufacturer's installation instructions.

6.25.3.2

Vehicle fuel dispensers and dispensing ~~stations~~ systems shall not be located within an enclosed building or structure, unless they comply with Chapter 10 .

6.25.3.3

Where a vehicle fuel dispenser is installed under a weather shelter or canopy, the area shall be ventilated and shall not be enclosed for more than 50 percent of its perimeter.

6.25.3.4

Control for the pump used to transfer LP-Gas through the unit into containers shall be provided at the device in order to minimize the possibility of leakage or accidental discharge.

6.25.3.5

An excess-flow check valve or a differential back pressure valve shall be installed in or on the dispenser at the point at which the dispenser hose is connected to the liquid piping.

6.25.3.6

Piping and the dispensing hose shall be provided with hydrostatic relief valves in accordance with Section 6.13 .

6.25.3.7

Protection against trespassing and tampering shall be in accordance with 6.19.4 .

6.25.3.8

The container liquid withdrawal opening used with vehicle fuel dispensers and dispensing ~~stations~~ systems shall be equipped with one of the following:

- (1) An internal valve fitted for remote closure and automatic shutoff using thermal (fire) actuation
- (2) A positive shutoff valve that is located as close to the container as practical in combination with an excess-flow valve installed in the container, plus an emergency shutoff valve that is fitted for remote closure and installed downstream in the line as close as practical to the positive shutoff valve

6.25.3.9

An identified and accessible remote emergency shutoff device for either the internal valve or the emergency shutoff valve required by 6.25.3.8 (1) or (2) shall be installed not less than 3 ft (1 m) or more than 100 ft (30 m) from the liquid transfer point.

6.25.3.10

Emergency shutoff valves and internal valves that are fitted for remote closure as required in this section shall be tested annually for proper operation.

6.25.3.11

A manual shutoff valve and an excess-flow check valve shall be located in the liquid line between the pump and the dispenser inlet where the dispensing device is installed at a remote location and is not part of a complete storage and dispensing unit mounted on a common base.

6.25.3.12

All dispensers shall be installed on a concrete foundation or shall be part of a complete storage and dispensing unit mounted on a common base and installed in accordance with 6.6.3.1(G) .

6.25.3.13

Vehicular barrier protection (VBP) shall be provided for containers serving liquid- dispensers where those containers are located within 10 ft (3 m) of a vehicle thoroughfare or parking location in accordance with 6.25.3.13(A) or 6.25.3.13(B) .

(A)

Concrete filled guard posts shall be constructed of steel not less than 4 in. (100 mm) in diameter with the following characteristics:

- (1) Spaced not more than 4 ft (1200 mm) between posts on center
- (2) Set not less than 3 ft (900 mm) deep in a concrete footing of not less than 15 in. (380 mm) diameter
- (3) Set with the top of the posts not less than 3 ft (900 mm) above ground
- (4) Located not less than 3 ft (900 mm) from the protected installation

(B)

Equivalent protection in lieu of guard posts shall be a minimum of 3 ft (900 mm) in height and shall resist a force of 12,000 lb (53,375 N) applied 3 ft (900 mm) above the adjacent ground surface.

6.25.3.14

Where the dispenser is not mounted on a common base with its storage container and the ~~dispensing unit~~ dispenser is located within 10 ft (3 m) of a vehicle thoroughfare, parking location, or an engine fuel filling station, the dispenser shall be provided with VBP.

6.25.3.15

Dispensers shall be protected from physical damage.

6.25.3.16

A listed quick-acting shutoff valve shall be installed at the discharge end of the transfer hose.

6.25.3.17

An identified and readily accessible switch or circuit breaker shall be installed outside at a location not less than 20 ft (6 m) or more than 100 ft (30 m) from the ~~dispensing device(s)~~ the dispenser to shut off the power in the event of a fire, an accident, or other emergency.

6.25.3.18

The markings for the switches or breakers shall be visible at the point of liquid transfer.

6.25.4 Installation of Vehicle Fuel Dispensers.6.25.4.1

Hose shall comply with the following:

- (1) Hose length shall not exceed 18 ft (5.5 m) unless approved by the authority having jurisdiction.
- (2) All hose shall be listed.
- (3) When not in use, the hose shall be secured to protect the hose from damage.

6.25.4.2

A listed emergency breakaway device shall be installed and shall comply with ANSI/UL 567, *Standard for Emergency Breakaway Fittings, Swivel Connectors, and Pipe-Connection Fittings for Petroleum Products and LP-Gas*, and be designed to retain liquid on both sides of the breakaway point, or other devices affording equivalent protection approved by the authority having jurisdiction.

6.25.4.3

~~Dispensing devices for LP-Gas~~ Vehicle fuel dispensers shall be located as follows:

- (1) Conventional systems shall be at least 10 ft (3.0 m) from any dispensing device for Class I liquids.
- (2) Low-emission transfer systems in accordance with [6.28.5](#) shall be at least 5 ft (2 m) from any dispensing device for Class I liquids.

New Section 6.26 was formerly Paragraph 11.15.2, relocated by a tentative interim amendment (TIA). See page 1.

Statement of Problem and Substantiation for Public Input

This proposal will incorporate the new terminology introduced in P.I. 272 and is editorial in nature. In 6.25.3.13, the term "liquid" is not needed because it is generally accepted that all dispensers transfer liquid. The proposal in 6.25.4.3 clarifies that the intent of this section is to address vehicle fuel dispensers.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 272-NFPA 58-2014 [Section No. 3.3.20]	
Public Input No. 274-NFPA 58-2014 [Section No. 3.3.78]	

Submitter Information Verification

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Submittal Date: Mon Jul 07 14:03:07 EDT 2014

**Public Input No. 131-NFPA 58-2014 [Section No. 6.25.3.3]****6.25.3.3**

Where a vehicle fuel dispenser or dispensing station is installed under a weather shelter or canopy, the area shall be ventilated and shall not be enclosed for more than 50 percent of its perimeter.

Statement of Problem and Substantiation for Public Input

The 1998 edition of NFPA 58, in section 3-9.3, listed General Installation Provisions for vehicle fuel dispensers and dispensing stations. Section 3-9.3.2 said, "Installation shall not be within a building but shall be permitted to be under a weather shelter or canopy, provided this area is adequately ventilated and is not enclosed for more than 50 percent of its perimeter." Both by its placement in 3-9.3 and by the beginning of the previous section, 3-9.3.1, the application of this provision was to vehicle fuel dispensers and dispensing stations.

Careful examination of the NFPA 58 – November 2000 ROP and the NFPA 58 – November 2000 ROC revealed no proposal or comment that changed anything in section 3-9.3.2. However, the NFPA 58 (Draft) in the ROP had a section 3-9.3.2 that read, "Vehicle fuel dispensers shall not be located within a building. Where installed under a weather shelter or canopy, the area shall be ventilated and shall not be enclosed for more than 50 percent of its perimeter." This text is also in the General Installation Provisions for vehicle fuel dispensers and dispensing stations, not under section 3-9.4, Installation of Vehicle Fuel Dispensers. It also appears in the 2001 edition of NFPA 58. Neither the draft nor the 2001 edition have any revision marking indicating this change, so review by the technical committee would not have been expected of a section not indicated as being changed. It appears to have been an "editorial change" by the NFPA staff. However, it is not an editorial change, as a significant portion of dispensers were removed from this installation provision by this change. All dispensing stations that are not vehicle fuel dispensers are removed from the restriction against being installed in buildings and from the requirements for a ventilated weather shelter or canopy. Since the code is silent about being located in buildings or under shelters for these dispensers, it is conceivable that their installation in buildings and under shelters not well ventilated is allowed. No person on the technical committee would agree with this installation.

A subsequent change in the 2004 edition, sections 6.22.3.2 and 6.22.3.3, separated the two requirements in this section into two separate sections. Section 6.25.3.2 (2014) specifies that neither type of dispenser may be located in a building unless certain other provisions are met. However, the language dealing with placing a dispenser under a shelter or canopy still applies only to vehicle fuel dispensers.

The point of transfer at vehicle fuel dispensers is often at a vehicle, outside of any building or small shelter. The point of transfer at dispensing stations is usually at or near the scale and often under a shelter or canopy. Because of this, requirements for ventilation or for openness would be needed more for a dispensing station than for a vehicle fuel dispenser.

Requiring the installation provisions as stated in the 1998 and earlier editions carried over in the minds of many authorities having jurisdiction (AHJ). We were requiring this compliance, even after publication of the 2001 edition, as we knew it had been there and had not been notified of any change. When the owner of a dispensing station challenged our enforcement, we reviewed the code and found that the change had been made. An informal poll of several AHJs in the fall of 2013 revealed that none of them realized that this change had been made. Further, revision of our inspection forms for proper references from the 2014 edition identified that the change impacted how a long-used form was not properly reflecting current requirements.

When this was submitted as a TIA request in 2014, it received a clear majority vote in favor of the change. However, it did not receive the super-majority required for a TIA. It did not pass. However, it is clear that it carried broad support by committee members.

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**Public Input No. 179-NFPA 58-2014 [Section No. 6.25.3.5]****6.25.3.5**

An excess-flow check valve or a differential back pressure valve shall be installed in or on the dispenser at the point at which the dispenser hose is connected

6.25.3.5* . A device that shuts off the flow of gas when flow exceeds the predetermined flow rate shall be installed as close as practical to the point where the dispenser hose connects to the liquid piping.

A.6.25.3.5 . This provision intends to mitigate the uncontrolled discharge of liquid from the system should a hose fail in service. An excess flow valve is one method of achieving this result. Other methods may include using sensing devices installed within the system (as part of the meter or elsewhere) that stop the flow. The predetermined flow rate typically exceeds the maximum design flow rate of the fuel delivery system.

Statement of Problem and Substantiation for Public Input

Specifying only an "excess-flow check valve" prevents the use of other valves that incorporate the same function. A valve working in conjunction with an electronic register as part of the dispenser can be set to close when the register detects a pre-determined flow rate.

Additionally, excess-flow and differential back pressure valves serve separate purposes. A differential back pressure valve is part of the metering system and is designed to ensure that vapor does not enter the meter by closing when vapor is detected in the vapor eliminator. The valve is closed when the pump is OFF, which prevents release of LPG if there is a leak downstream of the valve. When the pump is ON and the product is flowing, the differential back pressure valve may not close if there is a rupture downstream of the valve.

This proposal will retain the original intent of the section, which is to limit the uncontrolled discharge of liquid should a hose fail and the flow rate exceed the maximum design flow rate of the system. The proposed annex material also recognizes the use of several technologies that can achieve this result.

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Submittal Date: Tue Jul 01 13:24:11 EDT 2014

**Public Input No. 186-NFPA 58-2014 [New Section after 6.25.3.9]****TITLE OF NEW CONTENT**

6.25.3.10 The identifying sign for the remote emergency shutoff device in 6.25.3.9 and shall be firmly attached adjacent to the device.

Statement of Problem and Substantiation for Public Input

Inspectors have found on multiple occasions that the sign identifying a remote emergency shutoff device has blown away or is otherwise missing. When it was found, it was clear that the sign was never attached in place. Sometimes they were set on a ledge or behind some conduit. The wind had blown it away. For a remote station to be useful, it must be identified, even after moderate winds have come through.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 184-NFPA 58-2014 [New Section after 6.12.12.3]	

Submitter Information Verification

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Submittal Date: Tue Jul 01 17:58:47 EDT 2014

**Public Input No. 222-NFPA 58-2014 [Section No. 6.25.3.13(B)]****(B)**

Equivalent protection in lieu of guard posts shall be a minimum of 3 ft (900 mm) in height and shall resist a force of 12 6 ,000 lb. (53 26 ,375- 690 N) applied 3 ft (900 mm) above the adjacent ground surface.

Statement of Problem and Substantiation for Public Input

The requirement in 6.25.3.13 B was inserted during the last cycle by NPGA under proposal 58-125. Subsequently, a research effort funded by the Propane Education and Research Council¹ determined that contrary to what is indicated in the commentary to the International Fire Code (IFC), neither the 12,000-pound load factor nor the 30-inch height for load application specified in Section 6.25.3.13 (B) is based on U.S. Department of Transportation (DOT) design criteria. Instead, only the 30-inch barrier height above finished grade was reportedly sourced from DOT requirements.

Given the original justification statement for the provision that relied on the commentary to the IFC, it is clear that the science behind the 12,000-pound requirement is weak. In addition, the 12,000-pound load factor represents twice the anticipated design load of 6,000 pounds (static), and the 2x factor of safety was established arbitrarily and without justification.

¹ Literature Survey and Feasibility Analysis Related to Revising Vehicle Barrier System Regulations for LP-gas Cylinder Exchange Cabinets Phase I Study, September 30, 2011. Shapiro and Garabedian

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 223-NFPA 58-2014 [Section No. 8.4.2.2]	
Public Input No. 224-NFPA 58-2014 [Section No. A.8.4.2.2]	

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Submittal Date: Wed Jul 02 18:26:01 EDT 2014

**Public Input No. 187-NFPA 58-2014 [New Section after 6.25.3.18]****TITLE OF NEW CONTENT**

6.25.3.19 The identifying sign for the switch or circuit breaker in 6.25.3.17 shall be firmly attached adjacent to the switch or circuit breaker.

Statement of Problem and Substantiation for Public Input

Inspectors have found on multiple occasions that the sign identifying a switch or circuit breaker has blown away or is otherwise missing. When it was found, it was clear that the sign was never attached in place. Sometimes they were set on a ledge or behind some conduit. The wind had blown it away. For a remote station to be useful, it must be identified, even after moderate winds have come through.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 184-NFPA 58-2014 [New Section after 6.12.12.3]	

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Submittal Date: Tue Jul 01 18:04:27 EDT 2014

**Public Input No. 294-NFPA 58-2014 [New Section after 6.25.4]**

6.25.5 Installation of Propane Autogas Dispensers.

6.25.5.1 **Propane autogas dispensers shall comply with the requirements in this code for vehicle fuel dispensers.**

6.25.5.2 **Propane autogas dispensers shall be equipped with low emission transfer systems in accordance with 6.28.5.**

Statement of Problem and Substantiation for Public Input

P.I. 274 introduced the term "propane autogas dispenser," which is a subset of vehicle fuel dispenser. The term "autogas" was introduced a few years ago in the U.S. propane industry to designate the use of propane as an approved alternative fuel to gasoline and diesel for over-the-road vehicles only.

Note that because propane autogas dispensers are a subset of "vehicle fuel dispensers," all the requirements for vehicle fuel dispensers apply equally to propane autogas dispensers. Vehicle fuel dispensers are any dispensers that provide fuel to any on-road or off-road vehicle or to mobile containers on those vehicles, such as containers serving recreational vehicles.

We anticipate that proposed section 6.25.5 will be expanded in the future to include requirements for the latest in safety innovation as the results of ongoing research into the use of these systems by the general public becomes available.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 274-NFPA 58-2014 [Section No. 3.3.78]	

Submitter Information Verification

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Public Input No. 134-NFPA 58-2014 [New Section after 6.25.4.3]

6.25.4.4 Dispensers shall be either listed with UL 495, UL 1238, or UL1203 by a recognized testing laboratory or shall be compliant with regulations, as verified by a means acceptable to the authority having jurisdiction.

6.25.4.4.1 Pump package (motor, pump, bypass, piping, system sizing and electrical) must be capable of providing adequate differential pressure based on vehicle type, geographic location and climate conditions.

- (1) For LPI Vehicles = minimum of 135 psig differential pressure
- (2) For Vapor Injection Vehicles = minimum of 90 psig differential pressure

6.25.4.4.2 The dispensing system shall provide a minimum dispensing rate of 8 gallons per minute (GPM).

6.25.4.5 The dispenser cabinet shall be constructed of nonflammable, noncombustible materials; including but not limited to powder coat steel, stainless steel, aluminum or equivalent, and shall be constructed in accordance with UL 495 in respect to both material type and material minimum thickness.

6.25.4.5.1 The dispenser cabinet shall be constructed to ensure that access panels are secured to prevent tampering.

6.25.4.5.1.1 Painted surface of dispenser shall be protected from damage from the breakaway system with a 12" x 14" wear plate, of a material resistant to the abrasion of the device, where required.

6.25.4.5.2 Separation of the base classified area from the non-classified area (if applicable) shall be provided, or shall be Class 1, Div 1 explosion proof, in accordance with NFPA 70.

6.25.4.5.3 Dispensers shall have a display in accordance with NCWM handbook 44, and as required for the application retail dispensers shall display the price per volume unit, volume dispensed and total sale at all times

6.25.4.5.3.1 Fleet dispensers, where the fuel is not sold based on the metered volume, may have a single display indicating gross or net volume

6.25.4.5.3.2 Automatic temperature correction shall be used in all applications where the meter has an NTEP certified flow rate in excess of 18 gpm, and where otherwise required by locally applicable regulations.

6.25.4.5.3.3 The meter shall have an accessible port for secondary thermometer to be inserted during calibration and accuracy verification.

6.25.4.5.3.4 The metering system selected must have a minimum capacity sufficient to meet the performance standard listed in the system performance requirements section.

6.25.4.5.3.5 Electronic dispensers shall be equipped to provide a pulse output, to accurately transmit dispensed volume to fuel management systems for use in both retail and fleet applications.

6.25.4.5.3.6 Mechanical temperature compensation without pulse output is acceptable for fleet applications where the metered volume is not used for a retail/sale transaction.

6.25.4.5.3.7 Meter accuracy shall be in accordance with NCWM Handbook 44, Section 5, and federal, state, and local codes and regulations.

6.25.4.5.3.8 Dispensers shall be calibrated to a minimum accuracy of +/- 0.6% tolerance and +/- 0.40% for, in both uncompensated and compensated modes, with a maximum difference between modes of 0.50%, or as specified by state weights & measures.

6.25.4.5.3.9 Calibration flow rates shall be controlled in accordance with NCWM Handbook 44, Section 4, by throttling the volumetric prover inlet valve to within the NTEP certified limits of the meter/dispenser, where provers designed for a variety of meter applications are capable of exceeding the certified flow rate of the meter/dispenser repeatability when dispenser is used for retail sales and/or custody transfer.

6.25.4.5.3.9 Fleet or non-sale dispensing applications shall be calibrated to the same accuracy to ensure that the customer is receiving a good level of accuracy in order to calculate their fuel consumption.

6.25.4.5.3.10 The meter shall be inspected and calibrated, on-site, post installation and commissioning, prior to operation to ensure compliance with state weights and measure standards applicable at the location of installation when dispenser is used for retail sales and/or custody transfer.

6.25.4.5.4 Dispensers shall be equipped with a dispenser display.

6.25.4.5.4.1 Retail dispensers shall indicate gallons dispensed, price per gallon, total sale, and totalizer reading with electronic register.

6.25.4.5.4.2 Fleet or non-sale calculating dispensers, may display gallons dispensed and totalizer reading, with mechanical or electronic registers.

6.25.4.5.5 All electrical installations shall be performed by a licensed, bonded electrician with NEC Class 1, Div 1 & 2, Group C&D hazardous areas, and motor control experience to ensure compliance with all federal, state and local codes and regulations at the location of installation.

6.25.4.5.5.1 Dispenser and all internal electrical components shall be wired in accordance with the manufacturer's specifications.

6.25.4.5.5.2 Electrical and conduit components and connectors contained within the dispenser hydraulic (fuel containing) cabinet, in accordance with UL 495 & 1238, shall be listed for use in a Class 1, Group D, Division 1 or Division 2, and be provided with all required seal off devices.

6.25.4.5.5.3 Distance must be considered when selecting service wire sizing to meet necessary voltage and amperage requirements of the motor manufacturer.

6.25.4.5.5.4 A single E-Stop (ESD/EPO) button, shall be installed in accordance with NFPA58 no closer than 20' and no farther than 100' from the point of transfer and within line of site of the point of transfer.

6.25.4.5.5.5 When either is depressed, they shall disconnect all power to the station, cease any transaction or pumping, and close the internal valves in the tank, so as to provide a single and identifiable action for emergency stop.

6.25.4.5.5.6 Additional E-Stop buttons in series shall be permitted.

6.25.4.5.6 All piping within the dispenser cabinet shall be A53 Grade B or better, schedule 80 or approved equivalent materials.

6.25.4.5.6.1 All threaded fittings shall be forged steel, brass or other materials approved for use with liquid propane.

6.25.4.5.6.2 All threaded fittings and valves shall be minimum 600 PSIG water, oil or gas (600 WOG) rated.

6.25.4.5.6.2 Ball valves shall be full port for liquid and vapor service.

6.25.4.5.6.3 Internal valves, excess flow valves, and backflow check valves shall be installed in appropriate locations in accordance with federal, state and local codes and regulations.

6.25.4.5.6.4 Internal valves shall be controlled with pneumatic pressure, compressed inert gas, or compressed air, and shall be controlled by a solenoid valve powered through the station E-Stop.

6.25.4.5.6.5 Valves shall be closed when the E-Stop (ESD/EPO) is depressed.

6.25.4.5.7 UL and CGA propane delivery hose shall be continuously marked "LP-GAS 350 PSI WP, 1750 burst pressure"

6.25.4.5.8 Fueling nozzle shall be gas pump style 1-3/4" ASME with quick-acting shutoff, low emission release (< 2cc of volume), and have a failsafe discharge feature compatible with the dispensing device locking mechanism.

Pump system and pump assembly:

6.25.4.5.9 Dispenser provider shall evaluate the filling requirements and provide the appropriate pump to meet these requirements.

6.25.4.5.9.1 Vendor shall provide as a minimum pump curves showing flow, differential pressure, and horsepower required to meet system requirements.

6.25.4.5.9.2 Pump inlet strainer (minimum 80 mesh), or any component or fitting which can cause restrictions or pressure drop to the pump, shall be minimum of 20 pipe-diameters from the pump inlet and shall be installed in accordance with manufacturer's specifications

6.15.4.5.9.2.1 The strainer shall be inspected and cleaned after the first 1000 gallons have been dispensed, to ensure that any contamination or particulates resulting from installation and assembly are removed.

6.25.4.5.9.3 The liquid supply piping between the outlet of the internal valve and the pump inlet, shall have no more than 2 bends, preferable no more than 1 of 45-degree, and 1 of 90-degree, where possible, to ensure the smoothest laminar flow in supply into the pump inlet.

6.25.4.5.9.3.1 Pump inlet and outlet shall have isolation full port ball valves.

6.25.4.5.9.3.2 Pump inlet shall be plumbed with pipe and components equal to or greater than the pump inlet connection diameter.

6.25.4.5.9.3.4 Pump shall be installed with inlet and outlet pressure gauges, so as to provide a convenient reference for differential pressure, both for adjusting the bypass pressure, and for maintenance and diagnostics.

6.25.4.5.9.3.5 The bypass valve return pipe shall be routed to the vapor space of the tank, and shall not be joined with the vapor eliminator line from the meter. Each shall be routed to a dedicated vapor opening in the tank.

6.25.4.5.3.5.1 Whenever possible, a tank design shall be used which allows for both the bypass return line and the vapor return line to be connected to a full port opening which does not have a reduction in size through the valve. Preferable a ¾" opening for both connections.

6.25.4.5.3.6 Vapor return openings shall be equipped with a backcheck or excess flow, when ¾" npt or less and an internal valve with pneumatic operation when 1" or larger.

6.25.4.5.4 Filter capable of filtering particles measuring 5 microns is recommended and should be used anywhere the quality of locally available fuel is in question, or where older infrastructure is likely to introduce rust, slag or installation corrosion in daily operation.

6.25.4.5.4.1 Magnets shall be placed in the filter housing(for serviceable filter systems) to collect and retain any micro-particulate rust, to prevent damage to LPI internal components.

6.25.4.5.4.2 Filter should be placed after the propane autogas pump, to filter the stored fuel prior to entering the vehicle.

6.25.4.5.5 Retail / public access / self-serve stations, shall have knock-over protection system, installed under the dispenser, and in accordance with manufacturer's instructions, to minimize any loss of fuel resulting from a direct impact to the dispenser, which could result in breaking the supply piping.

6.25.4.5.5.1 Pull-away / Break-away devices shall be installed in accordance with manufacturer's instructions, and in such a manner as to facilitate 180 degrees of rotation to ensure that the connection will separate properly (for direct pull type devices)

6.25.4.5.5.2 Breakaways shall not be installed in any position, where a vehicle drive off would result in dragging, kinking, scraping, or otherwise restricting the movement of the hose to facilitate proper separating force and direction on the device. This includes installations where the hose would be wrapped around a corner of a cabinet or other obstructing structure, or rigid mounting which does not allow the device to swivel as designed to ensure proper operation, or inside a cabinet, where the device operation would be restricted by a door or access panel.

6.25.4.5.6 Tank selected must be suited for the application intended. The use of purpose built autogas stations, with a minimum or 2" npt liquid outlet, and 2 each 1-1/4" vapor return ports, is recommended, especially for self-serve public access sites, where greater station liability justifies the use on controlled internal valves on all openings of the tank, to be kept in the close position when not fueling, for additional safety.

6.25.4.5.6.1 A new tank or a thoroughly cleaned tank should be used to prevent foreign material from entering the vehicle system.

6.25.4.5.6.2 Container provided shall be equipped with a bottom liquid connection sufficient to supply the pump at the pump manufacturer's recommended volume.

6.25.4.5.6.3 The container shall be equipped with a suitable vapor connection, minimum ¾" npt for the pump bypass.

6.25.4.5.6.4 The container shall be equipped with suitable connection for the vapor eliminator, minimum ¾" npt..

6.25.4.5.6.5 All other tank openings shall comply with federal, state and local codes and regulations.

6.25.4.5.7 Fuel management systems are allowed to be used with dispensers.

6.25.4.5.7.1 Fuel management systems may include, but are not limited to the vehicle fuel usage, vehicle number, driver ID, mileage, gallons delivered, or any other information suitable to the customer's needs.

6.25.4.5.7.2 Fuel management Systems, used in Retail sale applications, shall be certified with an NTEP type certificate for use with the dispenser being used, in accordance with NCEM Handbook 44. The dispenser shall likewise be certified for use with the specific fuel management system.

6.25.4.5.7.3 If the dispenser is used for retail sales it must be an approved device for its intended purpose, with a current and valid NTEP type certificate.

6.25.4.5.7.4 Optional equipment and upgrades may include, but are not limited to:

- (1) Dispenser display with an alpha-numeric key pad for ease of entering data.
- (2) Safety/security lighting
- (3) Price signs
- (4) Multi-purpose dispensers for filling both Autogas and other applications (ie. Cylinders, RV's, lawn care cylinders, etc.)

Statement of Problem and Substantiation for Public Input

With the proposed splitting of Chapter 11 into 2 new chapters, now 11 & 12, with 12 now addressing over the road motorized vehicles operating on autogas, dispensing stations and dispensers must be required to be designed to specific code requirements in order to maintain a high level of public safety. These changes provide the code requirements to design such stations and equipment - Also see the substantiation for the new proposed Ch 12 for details.

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**Public Input No. 246-NFPA 58-2014 [Section No. 6.25.4.3]****6.25.4.3**

Dispensing devices for LP-Gas shall be located as follows:

- (1) Conventional systems shall be at least 10 ft (3.0 m) from any dispensing device for Class I liquids and Class II liquids .
- (2) Low-emission transfer systems in accordance with 6.28.5 shall be at least 5 ft (2 m) from any dispensing device for Class I and Class II liquids.

New Section 6.26 was formerly Paragraph 11.15.2, relocated by a tentative interim amendment (TIA). See page 1.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Table_6.5.2.1-Goes_with_P.I._246.docx	System would not allow access to Table 6.5.2.1 for editing, so it is included here as part of the proposal.	

Statement of Problem and Substantiation for Public Input

Table 6.5.2.1 addresses the distance requirements for dispensers and fill connections to containers and to containers for Class I flammable liquids and Class II combustible liquids. Paragraph 6.25.4.3 addresses the distance requirements for dispensing devices as they relate to Class I liquids as well as an exemption for reducing the distances with low emission transfers. It is confusing to have these distance requirements in different sections for different classes of liquids, particularly when the distance requirements are the same for both classes of liquids for dispensers, fill connections on containers and to containers. This causes confusion and problems of interpretation in the field. This proposal will address these issues.

After researching the origins of note c to Table 6.5.2.1, (the reduction of separation distances by 50% goes back to the 1998 edition), it appears this was an editorial mistake. Comment 58-37 from the F97 ROC shows that the note was not intended to apply to the first line of the table. The note first began to appear to Line A of the table in the 2001 edition, however, there is nothing in either the ROP or the ROC to support that change. Therefore, it's reasonable to conclude that the NFPA editors made a mistake in assigning the note to Line A, so we are proposing to delete reference to Note c in Part A of Table 6.5.2.1.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 247-NFPA 58-2014 [Section No. 6.28.5.1]	

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Table 6.5.2.1 Distance Between Point of Transfer and Exposures

Part	Exposure		Minimum Horizontal Distance	
			ft.	m
A	Buildings ^a , mobile homes, recreational vehicles, and modular homes with at least 1-hour fire-rated walls	10 ^e	3.1	
<u>J*</u>	<u>Class I</u> F flammable and Class II combustible liquid ^f dispensers and the fill connections of containers	10 ^c	3.1 ^c	
<u>K*</u>	<u>Class I</u> F flammable and Class II combustible liquid aboveground containers, and filling connections of underground containers		20	6.1

Notes to Table 6.5.2.1:

^f NFPA 30, *Flammable and Combustible Liquids Code*, defines these as follows:
Class I ~~F~~ flammable liquids include those having a flash point below 100°F (37.8°C) and having a vapor pressure not exceeding 40 psia (276 kPa) at 100°F (37.8°C). Class II combustible liquids include those having a flash point at or above 100°F (37.8°C) and below 140°F (60°C).

Substantiation:

Table 6.5.2.1 addresses the distance requirements for dispensers and fill connections to containers and to containers for Class I flammable liquids and Class II combustible liquids. Paragraph 6.25.4.3 addresses the distance requirements for dispensing devices as they relate to Class I liquids as well as an exemption for reducing the distances with low emission transfers. It is confusing to have these distance requirements in different sections for different classes of liquids, particularly when the distance requirements are the same for both classes of liquids for dispensers, fill connections on containers and to containers. This causes potential confusion and problems of interpretation in the field.

After researching the origins of note c to Table 6.5.2.1, (the reduction of separation distances by 50% goes back to the 1998 edition), it appears this was an editorial mistake. Comment 58-37 from the F97 ROC shows that the note was not intended to apply to the first line of the table. The note first began to appear to Line A of the table in the 2001 edition, however, there is nothing in either the ROP or the ROC to support that change. Therefore, it's reasonable to conclude that the NFPA editors made a mistake in assigning the note to Line A, so we are proposing to delete reference to Note c in Part A of Table 6.5.2.1.

**Public Input No. 296-NFPA 58-2014 [Section No. 6.27.1]**

6.27.1 Application.

Section 6.27 applies to fire protection for industrial plants, bulk plants, and dispensing ~~stations~~ systems .

Statement of Problem and Substantiation for Public Input

This is an editorial change to the code based on the change to the definition as described in P.I. 272.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 272-NFPA 58-2014 [Section No. 3.3.20]	

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**Public Input No. 210-NFPA 58-2014 [Sections 6.27.4.2, 6.27.4.3]****Sections 6.27.4.2, 6.27.4.3****6.27.4.2**

Each industrial plant, bulk plant, and distributing point shall be provided with at least one

approved

portable fire extinguisher in accordance with 4.7 and having a minimum capacity of 18 lb . (8.2 kg) of dry chemical with a minimum rating of 10- B:C rating.

6.27.4.3 –

Where fire extinguishers have more than one letter classification, they shall be considered to satisfy the requirements of each letter class.

Statement of Problem and Substantiation for Public Input

Portable fire extinguishers are addressed in several paragraphs in NFPA 58, creating much duplication of text and sizing requirements. Creating a new paragraph 4.7 standardizes the specifications/requirements for a portable fire extinguisher into one location. The ratings of the fire extinguishers in related proposals have been changed to correspond to NFPA 10-2013, the latest edition of that standard. Note that NFPA 10 no longer specifies the quantity of extinguishing agent in the extinguisher, but does provide information (see NFPA 10, Table G.2) for determining equivalent ratings based on the amount of extinguishing agent. Because experience in the field has shown that authorities having jurisdiction most often refer to the quantity of extinguishing agent in the canister, we are proposing to keep that required information in the code.

Each individual paragraph where fire extinguishers are required will now address the specific application and reference the new text in proposed 4.7 while keeping the size/rating requirements, thus minimizing the duplication of text.

"Approved" has been removed from paragraphs 6.24.8.1, 6.27.4.2, 8.5.1, 8.5.2, 9.3.5.2, and 9.4.7.1 as "approved" is now part of the requirements listed in new paragraph 4.7(A).

Paragraphs 6.24.8.2, 6.27.4.3, 8.5.4, 9.3.5.2, and 9.4.7.2 have been deleted as they are now covered in 4.7(C).

The following references from NFPA 10 are useful for understanding the new rating and marking system: Table G.2; Section 5.4.1.3; A.5.4.1.2; Table 6.2.1.1 and Table 6.3.1.1.

Related Public Inputs for This Document**Related Input****Relationship**

Public Input No. 194-NFPA 58-2014 [New Section after 4.6]

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**Public Input No. 247-NFPA 58-2014 [Section No. 6.28.5.1]**6.28.5.1

The transfer distance requirements of [Table 6.5.2.1](#) - and [6.25.4.3 \(1\)](#) - shall be reduced by one-half where the installation is in accordance with [6.28.5](#).

Statement of Problem and Substantiation for Public Input

The proposal to 6.28.5.1 strikes reference to 6.25.4.3 (1) because the requirement allowing a reduction in separation is already stated in 6.25.4.3 (2).

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 246-NFPA 58-2014 [Section No. 6.25.4.3]	

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**Public Input No. 144-NFPA 58-2014 [Section No. 7.2.2.8]****7.2.2.8**

Containers shall be filled only after determination that they comply with the design, fabrication, inspection, marking, requalification, and requalification installation provisions of this code.

Statement of Problem and Substantiation for Public Input

With the requirements listed in this section, it could be interpreted that location or other installation requirements of the code do not have to be considered when filling a container. This is not an issue for portable containers. It is an issue for stationary containers. We see many containers that are improperly installed and are regularly filled when in that improper installation. They could be too close to a source of ignition, on an unstable foundation that might shift when loaded by filling the container, or any number of other violations that would endanger the driver or the customer. Prohibiting the filling of these containers while in an improper installation will add incentive for correcting the installation violation(s).

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**Public Input No. 236-NFPA 58-2014 [New Section after 7.2.2.11]****TITLE OF NEW CONTENT**

7.2.2.12 Universal cylinders are permitted to be filled in the vertical position; or, in the horizontal position when the cylinder is in the horizontal plane and the positioning slot is in the proper orientation.

Statement of Problem and Substantiation for Public Input

This change will permit cylinders marked DT to be filled in the vertical position or the horizontal position if the coupling where the gauge is installed is oriented to the maximum filling level while the cylinder is in the horizontal position. All universal engine fuel cylinder designs orient the dip tube location by the position of the fixed maximum liquid level gauge flange to the mounting slot in the cylinder collar.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 235-NFPA 58-2014 [Section No. 5.7.5.6]	
Public Input No. 234-NFPA 58-2014 [Section No. 3.3.17.1]	
Public Input No. 238-NFPA 58-2014 [Section No. 11.13.2.2]	

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**Public Input No. 264-NFPA 58-2014 [New Section after 7.2.3.2]**

7.2.3.3 Portable engines serving transfer operations shall be at least 10 ft. from each point of transfer.

Statement of Problem and Substantiation for Public Input

Portable engine-driven compressor and pump systems are in common use in the propane industry to transfer propane between containers. These operations are required by 7.2.1.2 to be continuously attended from the time the connections are made until the transfer is completed. A small engine is used to power the compressor or pump. The current code does not specifically address the use of these systems from the standpoint of constituting a source of ignition. The use of these portable compressors can be considered equivalent to the use of a truck-mounted compressor as allowed in 7.2.3.2 (A)(1).

The proposed separation distance of 10 feet is consistent with the required separation for cargo tank truck engines from a point of transfer in 7.2.3.3. Portable engines used to run compressors are also required to have shielded ignitions and spark-arrested exhaust systems by 6.18.3.3. These features mitigate the portable engine becoming a potential source of ignition.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 263-NFPA 58-2014 [Section No. 7.2.3.2(A)]	

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**Public Input No. 263-NFPA 58-2014 [Section No. 7.2.3.2(A)]**

(A)

Internal combustion engines within 15 ft (4.6 m) of a point of transfer shall be shut down while such transfer operations are in progress, with the exception of the following:

- (1) Engines of LP-Gas cargo tank vehicles, constructed and operated in compliance with Chapter 9, while such engines are driving transfer pumps or compressors on these vehicles to load containers in accordance with 6.5.2.2
- (2) Engines for industrial (and forklift) trucks powered by LP-Gas used in buildings as provided in Section 11.13
- (3) _ Portable engines serving transfer operations in accordance with 7.2.3.3

Statement of Problem and Substantiation for Public Input

Portable engine-driven compressor and pump systems are in common use in the propane industry to transfer propane between containers. These operations are required by 7.2.1.2 to be continuously attended from the time the connections are made until the transfer is completed. A small engine is used to power the compressor or pump. The current code does not specifically address the use of these systems from the standpoint of constituting a source of ignition. The use of these portable compressors can be considered equivalent to the use of a truck-mounted compressor as allowed in 7.2.3.2 (A)(1).

The proposed separation distance of 10 feet is consistent with the required separation for cargo tank truck engines from a point of transfer in 7.2.3.3. Portable engines used to run compressors are also required to have shielded ignitions and spark-arrested exhaust systems by 6.18.3.3. These features mitigate the portable engine becoming a potential source of ignition.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 264-NFPA 58-2014 [New Section after 7.2.3.2]	

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**Public Input No. 297-NFPA 58-2014 [Section No. 7.2.3.4]**7.2.3.4

The cargo tank vehicle shall not transfer LP-Gas into dispensing ~~station~~-system storage while parked on a public way.

Statement of Problem and Substantiation for Public Input

This is an editorial change to the code based on the change to the definition as described in P.I. 272.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 272-NFPA 58-2014 [Section No. 3.3.20]	

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**Public Input No. 298-NFPA 58-2014 [Section No. 8.1.1]****8.1.1**

The provisions of this chapter apply to the storage of cylinders of 1000 lb (454 kg) water capacity or less, whether filled, partially filled, or empty, as follows:

- (1) At consumer sites or dispensing ~~stations~~ systems , where not connected for use
- (2) In storage for resale or exchange by dealer or reseller

Statement of Problem and Substantiation for Public Input

This is an editorial change to the code based on the change to the definition as described in P.I. 272.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 272-NFPA 58-2014 [Section No. 3.3.20]	

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**Public Input No. 303-NFPA 58-2014 [Section No. 8.4.1.2]****8.4.1.2**

Distances from cylinders in storage outside of buildings shall be in accordance with [Table 8.4.1.2](#) with respect to the following:

- (1) Nearest important building or group of buildings
- (2) Line of adjoining property that can be built upon
- (3) Busy thoroughfares or sidewalks on other than private property
- (4) Line of adjoining property occupied by schools, churches, hospitals, athletic fields, or other points of public gathering
- (5) Dispensing ~~station~~ [system](#)

Table 8.4.1.2 Distances from Cylinders in Storage and Exposures

<u>Quantity of LP-Gas Stored</u>		<u>Horizontal Distance to ...</u>					
		<u>(1) and (2)</u>		<u>(3) and (4)</u>		<u>(5)</u>	
<u>lb</u>	<u>kg</u>	<u>ft</u>	<u>m</u>	<u>ft</u>	<u>m</u>	<u>ft</u>	<u>m</u>
<u>≤720</u>	<u>≤227</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>5</u>	<u>1.5</u>
<u>721–2,500</u>	<u>>227–1,134</u>	<u>0</u>	<u>0</u>	<u>10</u>	<u>3</u>	<u>10</u>	<u>3</u>
<u>2,501–6,000</u>	<u>>1,134–2,721</u>	<u>10</u>	<u>3</u>	<u>10</u>	<u>3</u>	<u>10</u>	<u>3</u>
<u>6,001–10,000</u>	<u>>2,721–4,540</u>	<u>20</u>	<u>6.1</u>	<u>20</u>	<u>6.1</u>	<u>20</u>	<u>6.1</u>
<u>>10,000</u>	<u>>4,540</u>	<u>25</u>	<u>7.6</u>	<u>25</u>	<u>7.6</u>	<u>25</u>	<u>7.6</u>

Statement of Problem and Substantiation for Public Input

This is an editorial change to the code based on the change to the definition as described in P.I. 272.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 272-NFPA 58-2014 [Section No. 3.3.20]	

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki
Organization: National Propane Gas Association
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jul 07 14:41:08 EDT 2014

**Public Input No. 223-NFPA 58-2014 [Section No. 8.4.2.2]****8.4.2.2***

Vehicular barrier protection (VBP) ~~shall be provided where vehicle traffic is expected at the location~~ is not required .

Statement of Problem and Substantiation for Public Input

The research performed at Southwest Research Institute was conducted on behalf of the National Propane Gas Association through a grant funded by the Propane Education and Research Council (PERC). The research report* is available through NFPA and it demonstrates conclusively that cylinders installed in metal (steel or aluminum) lockable, ventilated cabinets are protected against potentially catastrophic damage due to vehicle impact. There is no need for additional vehicular barrier protection (VBP) for those installations.

In addition to testing cylinders enclosed in metal cabinets, the Southwest Research Institute also conducted sidewall impact testing on unprotected 20# LP-Gas cylinders that simulated impact from motor vehicles. The test report, including video clips and still photographs, is on file and available at NFPA.

The aforementioned data supports the historical record that recognizes the small potential for catastrophic cylinder failure. There are tens of thousands of cylinder exchange cabinets in use around the country today and the propane industry cannot identify any instances of catastrophic cylinder ruptures due to impact of cylinder cabinets from motor vehicles.

***Evaluation of Collision Protection Provided by Vehicle Impact Bollards and Propane Cylinder Exchange Cabinets," Southwest Research Institute, December 2013

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 222-NFPA 58-2014 [Section No. 6.25.3.13(B)]	
Public Input No. 224-NFPA 58-2014 [Section No. A.8.4.2.2]	

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki
Organization: National Propane Gas Association
Street Address:
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Submission Date: Wed Jul 02 18:42:42 EDT 2014

**Public Input No. 212-NFPA 58-2014 [Section No. 8.5]****8.5* Fire Protection and Electrical Area Classification.****8.5.1**

~~Retail cylinder exchange locations shall be provided with at least one approved portable fire extinguisher in accordance with 4.7, having a minimum capacity of 10 lb . (4.5 kg) dry chemical with an a minimum rating of 2- A- B-C rating complying with 5-B and shall comply with 8.5.3.1 or 8.5.3.2 on the premises where retail cylinder exchange cabinets are storing more than 720 lb . (327 kg) of propane.~~

8.5.2

Storage locations, other than those complying with 8.5.1, where the aggregate quantity of propane stored is in excess of 720 lb (327 kg), shall be provided with at least one approved portable fire extinguisher having a 40-B:C or 80-B:C rating and a minimum capacity of 18 lb (8.2 kg) dry chemical.

8.5.3

The required fire extinguisher shall be located in accordance with 8.5.3.1 or 8.5.3.2.

8.5.3.1

A minimum rated 40-B:C fire extinguisher shall be located not more than 30 ft (10 m) from the propane storage location.

8.5.3.2

~~An~~ A minimum rated 80-B:C fire extinguisher shall be located not more than 50 ft (15 m) from the propane storage location.

8.5.4

~~Where fire extinguishers have more than one letter classification, they shall be considered to satisfy the requirements of each letter class.~~

8.5.5 –

The storage of cylinders awaiting resale shall be exempt from the electrical classification requirements of this code.

Statement of Problem and Substantiation for Public Input

Portable fire extinguishers are addressed in several paragraphs in NFPA 58, creating much duplication of text and sizing requirements. Creating a new paragraph 4.7 standardizes the specifications/requirements for a portable fire extinguisher into one location. The ratings of the fire extinguishers in related proposals have been changed to correspond to NFPA 10-2013, the latest edition of that standard. Note that NFPA 10 no longer specifies the quantity of extinguishing agent in the extinguisher, but does provide information (see NFPA 10, Table G.2) for determining equivalent ratings based on the amount of extinguishing agent. Because experience in the field has shown that authorities having jurisdiction most often refer to the quantity of extinguishing agent in the canister, we are proposing to keep that required information in the code.

Each individual paragraph where fire extinguishers are required will now address the specific application and reference the new text in proposed 4.7 while keeping the size/rating requirements, thus minimizing the duplication of text.

"Approved" has been removed from paragraphs 6.24.8.1, 6.27.4.2, 8.5.1, 8.5.2, 9.3.5.2, and 9.4.7.1 as "approved" is now part of the requirements listed in new paragraph 4.7(A).

Paragraphs 6.24.8.2, 6.27.4.3, 8.5.4, 9.3.5.2, and 9.4.7.2 have been deleted as they are now covered in 4.7(C).

The following references from NFPA 10 are useful for understanding the new rating and marking system: Table G.2; Section 5.4.1.3; A.5.4.1.2; Table 6.2.1.1 and Table 6.3.1.1.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 194-NFPA 58-2014 [New Section after 4.6]	

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki

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Submission Date: Wed Jul 02 16:24:24 EDT 2014

**Public Input No. 281-NFPA 58-2014 [Section No. 8.5.1]****8.5.1**

Retail cylinder exchange locations shall be provided with at least one approved portable fire extinguisher having a minimum capacity of 10 lb (4.5 kg) and a minimum agent discharge flow rate of 1 lb/sec (0.45 kg/sec) of dry chemical with an A:B:C rating complying with 8.5.3 shall be provided on the premises where retail cylinder exchange cabinets are storing more than 720 lb (327 kg) of propane are stored .

Statement of Problem and Substantiation for Public Input

This proposal is being submitted to reduce confusion and ensure compliance with NFPA-10, for having fire extinguishers available to properly address potential incipient obstacle, gravity 3-dimensional or pressure fire situations that are likely to be presented.

The numerical class "B" fire rating references and recommendations identified within NFPA-10 are only used to address coverage recommendations for anticipated potential liquid spill surface areas within given indoor occupancy types and not the various special class "B" fire hazard configurations commonly associated with outdoor fuel storage situations, often positioned near or against various types of building structures.

High flow fire extinguisher models have been recommended and utilized for addressing these types of class "B" fire situations since 2007. (Reference NFPA-10 paragraphs 5.5.1.1.2, 5.5.2 and 5.5.4 (3).) High flow fire extinguishers models are widely available utilizing a broad variety of hardware styles, which do not represent any added cost.

Retail cylinder storage locations can be exposed to a wide variety of impact damage conditions and many potential forms of adjacent incipient fire situations. Many of these storage locations are also in rural locations, where extended and delayed fire department responses must be anticipated. To help reduce and minimize stored propane cylinders from dangerous direct incipient fire exposures, the committee must ensure the correct portable extinguisher models are identified and readily available.

Submitter Information Verification

Submitter Full Name: J. Nerat

Organization: UTC/Badger Fire Protection

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Submittal Date: Mon Jul 07 13:54:50 EDT 2014

**Public Input No. 326-NFPA 58-2014 [Section No. 8.5.1]****8.5.1—*_**

Retail cylinder exchange locations shall be provided with at least one approved portable fire extinguisher having a 20-B:C or 40-B:C rating and a minimum capacity of 10 lb (4.5 kg) dry chemical with an A:B:C rating complying with 8.5.3 on the premises where retail cylinder exchange cabinets are storing more than 720 lb (327 kg) of propane that delivers a minimum of 1 lb of dry chemical per second .

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Brohmer_email.pdf	Brohmer email	
NFPAComment_8.5.1.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

In NFPA Standard 10 we (the committee) wrote the requirements in Section 5.5 for pressure fires to discharge at least 1 lb. per second. The main idea is to discharge as much dry chemical per second on that type of fire as possible. The more the better but at least 1 lb. per second. Without adding the 1 lb. of dry chemical per second would exclude this particular hazard from being protected in accordance to NFPA Standard 10, Standard for Portable Fire Extinguishers Section 5.5 Selection for Specific Hazards, paragraphs 5.5.1.1* Extinguishers for Pressurized Flammable Liquids and Pressurized Gas Fires.

By adding the underlined text to NFPA 58 paragraph 8.5.1., the paragraph would comply and fall into the intent of proper protection for that hazard in accordance to NFPA Standard 10, Standard for Portable Fire Extinguishers.

NOTE: Supporting material is available for review at NFPA Headquarters.

Submitter Information Verification

Submitter Full Name: Dennis Brohmer
Organization: Tyco Fire Protection Products
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State:
Zip:
Submittal Date: Tue Jul 08 09:19:44 EDT 2014

From: Brohmer, Dennis [REDACTED]
Sent: Monday, July 07, 2014 3:11 PM
To: Walker, Nancy
Subject: Proposals for NFPA 58 Liquefied Petroleum Gas
Attachments: NFPAComment 8.5.1.docx; NFPAComment 8.5.2.docx; NFPAComment 8.5.3.1.docx; NFPAComment 8.5.3.2.docx; NFPA Comment 9.3.5.1.docx; NFPA Comment 9.4.7.1.docx; High Flow F-2008085[1].pdf; Ansul Senrty vs RedLine & HF.WMV; 20120904092325.pdf

Dear Committee,

I feel privileged to be able suggest a few proposals I am hoping you may consider to best protect a vital area or areas that are very common hazards located all over the USA. In suggesting a few proposals, I would like to provide some clarity to the topic for back-up information. I would like to clarify & provide information differentiating between “HF” a High Flow dry chemical fire extinguisher versus a fire extinguisher that have a high rating.

Underwriters Laboratories Incorporated "ULI" extinguisher rating system can be confusing and complicated. I will try to transpose for you the best way possible. Dry chemical agents only dictates the types of fires the extinguishing agent can be used on, for example, Class of fire (fuels) Class A, B, or C.

The size of a fire is what dictated the ratings of the extinguisher. The same Underwriters Laboratories firefighter extinguishes all fires with all manufactures extinguishers. The larger the pan fire for a Class “B” Test the higher the rating the extinguisher can achieve in Class B rating. But the situation is, the higher the rating the fire extinguisher achieves the lower the flow rate the dry chemical will discharge because the larger the fire, the furthest it is too the back end of the test pan. There is a direct correlation between the higher the ratings is of fire extinguishers to how longer the fire extinguisher has to last time wise. There is only one way to make an extinguisher last longer and that is to reduce the flow rate per second of dry chemical.

High Rated fire extinguishers not “**High Flow**” cannot extinguish pressurized liquid or gas fires. When you extinguish a large UL Pan Fire with a smaller extinguisher you need to cut the flow rate back and reducing the flow pattern to a narrow enough to reach the back edge of the pan. That is fine for pan fires but the exact opposite for flowing fuel fires or fires involving being forced out under pressure.

“To avoid a false sense of security when selecting an extinguisher, selection should not be based solely on the UL ratings.

Ratings, Flow *It is important to realize the differences between the type of fire that is used to determine the rating and those fires most Rates and likely to be encountered in actual field situations.*

Discharge Times *UL rating system is based on the size of the UL standard square pan that a hand portable extinguisher can extinguish. Even with extinguishers of the same size, the UL rating for one extinguisher can be increased by reducing the dry chemical discharge rate and maintaining a sufficient range to push the fire off the rear of the test pan.*

Most ‘real world’ Class B fires involve obstacles and/or flowing fuel three dimensional situations. Fuel under pressure is often involved. Unlike the UL test rating type fire where lowering the dry chemical discharge rate can yield increased ratings, higher dry chemical discharge rates are necessary for increased effectiveness when these types of fires are encountered.

In summary, if the potential fire condition is similar to the UL test rating fire conditions (no flowing fuel, no pressure, obstacle fires and no fuel in-depth), then the UL rating can be closely followed. However, if the potential fire involves flowing fuel, fuel under pressure, or contains obstacles; an extinguisher with a higher dry chemical discharge rate will provide increased fire”

If extinguishing a pressure fire with a dry chemical fire extinguisher, a pressure fire requires an extinguisher designed for pressure fires. With pressure fires the only way to extinguish that type of fire is to discharge so many pounds of dry chemical per second versus so many cubic feet of escaping gas or liquid per second. **“High Flow and Low rated”** fire extinguishers are designed to deliver a large amount of dry chemical in a very short amount of time, because of the short time line those extinguishers achieve a low rating.

Fire extinguishing agents are only as effective as far as you can project them but the flow rate of the agent is what produces the fire killing power of the fire extinguisher.

I could discharge 0.1 lbs of dry chemical 25 to 30 feet from the fire extinguisher and that would not be safe because that fire extinguisher would not have any effectiveness at all as to fire killing power. When discharging a fire extinguisher with 1.0 lbs of dry chemical per second or more, the more fire killing power it has and extinguishment will be instant if it meets or exceeds the cu.ft. of escaping product.

On the first PDF file attached please see page two, paragraph labeled “then & Now. All page three is very informative & shines light on this topic of selecting the correct fire extinguisher for the type of hazard you are trying to protect. Page 4-8 is relative information for the rest of the types of Class “B” Fires there are and the reasoning for utilizing & requiring specialized “HF” fire extinguishers for their protection.

Please see the wmv file attached for the a video showing the fire killing power capability between an Ansul SENTRY (low flow, high rated fire extinguisher), a Standard Ansul RED LINE (in the middle, medium flow medium rated fire extinguisher & a “HF” High Flow Ansul RED LINE fire extinguisher (High Flow, low rating).

The SENTRY fire extinguisher did not put out the fire once. It is designed for a smaller liquid spill fires or for fire extinguishment in commercial applications like trash can, laundry dryer, school & offices. The standard RED LINE was able to extinguish the fire a few times, designed for liquid spills, fuel in-depth. The “HF” High Flow RED LINE was effective in fire extinguishment instantly every time designed for pressure fires, gravity fed (3-D) & obstacle fires.

I hope was able to provide you the information needed to convince you that the proposals I have submitted are for the best interest & protection of the hazards your NFPA Committee has to deal with.

Should you have any questions please feel free to contact me.

Best Regards,

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**Public Input No. 283-NFPA 58-2014 [Section No. 8.5.2]****8.5.2**

Storage locations, other than those complying with 8.5.1, where the aggregate quantity of propane stored is in excess of 720 lb (327 kg), shall be provided with at least one approved portable fire extinguisher having a 40 a 20 -B:C or 80 or 40 -B:C rating and a minimum capacity of 18 lb (8.2 kg) dry chemical with a discharge rate of 1 lb/sec (0.45 kg/sec).

Statement of Problem and Substantiation for Public Input

This proposal is being submitted to reduce confusion and ensure compliance with NFPA-10, for having fire extinguishers available to properly address potential incipient obstacle, gravity 3-dimensional or pressure fire situations likely to be presented.

The numerical class "B" fire rating references and recommendations identified within NFPA-10 are only used to address coverage recommendations for anticipated potential liquid spill surface areas within given indoor occupancy types and not the various special class "B" fire hazard configurations commonly associated with outdoor fuel storage situations, often positioned near or against various types of building structures.

High flow fire extinguisher models have been recommended and utilized for addressing these types of class "B" fire situations since 2007. (Reference NFPA-10 paragraphs 5.5.1.1.2, 5.5.2 and 5.5.4 (3).) High flow fire extinguishers models are widely available utilizing a broad variety of hardware styles which do not represent any added cost.

The suggested reduced numerical class "B" fire ratings of 20B and 40B are consistent with existing 10 lb and 20 lb ABC dry chemical fire extinguisher models properly meeting both rating and the high flow discharge requirements. The current minimum 40B and 80B rating language can only meet both NFPA-10 and NFPA-58 requirements, using larger and more costly 20, 30 or 50 pound agent capacity fire extinguisher sizes.

Cylinder storage locations can be exposed to a wide variety of impact damage conditions and many potential forms of adjacent incipient fire situations. Many of these storage locations are also in rural locations, where extended and delayed fire department responses must be anticipated. To help reduce and minimize stored propane cylinders from dangerous direct incipient fire exposures, the committee must ensure the correct portable extinguisher models are identified and readily available.

Submitter Information Verification

Submitter Full Name: J. Nerat

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Submittal Date: Mon Jul 07 13:58:42 EDT 2014

**Public Input No. 321-NFPA 58-2014 [Section No. 8.5.2]****8.5.2**

Storage locations, other than those complying with 8.5.1, where the aggregate quantity of propane stored is in excess of 720 lb (327 kg), shall be provided with at least one approved portable fire extinguisher having a 40 20 -B:C or 80 40 -B:C rating and a minimum capacity of 18 lb (8.2 kg) dry chemical with B:C rating .

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Brohmer_email.pdf	Brohmer email	
NFPAComment_8.5.2.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

High Flow "HF" fire extinguishers are specifically designed for gas fires and they have a low rating because those types of fire extinguishers completely emptied in a very short period of time, less than eight seconds for a maximum of a 40-B:C rating (But that's what's required to put those types of fires out). Discharge time & ratings have a direct correlation within UL Standard 711, Testing of Fire Extinguishers. The two hand portable fire extinguisher Ansul has available for "HF" High Flow are a 20-B:C rating for the 18 lbs. extinguisher and a 40-B:C rating for a 27 lbs. extinguisher. By requiring 40-B:C & 80-B:C ratings, you could exclude the exact fire extinguishers designed specifically to protect these hazards.

NOTE: Supporting material is available for review at NFPA Headquarters.

Submitter Information Verification

Submitter Full Name: Dennis Brohmer

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Submittal Date: Tue Jul 08 08:41:06 EDT 2014

**Public Input No. 285-NFPA 58-2014 [Section No. 8.5.3.1]****8.5.3.1**

A 40 A 20-B:C fire extinguisher shall be located not more than 30 ft (10 m) from the propane storage location.

Statement of Problem and Substantiation for Public Input

This proposal is being submitted to reduce confusion and ensure compliance with NFPA-10 for properly addressing potential incipient obstacle, gravity 3-dimensional and pressure class "B" fire situations, by suggesting the committee reduce the 40B:C numerical rating to 20B:C.

Because only 20 and 30 pound extinguisher models currently have the necessary agent capacity, flow rate and extended discharge time to also obtain 40B fire ratings, changing this proposals recommendation from 40B:C to 20B:C will allow users to continue to utilize the less expensive 10 lb sizes of ABC dry chemical fire extinguisher models with sufficient agent flow rates necessary to properly address various likely fire situations. Cylinder storage locations can be exposed to a wide variety of impact damage conditions and many potential forms of adjacent incipient fire situations. Many of these storage locations are also within rural locations, where extended and delayed fire department responses must be anticipated. To help reduce and minimize stored propane cylinders from dangerous direct incipient fire exposures, the committee must ensure the correct portable extinguisher models are identified and readily available.

Submitter Information Verification

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Submittal Date: Mon Jul 07 14:00:55 EDT 2014

**Public Input No. 322-NFPA 58-2014 [Section No. 8.5.3.1]****8.5.3.1**

A 40 20 -B:C fire extinguisher shall be located not more than 30 ft (10 m) from the propane storage location.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Brohmer_email.pdf	Brohmer email	
NFPAComment_8.5.3.1.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

By changing to the 20-B:C rated fire extinguisher, we would not exclude the perfect 18 lbs. fire extinguisher designed for that fire type of fire.

NOTE: Supporting material is available for review at NFPA Headquarters.

Submitter Information Verification

Submitter Full Name: Dennis Brohmer

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Submittal Date: Tue Jul 08 08:44:55 EDT 2014

**Public Input No. 287-NFPA 58-2014 [Section No. 8.5.3.2]****8.5.3.2**

An-80 A 40 -B:C fire extinguisher shall be located not more than 50 ft (15 m) from the propane storage location.

Statement of Problem and Substantiation for Public Input

This proposal is being submitted to reduce confusion and ensure compliance with NFPA-10 for properly addressing potential incipient obstacle, gravity 3-dimensional and pressure class "B" fire situations, by suggesting the committee reduce the 80B:C numerical rating to 40B:C.

Because only 30 and 50 pound extinguisher models currently have the necessary agent capacity, flow rate and extended discharge times to also obtain 80B:C fire ratings, changing this proposals recommendation from 80B:C to 40B:C will allow users to continue to utilize the less expensive 20 lb sizes of ABC dry chemical fire extinguisher models with sufficient agent flow rates necessary to properly address various likely fire situations. Cylinder storage locations can be exposed to a wide variety of impact damage conditions and many potential forms of adjacent incipient fire situations. Many of these storage locations are also within rural locations, where extended and delayed fire department responses must be anticipated. To help reduce and minimize stored propane cylinders from dangerous direct incipient fire exposures, the committee must ensure the correct portable extinguisher models are identified and readily available.

Submitter Information Verification

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Submittal Date: Mon Jul 07 14:02:10 EDT 2014

**Public Input No. 323-NFPA 58-2014 [Section No. 8.5.3.2]****8.5.3.2**

An 80 40 -B:C fire extinguisher shall be located not more than 50 ft (15 m) from the propane storage location.

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Brohmer_email.pdf	Brohmer email	
NFPAComment_8.5.3.2.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

By changing to the 40-B:C rated fire extinguisher, we would not exclude the perfect 26 lbs. fire extinguisher designed for that fire type of fire.

NOTE: Supporting material is available for review at NFPA Headquarters.

Submitter Information Verification

Submitter Full Name: Dennis Brohmer

Organization: Tyco Fire Protection Products

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Zip:

Submittal Date: Tue Jul 08 08:47:08 EDT 2014

**Public Input No. 290-NFPA 58-2014 [Section No. 9.3.5.1]****9.3.5.1**

Each truck or trailer transporting portable containers in accordance with [9.3.2](#) or [9.3.3](#) shall be equipped with at least one approved portable fire extinguisher having a minimum capacity of 18 lb (8.2 kg) dry chemical with a discharge rate of 1 lb/sec (0.45 kg/sec) and A: B:C rating.

Statement of Problem and Substantiation for Public Input

This proposal is being submitted to reduce confusion and ensure compliance with NFPA-10 for fire extinguishers being available to properly address potential incipient obstacle, gravity 3-dimensional or pressure class "B" fire situations that are likely to be presented.

The numerical class "B" fire rating references and recommendations identified within NFPA-10 are only used to address coverage recommendations for anticipated potential liquid spill surface areas within given indoor occupancy types and not the various special class "B" fire hazard configurations commonly associated with outdoor fuel storage situations, often positioned near building structures.

High flow fire extinguisher models have been recommended and utilized for addressing these types of class "B" fire situations since 2007. (Reference NFPA-10 paragraphs 5.5.1.1.2, 5.5.2 and 5.5.4 (3).) High flow fire extinguishers models are widely available utilizing a broad variety of hardware styles which do not represent any added cost.

This proposal additionally suggests changing the requirement to specifically identify a class "A" dry chemical agent, to properly address the many potential forms of common combustible incipient fire situations that transport vehicles can be exposed. Such examples would be dry vegetation, cloth, canvas, foam rubber, tires, plastics and wood. Reference NFPA-385 standards similar fire extinguisher recommendations for the vehicular transport of flammable and combustible liquids.

To help reduce and minimize propane vehicles from dangerous direct incipient fire exposures, the committee must ensure the correct portable extinguisher models are identified and readily available.

Submitter Information Verification

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Submittal Date: Mon Jul 07 14:03:43 EDT 2014

**Public Input No. 324-NFPA 58-2014 [Section No. 9.3.5.1]****9.3.5.1**

Each truck or trailer transporting portable containers in accordance with [9.3.2](#) or [9.3.3](#) shall be equipped with at least one approved portable fire extinguisher having a minimum capacity of 18 lb (8.2 kg) dry chemical with a B:C rating that discharges at least 1 lb of dry chemical per second .

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Brohmer_email.pdf	Brohmer email	
NFPAComment_9.3.5.1.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

In NFPA Standard 10 we (the committee) wrote the requirements in Section 5.5 for pressure fires to discharge at least 1 lb. per second. Again the main idea is to discharge as much dry chemical per second on that type of fire as possible. The more the better but at least 1 lb. per second.

NOTE: Supporting material is available for review at NFPA Headquarters.

Submitter Information Verification

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Submittal Date: Tue Jul 08 09:07:52 EDT 2014

**Public Input No. 217-NFPA 58-2014 [Sections 9.3.5.1, 9.3.5.2]****Sections 9.3.5.1, 9.3.5.2****9.3.5.1**

Each truck or trailer transporting portable containers in accordance with [9.3.2](#) or [9.3.3](#) shall be equipped with at least one approved portable fire extinguisher in accordance with 4.7 having a minimum capacity of 18 lb (8.2 kg) dry chemical with a minimum rating of 10- B:C rating .

9.3.5.2 –

~~Where fire extinguishers have more than one letter classification, they shall be considered to satisfy the requirements of each letter class.~~

Statement of Problem and Substantiation for Public Input

Portable fire extinguishers are addressed in several paragraphs in NFPA 58, creating much duplication of text and sizing requirements. Creating a new paragraph 4.7 standardizes the specifications/requirements for a portable fire extinguisher into one location. The ratings of the fire extinguishers in related proposals have been changed to correspond to NFPA 10-2013, the latest edition of that standard. Note that NFPA 10 no longer specifies the quantity of extinguishing agent in the extinguisher, but does provide information (see NFPA 10, Table G.2) for determining equivalent ratings based on the amount of extinguishing agent. Because experience in the field has shown that authorities having jurisdiction most often refer to the quantity of extinguishing agent in the canister, we are proposing to keep that required information in the code.

Each individual paragraph where fire extinguishers are required will now address the specific application and reference the new text in proposed 4.7 while keeping the size/rating requirements, thus minimizing the duplication of text.

"Approved" has been removed from paragraphs 6.24.8.1, 6.27.4.2, 8.5.1, 8.5.2, 9.3.5.2, and 9.4.7.1 as "approved" is now part of the requirements listed in new paragraph 4.7(A).

Paragraphs 6.24.8.2, 6.27.4.3, 8.5.4, 9.3.5.2, and 9.4.7.2 have been deleted as they are now covered in 4.7(C).

The following references from NFPA 10 are useful for understanding the new rating and marking system: Table G.2; Section 5.4.1.3; A.5.4.1.2; Table 6.2.1.1 and Table 6.3.1.1.

Related Public Inputs for This Document**Related Input****Relationship**

[Public Input No. 194-NFPA 58-2014 \[New Section after 4.6\]](#)

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki

Organization: National Propane Gas Association

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City:

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Submittal Date: Wed Jul 02 16:59:03 EDT 2014

**Public Input No. 292-NFPA 58-2014 [Section No. 9.4.7.1]****9.4.7.1**

Each cargo tank vehicle or tractor shall be provided with at least one approved portable fire extinguisher having a minimum capacity of 18 lb (8.2 kg) dry chemical with a discharge rate of 1 lb/sec (0.45 kg/sec and A: , B:C rating.

Statement of Problem and Substantiation for Public Input

This proposal is being submitted to reduce confusion and ensure compliance with NFPA-10 for fire extinguishers being available to properly address potential incipient obstacle, gravity 3-dimensional or pressure class "B" fire situations that are likely to be presented.

The numerical class "B" fire rating references and recommendations identified within NFPA-10 are only used to address coverage recommendations for potential anticipated liquid spill surface areas within given indoor occupancy types and not various special class "B" fire hazard configurations commonly associated with outdoor fuel storage situations often positioned near building structures.

High flow fire extinguisher models have been recommended and utilized for addressing these types of class "B" fire situations since 2007. (Reference NFPA-10 paragraphs 5.5.1.1.2, 5.5.2 and 5.5.4 (3).) High flow fire extinguishers models are widely available utilizing a broad variety of hardware styles, which do not represent any added cost.

This proposal additionally suggests changing the requirement to specifically identify a class "A" dry chemical agent to properly address the many potential forms of common combustible incipient fire situations that transport vehicles can be exposed. Examples of common combustible materials likely to be present would be dry vegetation, cloth, canvas, foam rubber, tires, plastics and wood. Reference the NFPA-385 standards similar fire extinguisher recommendations, for the vehicular transport of flammable and combustible liquids.

To help reduce and minimize propane vehicles from dangerous direct incipient fire exposures, the committee must ensure the correct portable extinguisher models are identified and readily available.

Submitter Information Verification

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Submittal Date: Mon Jul 07 14:06:14 EDT 2014

**Public Input No. 325-NFPA 58-2014 [Section No. 9.4.7.1]****9.4.7.1**

Each cargo tank vehicle or tractor shall be provided with at least one approved portable fire extinguisher having a minimum capacity of 18 lb (8.2 kg) dry chemical with a B:C rating that delivers a minimum of 1 lb of dry chemical per second .

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Brohmer_email.pdf	Brohmer email	
NFPAComment_9.4.7.1.pdf	PI Form	

Statement of Problem and Substantiation for Public Input

In NFPA Standard 10 we (the committee) wrote the requirements in Section 5.5 for pressure fires to discharge at least 1 lb. per second. Discharging as much dry chemical per second on that type of fire as possible is the only way of extinguishing that type of fire beside eliminating the fuel. The more dry chemical the better but at least 1 lb. per second. Without adding the 1 lb. of dry chemical per second would exclude this particular hazard from being protected in accordance to NFPA Standard 10, Standard for Portable Fire Extinguishers Section 5.5 Selection for Specific Hazards, paragraphs 5.5.1.1* Extinguishers for Pressurized Flammable Liquids and Pressurized Gas Fires.

NOTE: Supporting material is available for review at NFPA Headquarters.

Submitter Information Verification

Submitter Full Name: Dennis Brohmer
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Submittal Date: Tue Jul 08 09:15:27 EDT 2014

**Public Input No. 218-NFPA 58-2014 [Sections 9.4.7.1, 9.4.7.2]****Sections 9.4.7.1, 9.4.7.2****9.4.7.1**

Each cargo tank vehicle or tractor shall be provided with at least one ~~approved~~ portable fire extinguisher ~~having~~ in accordance with 4.7 ~~having~~ a minimum capacity of 18 lb (8.2 kg) dry chemical with a minimum rating of 10- B:C- rating .

9.4.7.2 –

~~Where fire extinguishers have more than one letter classification, they shall be considered to satisfy the requirements of each letter class.~~

Statement of Problem and Substantiation for Public Input

Portable fire extinguishers are addressed in several paragraphs in NFPA 58, creating much duplication of text and sizing requirements. Creating a new paragraph 4.7 standardizes the specifications/requirements for a portable fire extinguisher into one location. The ratings of the fire extinguishers in related proposals have been changed to correspond to NFPA 10-2013, the latest edition of that standard. Note that NFPA 10 no longer specifies the quantity of extinguishing agent in the extinguisher, but does provide information (see NFPA 10, Table G.2) for determining equivalent ratings based on the amount of extinguishing agent. Because experience in the field has shown that authorities having jurisdiction most often refer to the quantity of extinguishing agent in the canister, we are proposing to keep that required information in the code.

Each individual paragraph where fire extinguishers are required will now address the specific application and reference the new text in proposed 4.7 while keeping the size/rating requirements, thus minimizing the duplication of text.

"Approved" has been removed from paragraphs 6.24.8.1, 6.27.4.2, 8.5.1, 8.5.2, 9.3.5.2, and 9.4.7.1 as "approved" is now part of the requirements listed in new paragraph 4.7(A).

Paragraphs 6.24.8.2, 6.27.4.3, 8.5.4, 9.3.5.2, and 9.4.7.2 have been deleted as they are now covered in 4.7(C).

The following references from NFPA 10 are useful for understanding the new rating and marking system: Table G.2; Section 5.4.1.3; A.5.4.1.2; Table 6.2.1.1 and Table 6.3.1.1.

Related Public Inputs for This Document**Related Input****Relationship**

Public Input No. 194-NFPA 58-2014 [New Section after 4.6]

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki

Organization: National Propane Gas Association

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Submittal Date: Wed Jul 02 17:02:58 EDT 2014

**Public Input No. 258-NFPA 58-2014 [Section No. 9.4.8]****9.4.8* Wheel Stops for Cargo Tank Vehicles.**

9.4.8.1 Each cargo tank vehicle or trailer shall utilize a wheel stop stops , in addition to the parking or hand brake, whenever the cargo tank vehicle is loading, unloading, or parked.

9.4.8.2 The wheel stops required in section 9.4.8.1 shall be set on both sides of the wheel to restrict motion in either direction.

9.4.8.3 For vehicles with tandem axles, the requirements of sections 9.4.8.1 and 9.4.8.2 may be met by placing the wheel stops in between the axles to restrict movement in either direction or by a single wheel stop that fits snugly between the tires and restricts movement in either direction.

Statement of Problem and Substantiation for Public Input

When this requirement used the words "chock blocks" in previous editions, it was clear that the requirement was that at least two devices were to be used. The current wording makes that requirement less clear. It is best that the requirement for two wheel stops and that movement in both directions is restricted be clearly defined, both for the drivers and for enforcement personnel. There is also an added statement that clarifies that tandem-axle vehicles can meet the requirements by use of a modified way to place the wheel stops or by use of a different type of single wheel stop that restricts movement in both directions.

We continue to find a single wheel stop being used rather than two to restrict movement in both directions, so it is clear that the current requirement is not well understood by some drivers.

Submitter Information Verification

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Submittal Date: Sat Jul 05 14:36:20 EDT 2014

**Public Input No. 171-NFPA 58-2014 [Section No. 9.7.2.1]****9.7.2.1**

Vehicles shall not be left unattended on any street, highway, avenue, parking lot, or alley, except for necessary absences from the vehicle associated with drivers' normal duties, including stops for meals and rest stops during the day or night, except as follows:

- (1) This requirement shall not apply in an emergency.
- (2) This requirement shall not apply to vehicles parked in accordance with [9.7.2.3](#) and [9.7.2.4](#).

Statement of Problem and Substantiation for Public Input

This change will allow and clarify a common practice, parking in a parking lot for normal meal and rest stops, even when the cargo vehicle is not 50 feet from a building. There have been code officials who wrote violations because a bobtail was parked in a parking lot for a meal break. It was written because parking lots are not included in the listing of places where such a break may be taken.

Submitter Information Verification

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Submittal Date: Mon Jun 30 17:14:20 EDT 2014

**Public Input No. 153-NFPA 58-2014 [Section No. 10.3.1.3]****10.3.1.3**

Common walls of structures shall have the following features:

- (1) A fire resistance rating of at least 1 hour in accordance with ASTM E119
- (2) Where openings are required in common walls for rooms used only for storage of LP-Gas, 1 ½ -hour (Class B) fire doors
- (3) A design that withstands a static pressure of at least 100 lb/ft² (4.8 kPa)

Statement of Problem and Substantiation for Public Input

The standard test method for fire resistance rating must be specified. Moreover, ASTM E119 is referenced in chapter 3 but not mentioned in this portion of the code.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 148-NFPA 58-2014 [Section No. 2.3.4]	
Public Input No. 152-NFPA 58-2014 [Section No. 6.6.4.3]	
Public Input No. 154-NFPA 58-2014 [Section No. 10.3.2.6]	

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler
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Submittal Date: Fri Jun 27 18:33:55 EDT 2014

**Public Input No. 154-NFPA 58-2014 [Section No. 10.3.2.6]****10.3.2.6***

Walls and ceilings common to the room and to the building within which it is located shall have the following features:

- (1) Fire resistance rating of at least 1 hour, in accordance with ASTM E119
- (2) Where openings are required in common walls for rooms used only for storage of LP-Gas, 1 ½ -hour (Class B) fire doors
- (3) Design that withstands a static pressure of at least 100 lb/ft² (4.8 kPa)

Statement of Problem and Substantiation for Public Input

The standard test method for fire resistance rating must be specified. Moreover, ASTM E119 is referenced in chapter 3 but not mentioned in this portion of the code.

Related Public Inputs for This Document**Related Input****Relationship**

[Public Input No. 148-NFPA 58-2014 \[Section No. 2.3.4\]](#)

[Public Input No. 153-NFPA 58-2014 \[Section No. 10.3.1.3\]](#)

Submitter Information Verification

Submitter Full Name: Marcelo Hirschler

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Submittal Date: Fri Jun 27 18:35:20 EDT 2014

**Public Input No. 136-NFPA 58-2014 [Section No. 11.1.1]****11.1.1***

This chapter applies to engine fuel systems installed on mobile and non-stationary engines and on off-road, or non-licensed/registered on - vehicles using LP-Gas in internal combustion engines, including containers, container appurtenances, carburetion equipment, piping, hose and fittings, and their installation. Licensed/registered on-road AUTOGAS installations are covered in chapter 12

Statement of Problem and Substantiation for Public Input**Submitter Information Verification**

Submitter Full Name: Steven Younis

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Submittal Date: Fri Jun 27 07:06:35 EDT 2014

**Public Input No. 137-NFPA 58-2014 [Section No. 11.1.2]****11.1.2***

This chapter applies to the installation of fuel systems supplying engines used to propel all motor ized vehicles as defined in 11.1.1.

Statement of Problem and Substantiation for Public Input

Clarification of scope as a new Chapter 12 addressing over the road licensed vehicles is being proposed.

Submitter Information Verification

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Submittal Date: Fri Jun 27 07:14:26 EDT 2014

**Public Input No. 138-NFPA 58-2014 [Section No. 11.1.3]****11.1.3**

This chapter applies to garaging of applicable motorized applications vehicles where such systems are installed.

Statement of Problem and Substantiation for Public Input

Clarification with regard to proposed Chapter 12 new scope

Submitter Information Verification

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Submittal Date: Fri Jun 27 07:19:14 EDT 2014

**Public Input No. 139-NFPA 58-2014 [Section No. 11.2]****11.2 Training.**

Each person engaged in installing, repairing, filling, or otherwise servicing an LP-Gas engine fuel system shall be trained.

The training shall use an organized and managed program developed and administered by the manufacturer of the system brand or technology being installed.

Statement of Problem and Substantiation for Public Input

Clarification on how specific training should be to address the various types of vehicles that are being developed and that will need to be serviced, etc

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Submittal Date: Fri Jun 27 07:23:06 EDT 2014

**Public Input No. 157-NFPA 58-2014 [Section No. 11.3.2.1]**11.3.2.1

ASME engine fuel containers shall have an MAWP of no lower than 312 psig (2.2 MPag).

Statement of Problem and Substantiation for Public Input

Remove ambiguity in current code-- use of higher MAWP tanks results in a safer tank and should be allowed without having to justify equivalency to AHJ.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 158-NFPA 58-2014 [Section No. 11.3.2.2]	

Submitter Information Verification

Submitter Full Name: JOHN THOMSON
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Submittal Date: Mon Jun 30 12:00:56 EDT 2014

**Public Input No. 140-NFPA 58-2014 [Section No. 11.3.2.2]****11.3.2.2**

ASME engine fuel and mobile containers shall meet the following conditions:

- (1) An MAWP of 312 psig (2.2 MPag) or higher where installed in enclosed spaces of ~~vehicles~~ vehicle
- (2) ~~An MAWP of 312 psig (2.2 MPag) where installed outside of passenger vehicles~~
- (3) An MAWP of 250 psig (1.7 MPag) where installed outside of nonpassenger vehicles
for tanks manufactured before 1 April 2001
- (4) An MAWP of 312 psig (1.7 MPag) where installed outside of non-passenger vehicles for tanks manufactured after 1 April 2001

Statement of Problem and Substantiation for Public Input

Updating current requirements

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Submittal Date: Fri Jun 27 07:31:55 EDT 2014

**Public Input No. 158-NFPA 58-2014 [Section No. 11.3.2.2]**11.3.2.2

ASME engine fuel and mobile containers shall meet the following conditions:

- (1) An MAWP of 312 psig (2.2 MPag) or higher where installed in enclosed spaces of vehicles
- (2) An MAWP of 312 psig (2.2 MPag) or higher where installed outside of passenger vehicles
- (3) An MAWP of 250 psig (1.7 MPag) or higher where installed outside of nonpassenger vehicles

Statement of Problem and Substantiation for Public Input

See input 157-- remove ambiguity for manufacturers who wish to use higher MAWP.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 157-NFPA 58-2014 [Section No. 11.3.2.1]	Same change to two sections.

Submitter Information Verification

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Submittal Date: Mon Jun 30 12:02:35 EDT 2014

**Public Input No. 141-NFPA 58-2014 [Section No. 11.3.5.1]**

-
11.3.5.1
-
The maximum capacity of individual LP-Gas containers installed on highway vehicles shall be in accordance with Table 6.24.3.1(C) :

Statement of Problem and Substantiation for Public Input

Info proposed to be moved to new Ch 12 - see Ch 12 substantiation

Submitter Information Verification

Submitter Full Name: Steven Younis

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Submittal Date: Fri Jun 27 07:37:09 EDT 2014

**Public Input No. 160-NFPA 58-2014 [New Section after 11.4.1.8(A)]****CLARIFICATION OF AUTOMATIC CLOSURE FEATURE**

- (1) The valve assembly shall not allow the flow of fuel unless the operator has requested an engine start, either through turning the key to crank, pressing a "start" button or similar, or through actuation of a remote starter device. Fuel flow may not be initiated based on other inputs (door triggers, activation of ignition or accessory power, etc.) which do not result in engine starting.
- (2) The valve assembly must stop the flow of fuel if the engine stalls or if ignition power is turned off.
- (3) If the engine is equipped with automated engine stop-start technology, the engine will be considered to be in an "operating mode" so long as the ignition remains on and in a driveable condition, such that the engine could restart automatically without any further action from the operator.
- (4) If the engine is equipped with automatic shut-down, but does not have automatic re-start capability, then the fuel must be turned off when the engine is turned off and may not resume until the operator has initiated the re-start as defined in (1) above.
- (5) Use of an automatic closure meeting the requirements of this section, where the valve will automatically close based on operator turning off the ignition, complies with the requirement for a "main shutoff valve" specified in section 11.8.4.

Statement of Problem and Substantiation for Public Input

The current code is ambiguous and has led to widely diverging safety implementations in the field and confusion for AHJ's. The proposed language is intended to more specifically address the interpretation of "operating mode", while still allowing for flexible implementation from manufacturers and providing guidance for future hybrid or other automated stop-start applications.

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Submittal Date: Mon Jun 30 12:06:16 EDT 2014

**Public Input No. 4-NFPA 58-2013 [Sections 11.4.1.10, 11.4.1.11]****Sections 11.4.1.10, 11.4.1.11**11.4.1.10

Cylinders used in engine fuel service, ~~other than single-opening cylinders,~~ for industrial trucks shall be equipped with full internal or flush-type full internal pressure relief valves.

11.4.1.11

Single-opening cylinders in industrial truck service shall be equipped with a listed multiple function valve in accordance with 5.7.4.1(D B)-(11) and 5.7.4.1(D B) (12).

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
Proposed_TIA_1116_58_.docx	Balloted TIA

Statement of Problem and Substantiation for Public Input

NOTE: This public input originates from Tentative Interim Amendment 58-14-3 (TIA 1116) issued by the Standards Council on October 22, 2013 and per the NFPA Regs. needs to be reconsidered by the Technical Committee for the next edition of the Document.

This TIA is necessary for a couple reasons. First, it will make the code consistent in the manner that it addresses containers in different size categories and uses. For example, the Technical Committee agreed that a bulk plant should be defined based on the size of the storage containers and the service that those containers are providing. In this case, a bulk plant is defined in 3.3.10 with a minimum storage container size greater than 4,000 gallons water capacity. Therefore, it is necessary to make the changes described above by striking current paragraph 5.7.4.3.

The proposed TIA will also clarify and condense the language in 5.7.4.1 (A), (B) and (C). Also, the terms "full internal or flush-type full internal" are used to describe specific relief valves and therefore are needed to provide clarification as to the types of safety relief valves that are permitted in specific services. Both terms are defined in 3.3.75.7.2 and 3.3.75.7.3. These changes are proposed to 5.7.4.1, 11.4.1 and 11.13.2.9.

It is significant to note that the proposed TIA is based on Comment 58-25, which was accepted in principle at the meeting but did not receive sufficient support during the letter ballot to sustain the action of the committee at the meeting. Several negative voters commented that the proposed changes were needed in order to maintain consistency within the 2014 edition of the code. Subsequently, a NITMAM was proposed at the NFPA Technical Session but it did not achieve the required majority.

Emergency Nature: The emergency nature can be easily demonstrated in this case. The NFPA Regulations Governing Committee Projects includes criteria for determining emergency nature. The appropriate criterion would be in paragraph 5.3 (b): "The document contains a conflict within the document or with another NFPA document."

As mentioned above, original paragraph 5.7.4.3 and original Table 5.7.4.2 contain requirements that are no longer valid based on the definition of "Bulk Plant" in 3.3.10. The definition of bulk plant requires a storage container with greater than 4,000 gallons water capacity. Both 5.7.4.3 and Table 5.7.4.2 contain text from previous editions, which did not include a minimum container size for the definition of "bulk plant." Because the offending previous text relies upon a threshold container size of 2,001 gallons for bulk plant service, a conflict now exists within the 2014 edition of NFPA 58.

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA
Organization: TC on Liquefied Petroleum Gases
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Submittal Date: Thu Oct 31 09:13:52 EDT 2013

**Public Input No. 305-NFPA 58-2014 [Section No. 11.4.1.13]****11.4.1.13**

-

A solid steel plug shall be installed in unused threaded openings.

-

11.4.1.13.1 A bolted blind flange with seal shall be installed in all unused flanged openings.**Statement of Problem and Substantiation for Public Input**

A steel plug is not applicable for all situations. The proposed changes differentiate the opening types and the applicable method by which to seal them.

Submitter Information Verification**Submitter Full Name:** Steven Younis**Organization:** Steven E. Younis PE, Inc.**Affiliation:** Propane Education & Research Council**Street Address:****City:****State:****Zip:****Submittal Date:** Mon Jul 07 21:03:28 EDT 2014

**Public Input No. 181-NFPA 58-2014 [Section No. 11.4.1.15]****11.4.1.15**

Where an overfilling prevention device is installed on the ASME container or exterior of the compartment and remote filling is used, a filler valve complying with [5.7.4.1\(D\)](#) (7)(a ~~c~~) or (b) shall be installed in the ~~exterior fill opening, and a container filler valve opening. A filler valve complying with 5.7.4.1(D)~~ (7)(c ~~a~~) or (b) shall be installed in the ~~container filler valve opening, exterior fill opening, except that single check valve may be used as specified in~~ [11.4.1.4\(A\)](#).

Statement of Problem and Substantiation for Public Input

Resolve current conflict between 11.4.1.4 (A), which specifically allows single check valves in remote filler, and 11.4.1.15, which requires double check valves.

Submitter Information Verification

Submitter Full Name: JOHN THOMSON

Organization: ROUSH CLEAN TECH

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Submittal Date: Tue Jul 01 15:47:57 EDT 2014

**Public Input No. 5-NFPA 58-2013 [Section No. 11.4.1.15]****11.4.1.15**

Where an overfilling prevention device is installed on the ASME container or exterior of the compartment and remote filling is used, a filler valve complying with 5.7.4.1(D B) (7)(a) or (b) shall be installed in the exterior fill opening, and a filler valve complying with 5.7.4.1(D B) (7)(c) shall be installed in the container filler valve opening.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
Proposed_TIA_1116_58_.docx	Balloted TIA

Statement of Problem and Substantiation for Public Input

NOTE: This public input originates from Tentative Interim Amendment 58-14-3 (TIA 1116) issued by the Standards Council on October 22, 2013 and per the NFPA Regs. needs to be reconsidered by the Technical Committee for the next edition of the Document.

This TIA is necessary for a couple reasons. First, it will make the code consistent in the manner that it addresses containers in different size categories and uses. For example, the Technical Committee agreed that a bulk plant should be defined based on the size of the storage containers and the service that those containers are providing. In this case, a bulk plant is defined in 3.3.10 with a minimum storage container size greater than 4,000 gallons water capacity. Therefore, it is necessary to make the changes described above by striking current paragraph 5.7.4.3.

The proposed TIA will also clarify and condense the language in 5.7.4.1 (A), (B) and (C). Also, the terms "full internal or flush-type full internal" are used to describe specific relief valves and therefore are needed to provide clarification as to the types of safety relief valves that are permitted in specific services. Both terms are defined in 3.3.75.7.2 and 3.3.75.7.3. These changes are proposed to 5.7.4.1, 11.4.1 and 11.13.2.9.

It is significant to note that the proposed TIA is based on Comment 58-25, which was accepted in principle at the meeting but did not receive sufficient support during the letter ballot to sustain the action of the committee at the meeting. Several negative voters commented that the proposed changes were needed in order to maintain consistency within the 2014 edition of the code. Subsequently, a NITMAM was proposed at the NFPA Technical Session but it did not achieve the required majority.

Emergency Nature: The emergency nature can be easily demonstrated in this case. The NFPA Regulations Governing Committee Projects includes criteria for determining emergency nature. The appropriate criterion would be in paragraph 5.3 (b): "The document contains a conflict within the document or with another NFPA document."

As mentioned above, original paragraph 5.7.4.3 and original Table 5.7.4.2 contain requirements that are no longer valid based on the definition of "Bulk Plant" in 3.3.10. The definition of bulk plant requires a storage container with greater than 4,000 gallons water capacity. Both 5.7.4.3 and Table 5.7.4.2 contain text from previous editions, which did not include a minimum container size for the definition of "bulk plant." Because the offending previous text relies upon a threshold container size of 2,001 gallons for bulk plant service, a conflict now exists within the 2014 edition of NFPA 58.

Submitter Information Verification

Submitter Full Name: TC on LPG-AAA
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Street Address:
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Submittal Date: Thu Oct 31 09:17:42 EDT 2013



Public Input No. 164-NFPA 58-2014 [New Section after 11.6]

11.7 Liquid Fuel Injection Equipment

- (1) This section is specific to systems which utilize a fuel pump to move liquid fuel from the tank to the engine (with or without a liquid return back to the tank), and which use electronically-controlled fuel injectors to meter the fuel. Injectors may discharge into a central location, into each intake port, or directly into the cylinders. Systems meeting this definition are specifically covered here and requirements of section 11.6 "Carburetion Equipment" do not apply.
- (2) Pressure. Due to the use of fuel pumps, pressures may be higher than the MAWP of the fuel tank. The maximum working (design) pressure for each component must be no lower than the MAWP of the fuel tank, plus the maximum pressure capability of any pumps ahead of that section if the discharge were blocked.
 - (a) If the system includes positive safety features which will disable the fuel pumps or otherwise limit pressures in the case of system blockage, this maximum pressure may be used as the maximum working pressure for the relevant components. Such functions must be described in the documentation provided with the system.
 - (b) Piping, hose, and fittings
 - i. All requirements of section 11.7, Piping, Hose, and Fittings, apply to the liquid system with the following clarifications/adjustments:
 - i. Service pressure rating of pipe and tubing shall be utilizing the appropriate maximum working pressure for that section as described in this section.
 - ii. Hose shall be designed for the maximum working pressure rating as described in this section, with a safety factor of 5 to 1, and the reinforcement shall be stainless steel wire braid.
 - iii. Hose markings shall reflect the maximum working pressure rating as described in this section instead of the 350 PSI specified in 11.7.3.3.
 - iv. After the application of couplings, hose assemblies shall be capable of withstanding a pressure of not less than the higher of 700 psig or two times their maximum working pressure.
- (3) Fuel Rail(s). The fuel rail consists of the fuel injector, along with any structural housing and retention features, including attached fittings, which may be exposed to system pressure. Systems may include one rail (as in centrally metered systems) or multiple rails (up to one rail per injector).
 - (a) All components of the fuel rail system which are exposed to LP-Gas shall be constructed of materials resistant to the action of LP-Gas both as a liquid and vapor.
 - (b) The fuel rail assembly shall be designed for a the maximum working pressure as defined in (2) above, with a safety factor of 3 to 1.
 - (c) The completed fuel rail assembly, with attached fittings, shall be capable of withstanding a pressure of not less than three times the maximum working pressure, without permanent deformation or damage.
 - (d) The completed fuel rail assembly shall be pressure tested at 120 percent of the maximum working pressure prior to installation.
 - (e) The completed fuel rail assembly shall be labeled with "LP-GAS, PROPANE", the maximum working pressure, and the manufacturer's name or trademark. If the fuel rail is assembled by the vehicle installer or other third party, the rail must also be labeled with the installer's name or trademark.
- (4) Carryover Components. If any components in the LP-GAS system, including pumps, injectors, lines, housings/fittings are carried over from an original manufacturer system which was not originally intended for use with LP-GAS, such components must be relabeled with a permanent identification including "THIS COMPONENT HAS BEEN VERIFIED FOR USE WITH LP-GAS, PROPANE, WORKING PRESSURE OF xxx PSIG", and the system manufacturer's name or trademark. Such components must fully comply with the requirements of this code as if they were provided by the system manufacturer.
- (5) Fuel Shutoff Valve. An automatic shutoff valve shall be provided in the fuel system as close as practical to the inlet of the fuel rails, which shall prevent flow of fuel to the engine when the engine is not turning.
 - (a) If the fuel injectors are controlled such that they close completely when disconnected from power; when the engine is not turning; or when ignition power (key) is turned off; then the fuel injectors meet the requirement of the shutoff valve and no additional valve is required.
- (6) Additional control valves, restrictors, etc. Manufacturers are free to utilize whatever additional control devices are required in the system to provide proper function for the application, subject to the following:
 - (a) All components and housings utilized must meet the design and labeling requirements specified in section 3 "Fuel Rail" above.
 - (b) No devices may result in isolation of fuel between two shutoff valves unless they are protected by a hydrostatic relief valve as specified in 11.10.2. Pressure-regulating or other restricting valves will not be considered isolating so long as they open at no more than 100 psi above the tank pressure (or tank MAWP). If such devices are used, the maximum working pressure for the line must be the higher of the pressure as defined in (2) above, or the pressure setting of the relief valve.

Statement of Problem and Substantiation for Public Input

The current code includes a section specific to carburetion equipment but does not include any reference to fuel injection systems, or liquid systems where a pump is utilized. Proposed language is an attempt to include all unique requirements in a single section, although it may make more sense to update multiple sections separately (such as the specifications for hose and tubing at higher working pressures).

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Submittal Date: Mon Jun 30 12:52:32 EDT 2014

**Public Input No. 173-NFPA 58-2014 [New Section after 11.7.1.2]****TITLE OF NEW CONTENT**

11.7.1.2 Tubing shall be steel, stainless steel, brass, or copper and shall comply with the following:

- (3) Stainless Steel shall be one of the following 300 series:
- a. ASTM A213 , *Standard for Seamless Ferritic and Austenitic Alloy Steel Superheater Boiler Tube Heat Exchanger Tubes*
 - b. ASTM A249 *Standard Specification for Welded Austenitic Steel Boiler, Superheater, Heat Exchanger and Condenser Tubes*
 - c. ASTM A269 *Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service*
- (4) Steel Tubing: SAE J356 *Welded Flash-Controlled Low-Carbon Steel Tubing Normalized for Bending, Double Flaring, and Beading*

Statement of Problem and Substantiation for Public Input

Type 300 series stainless steel gives the optimum combination of workability and corrosion resistance for fuel gas applications. The stainless steel standard previously specified does not cover smaller sizes used in engine fuel systems. Alternative steel standards are available for those applications and are being proposed to address this shortcoming.

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Submittal Date: Tue Jul 01 13:03:29 EDT 2014

**Public Input No. 306-NFPA 58-2014 [Section No. 11.7.3.1]****11.7.3.1**

Hose, hose connections, and flexible hose connectors (see [3.3.25](#)) used for conveying LP-Gas liquid or vapor at pressures in excess of 5 psig (34.5 kPag) shall be fabricated of materials resistant to the action of LP-Gas both as liquid and vapor, and the hose and flexible hose connector shall be reinforced with either , stainless steel wire braid or other material listed as part of the manufacturer's hose .

Statement of Problem and Substantiation for Public Input

There are potential materials that may be used instead of stainless steel wire braid. This allows for material besides stainless steel wire braid to be used as long as the alternative material is listed and approved as part of the manufacturer's listing to be used with LP-Gas applications.

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Submittal Date: Mon Jul 07 21:11:28 EDT 2014

**Public Input No. 307-NFPA 58-2014 [Section No. 11.7.3.2]****11.7.3.2**

Hose that can be exposed to container pressure shall be designed for a pressure rating of 350 psig (2.4 MPag) with a safety factor of 5 to 1, and the reinforcement shall be stainless steel wire braid or other material listed as part of the manufacturer's hose .

Statement of Problem and Substantiation for Public Input

See substantiation for 11.7.3.1

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Submittal Date: Mon Jul 07 21:18:43 EDT 2014

**Public Input No. 174-NFPA 58-2014 [Section No. 11.7.3.3(A)]**

(A)

Hose shall be continuously marked "LP-GAS, PROPANE, 350 PSI WORKING PRESSURE" and the manufacturer's name or trademark. Marking may be continuous printing on the hose, with no more than 6" seperation between markings, or may be discrete labels or other permanent marking applied no less than once per foot of length.

Statement of Problem and Substantiation for Public Input

This is an attempt to remove ambiguity for hose labeling. Multiple manufacturers now supply stainless steel reinforced hose that does not have a rubber outer layer, making continuous printing impractical. A unified specific approach to labeling of this type of hose would be helpful to manufacturers and eliminate AHJ's from having to decide what "continuous" means to them.

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Submittal Date: Tue Jul 01 13:04:39 EDT 2014

**Public Input No. 175-NFPA 58-2014 [Section No. 11.8.1.3]****11.8.1.3**

Containers located less than 18 in. (460 mm) from the exhaust system, the transmission, or a heat-producing component of the internal combustion engine shall be shielded by a vehicle frame member or by a noncombustible baffle with an air space or equivalent thermal isolation on both sides of the frame member or baffle.

Statement of Problem and Substantiation for Public Input

"Zero-gap" heat shielding is commonly used within the automotive industry, where a thermal barrier layer is bonded to an insulating material, which is then applied to the component being shielded. This technology serves the same purpose of the air gap (preventing direct heat conduction between the shield and the part, and minimizing radiation). This is simply an attempt to provide language to help AHJ's recognize that the purpose of the air gap is to provide thermal isolation, and that alternate means are also acceptable.

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Submittal Date: Tue Jul 01 13:09:04 EDT 2014

**Public Input No. 308-NFPA 58-2014 [Section No. 11.8.2.2]****11.8.2.2**

Protection of container valves, appurtenances, and connections shall be provided by one of the following:

- (1) By locating the container so ~~that~~ that structural parts of the vehicle excluding body panels and low impact bumpers, furnish the necessary protection
- (2) By the use of a fitting guard furnished by the manufacturer of the container
- (3) By other means to provide equivalent protection , such as "crash cages" and/or "skid plates"

Statement of Problem and Substantiation for Public Input

This structural components, crash cages, or skid plates will provide more substantial protection for the container minimizing the potential for damage. This clarifies the level of protection that is required for adequate protection versus such items as sheet metal (body panels), low impact bumpers, etc.

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Submittal Date: Mon Jul 07 21:21:30 EDT 2014

**Public Input No. 309-NFPA 58-2014 [Section No. 11.8.3.5]****11.8.3.5**

Containers installed between axles shall comply with [11.8.3.6](#) or shall not be lower than the lowest point forward of the container, with the vehicle suspension under full rated load compression, on the following points:

- (1) Lowest structural component of the body as illustrated in [Figure 11.8.3.4](#)
- (2) Lowest structural component of the frame or subframe
- (3) Lowest point on the engine
- (4) Lowest point of the transmission (including the clutch housing or torque converter housing, as applicable)

Statement of Problem and Substantiation for Public Input

The frame under full rated load compression will provide for the worst case low point on the frame. This further clarifies the container installation under the worst case load situation so as to insure that the safest possible installation.

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Submittal Date: Mon Jul 07 21:30:04 EDT 2014

**Public Input No. 310-NFPA 58-2014 [Section No. 11.8.3.6]****11.8.3.6**

Containers installed behind the rear axle and extending below the frame shall comply with [11.8.3.7](#) or shall not be lower than the lowest of the following points and surfaces with the vehicle suspension under full rated load compression :

- (1) Containers shall not be lower than the lowest point of a structural component of the body, engine, and transmission (including clutch housing or torque converter housing, as applicable) forward of the container.
- (2) Containers shall not be lower than lines extending rearward from each wheel at the point where the wheels contact the ground directly below the center of the axle to the lowest and most rearward structural interference, as illustrated in Part 2 of [Figure 11.8.3.4](#).

Statement of Problem and Substantiation for Public Input

See substantiation for 11.8.3.5

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Submittal Date: Mon Jul 07 21:37:15 EDT 2014

**Public Input No. 176-NFPA 58-2014 [Section No. 11.8.4.3]****11.8.4.3 * _**

Main shutoff valves on a container for liquid and vapor shall be readily accessible without the use of tools, or other equipment shall be provided to shut off the container valves. Aut

omatic shutoff valves complying with 11.4.1.8(A) are considered compliant to this standard.

Statement of Problem and Substantiation for Public Input

Remove ambiguity from current language. Common misperception in the industry is that the "main" shutoff valve must be the manually actuated valve located on the tank. However, the automatic shutoff valve required in 11.4.1.8(A) complies with the "other equipment" clause already in the code. This language is intended to just make that more clear to system designers and AHJ's.

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Submittal Date: Tue Jul 01 13:10:37 EDT 2014

**Public Input No. 177-NFPA 58-2014 [Section No. 11.8.5.1]****11.8.5.1**

The pressure relief valve discharge from fuel containers on vehicles other than industrial (and forklift) trucks shall be in accordance with the following, as measured at the centerline of the discharge :

- (1) It shall be directed upward or downward within 45 degrees of vertical.
- (2) It shall not directly impinge on the vehicle fuel container(s), the exhaust system, or any other part of the vehicle.
- (3) It shall not be directed into the interior of the vehicle.

Statement of Problem and Substantiation for Public Input

Remove ambiguity from the code which has caused confusion with AHJ's. We believe that the committee intended to evaluate the PRV discharge according to centerline, which is included here; if committee intended other, that can easily be added here.

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Submittal Date: Tue Jul 01 13:19:02 EDT 2014

**Public Input No. 178-NFPA 58-2014 [Section No. 11.8.5.2(E)]**

(E)

Where nonmetallic hose is used to pipe away the relief valve discharge on containers installed on the outside of the vehicle, the breakaway adapter and any attached fitting shall deflect the relief valve discharge upward or downward within 45 degrees of vertical and shall meet the other requirements of [11.8.5.1](#) without the nonmetallic hose attached. If an additional fitting is necessary to meet this requirement, it shall have a melting point not less than 1500°F (816°C).

Statement of Problem and Substantiation for Public Input

Remove ambiguity in the code. Since 11.8.5.2(C) and (D) specify nonmetallic hose, the use of "hose" without the nonmetallic modifier is confusing in (E). We believe the intent of this section is to require the system to meet the discharge requirements with nonmetallic hose removed, using only components which have a melting point over 1500F. There are now flexible metallic tubing materials available which meet the melting point requirements and are ideal for use in PRV discharge routing, but are frequently mislabeled as "hose"-- this change removes any concerns caused by that ambiguity.

Submitter Information Verification**Submitter Full Name:** JOHN THOMSON**Organization:** ROUSH CLEAN TECH**Street Address:****City:****State:****Zip:****Submittal Date:** Tue Jul 01 13:21:26 EDT 2014

**Public Input No. 312-NFPA 58-2014 [Section No. 11.9.1.1]****11.9.1.1**

Installation of containers in the interior of vehicles or enclosed compartments shall comply with either [11.9.1.2](#) or [11.9.1.3](#).

Statement of Problem and Substantiation for Public Input

This provides clarification to containers that may be installed in areas that may not be clearly interpreted as interior such as exterior enclosed compartments. These types of enclosures or compartments should be considered equivalent to interior installations for the sake of safety & protection.

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Submittal Date: Mon Jul 07 21:44:07 EDT 2014

**Public Input No. 313-NFPA 58-2014 [Section No. 11.10.1.1]****11.10.1.1**

The piping system shall be designed, installed, supported, and secured in such a manner as to minimize damage due to expansion, contraction, vibration, strains, abrasion, UV deterioration, and wear.

Statement of Problem and Substantiation for Public Input

This broadens the scope of protection to the piping by adding two other critical failure modes that may eventually cause a failure in the piping if the piping is not adequately protected. Abrasion and UV deterioration pose very likely potential threats to the integrity of piping and the piping must be adequately protected against both failure modes to ensure the integrity of the piping for its full service life.

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Submittal Date: Mon Jul 07 21:49:21 EDT 2014

**Public Input No. 192-NFPA 58-2014 [New Section after 11.11.1.2]****GAS DETECTION SYSTEMS**

The gas detection system shall activate a visual alarm
within the driver's compartment of the vehicle at a gas concentration
not exceeding 20 percent of the LEL and sound
an audible and visual alarm at a gas concentration not greater
than 50 percent of the LEL.

Sensor locations shall include at a minimum the
engine and driver's compartment and any enclosed fuel container
or installation within a compartment.

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Statement of Problem and Substantiation for Public Input

NFPA 52 Vehicular Gaseous Fuel Systems Code covers trucks using Compressed Natural Gas as the fuel to the vehicle. Section 11.12.2.3 of NFPA 52 calls for a Gas Detection System to be installed in the vehicle. This proposal follows that guideline for vehicle safety. I eliminated the % range and focused the alarms on less than 20% and less than 50% of the LEL of propane. Currently there are at least two manufacturers of gas detection systems available for trucks. These systems have been installed/used on trucks, buses etc using CNG for over 5 years.

Note NFPA 52 also calls for gas detection systems in many other areas of the CNG delivery system model. I believe those also deserve review by the committee as to their application to NFPA 58.

NOTE: Supporting material is available for review at NFPA Headquarters.

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Submittal Date: Wed Jul 02 14:28:12 EDT 2014

**Public Input No. 314-NFPA 58-2014 [Section No. 11.11.1.2]****11.11.1.2**

The gas regulator and the automatic shutoff valve shall be installed as follows:

- (1) An approved automatic shutoff valve in compliance with [11.6.3](#) shall be installed in the fuel system.
- (2) Approved automatic pressure-reducing equipment shall be installed between the fuel supply container and the carburetor _ _ or [final fuel delivery system](#) _ .

Statement of Problem and Substantiation for Public Input

This allows the latitude for new alternative or advanced fuel systems to be considered as part of this code, as long as they have met all other required code requirements for LP-Gas fuel powered engines.

Submitter Information Verification

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Submittal Date: Mon Jul 07 21:55:50 EDT 2014

**Public Input No. 315-NFPA 58-2014 [Section No. 11.12.1.1]**11.12.1.1

—
Each over-the-road general-purpose vehicle
powered
by LP Gas shall be identified with a weather-resistant, diamond-shaped label.

Statement of Problem and Substantiation for Public Input

Refer to Chapter 12

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Submittal Date: Mon Jul 07 22:02:23 EDT 2014

**Public Input No. 316-NFPA 58-2014 [Section No. 11.12.1.2]**11.12.1.2

The label shall be located on an exterior vertical or near-vertical surface on the lower right rear of the vehicle (on the trunk lid of a vehicle so equipped but not on the bumper of any vehicle) inboard from any other markings.

Statement of Problem and Substantiation for Public Input

Refer to Chapter 12 substantiation.

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Submittal Date: Mon Jul 07 22:06:08 EDT 2014

**Public Input No. 78-NFPA 58-2014 [Section No. 11.12.1.2]****11.12.1.2**

The label shall be located on ~~an~~ three places on the exterior vertical or near vertical surface (1) on the lower right rear of the vehicle (on the trunk lid of a vehicle so equipped but not on the bumper of any vehicle) inboard from any other markings, (2) on the left side of the vehicle below or in the vicinity of the USDOT number, if a USDOT number is required, and (3) on the right side of the vehicle below or in the vicinity of the USDOT number, if a USDOT number is required .

Statement of Problem and Substantiation for Public Input

The rear end of a truck may not easily accommodate or allow a label to be easily visible. For example, a truck towing a trailer, a dump truck, a refuse truck, a flatbed truck with an overhanging load. Therefore, it is recommended that additional labels be affixed to the sides (left and right) of a truck to allow adequate hazard warning to emergency responders. The labels would provide additional safety. Second, the labels should be affixed below or near the vicinity of the USDOT number, if the USDOT number is required. This would provide this would help commercial vehicle enforcement officers and inspectors identify the vehicle as propane-fueled. Different inspection procedures for the fuel system would apply to alternative fuel commercial motor vehicles.

Submitter Information Verification

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Submittal Date: Mon Mar 31 08:03:26 EDT 2014

**Public Input No. 317-NFPA 58-2014 [Section No. 11.12.1.3]**11.12.1.3

—

The label shall be a minimum of 43/43/4 in. (120 mm) long by 31/41/4 in. (83 mm) high.**Statement of Problem and Substantiation for Public Input**

Refer to Ch 12 substantiation

Submitter Information Verification**Submitter Full Name:** Steven Younis**Organization:** Steven E. Younis PE, Inc.**Affiliation:** Propane Education & Resrach Council**Street Address:****City:****State:****Zip:****Submittal Date:** Mon Jul 07 22:08:16 EDT 2014

**Public Input No. 79-NFPA 58-2014 [Section No. 11.12.1.3]**11.12.1.3

The label shall be a minimum of 4 ¾ in. (120 mm) long by 3 ¼ in. (83 mm) high for vehicles less than 19,500 lbs Gross Vehicle Weight Rating (GVWR) .
The label shall be a minimum of 5.7 in long by 4.2 in. high (145 mm x 107 mm) for vehicles of 19,500 lbs. GVWR or higher.

Statement of Problem and Substantiation for Public Input

The added requirement for a larger label on heavier trucks (Class 6 and higher) provides for additional safety. Moreover, the requirement for a larger label on propane-fueled Class 6 trucks and higher would harmonize with the same requirement for a larger label on natural gas-fueled Class 6 trucks and higher existing in NFPA 52.

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Submittal Date: Mon Mar 31 08:15:49 EDT 2014

**Public Input No. 318-NFPA 58-2014 [Section No. 11.12.1.4]**11.12.1.4 *

The marking shall consist of a border and the word PROPANE [1 in. (25 mm) minimum height centered in the diamond] in silver or white reflective luminous material on a black background.

Statement of Problem and Substantiation for Public Input

Refer to Ch 12 substantiation

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Submittal Date: Mon Jul 07 22:12:52 EDT 2014

**Public Input No. 80-NFPA 58-2014 [Section No. 11.12.1.4]****11.12.1.4 ***

The marking shall consist of a border and either the word "PROPANE" or "LPG" [1 in. (25 mm) minimum height centered in the diamond] in silver or white reflective luminous material on a black background.

Statement of Problem and Substantiation for Public Input

"LPG" should be allowed as an alternative word to "PROPANE" in the label because it is much shorter (shorter by more than 67%) because it is only three letters instead of seven letters. Because it is shorter, it is easier to read from a distance. Also, "LPG" is more precise term than "PROPANE" and just as commonly used as "PROPANE"..

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Submittal Date: Mon Mar 31 08:26:25 EDT 2014

**Public Input No. 238-NFPA 58-2014 [Section No. 11.13.2.2]****11.13.2.2**

—

~~The cylinder shall be~~ Universal cylinders intended for use in the design position while being filled or a universal cylinder shall be filled in either position horizontal position shall be installed with the positioning slot properly positioned prior to use or filling .

Statement of Problem and Substantiation for Public Input

This change will permit cylinders marked DT to be filled in the vertical position or the horizontal position if the coupling where the gauge is installed is oriented to the maximum filling level while the cylinder is in the horizontal position. All universal engine fuel cylinder designs orient the dip tube location by the position of the fixed maximum liquid level gauge flange to the mounting slot in the cylinder collar.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 234-NFPA 58-2014 [Section No. 3.3.17.1]	
Public Input No. 235-NFPA 58-2014 [Section No. 5.7.5.6]	
Public Input No. 236-NFPA 58-2014 [New Section after 7.2.2.11]	

Submitter Information Verification

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Submittal Date: Thu Jul 03 14:43:03 EDT 2014

**Public Input No. 6-NFPA 58-2013 [Section No. 11.13.2.8]****11.13.2.8**

Industrial truck cylinders shall have pressure relief valves that conform with [5.7.4.1 \(D B \)\(11\)](#) or [5.7.4.1 \(D B \)\(12\)](#).

Additional Proposed Changes

<u>File Name</u>	<u>Description</u> <u>Approved</u>
Proposed_TIA_1116_58_.docx	Balloted TIA

Statement of Problem and Substantiation for Public Input

NOTE: This public input originates from Tentative Interim Amendment 58-14-3 (TIA 1116) issued by the Standards Council on October 22, 2013 and per the NFPA Regs. needs to be reconsidered by the Technical Committee for the next edition of the Document.

This TIA is necessary for a couple reasons. First, it will make the code consistent in the manner that it addresses containers in different size categories and uses. For example, the Technical Committee agreed that a bulk plant should be defined based on the size of the storage containers and the service that those containers are providing. In this case, a bulk plant is defined in 3.3.10 with a minimum storage container size greater than 4,000 gallons water capacity. Therefore, it is necessary to make the changes described above by striking current paragraph 5.7.4.3.

The proposed TIA will also clarify and condense the language in 5.7.4.1 (A), (B) and (C). Also, the terms "full internal or flush-type full internal" are used to describe specific relief valves and therefore are needed to provide clarification as to the types of safety relief valves that are permitted in specific services. Both terms are defined in 3.3.75.7.2 and 3.3.75.7.3. These changes are proposed to 5.7.4.1, 11.4.1 and 11.13.2.9.

It is significant to note that the proposed TIA is based on Comment 58-25, which was accepted in principle at the meeting but did not receive sufficient support during the letter ballot to sustain the action of the committee at the meeting. Several negative voters commented that the proposed changes were needed in order to maintain consistency within the 2014 edition of the code. Subsequently, a NITMAM was proposed at the NFPA Technical Session but it did not achieve the required majority.

Emergency Nature: The emergency nature can be easily demonstrated in this case. The NFPA Regulations Governing Committee Projects includes criteria for determining emergency nature. The appropriate criterion would be in paragraph 5.3 (b): "The document contains a conflict within the document or with another NFPA document."

As mentioned above, original paragraph 5.7.4.3 and original Table 5.7.4.2 contain requirements that are no longer valid based on the definition of "Bulk Plant" in 3.3.10. The definition of bulk plant requires a storage container with greater than 4,000 gallons water capacity. Both 5.7.4.3 and Table 5.7.4.2 contain text from previous editions, which did not include a minimum container size for the definition of "bulk plant." Because the offending previous text relies upon a threshold container size of 2,001 gallons for bulk plant service, a conflict now exists within the 2014 edition of NFPA 58.

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**Public Input No. 319-NFPA 58-2014 [New Section after 11.14.1.2]**

11.14.1.3 Vehicles that operate on private property and are not licensed for operation on public roads, but are specifically designed to carry passengers, shall comply with the provisions of Ch. 12 covering on-highway and passenger vehicles.

Statement of Problem and Substantiation for Public Input

Refer to Ch 12 substantiation

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**Public Input No. 135-NFPA 58-2014 [New Section after 11.16]****NEW PROPOSED****Chapter 12 - Motor vehicles intended for licensed and on-road use propelled by Autogas**

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Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Autogas_Ch_12_DRAFT.docx	Proposed new Chapter 12	
Standard_Comparison_58_67_and_149_4-18-2014_FH.xlsx	The attached substantiation spreadsheet compares NFPA 58, Regulation No 67 of the Economic Commission for Europe of the United Nations (UN/ECE) Uniform provisions concerning: I. Approval of specific equipment of motor vehicles using liquefied petroleum gases in their propulsion system; II. Approval of a vehicle fitted with specific equipment for the use of liquefied petroleum gases in its propulsion system with regard to the installation of such equipment. and CAN/CSA-B149 Natural gas and propane installation code.	

Statement of Problem and Substantiation for Public Input

Due to the constantly changing and fast growing number of over the road LP-Gas vehicles, the propane gas industry has realized that NFPA 58 Ch 11 needs to be updated to meet these changing requirements. To address the issue, the Propane Gas & Research Council funded a project to assess developing updated code requirement to be proposed for NFPA 58. This involved comparing and contrasting NFPA 58 with other pertinent international propane codes. It was found that NFPA 58 Chapter 11 lacks comprehensive code requirements for motorized over the road licensed vehicles that have engines propelled by autogas. The spreadsheet attached developed under this grant compares and contrasts Canadian, European, and NFPA 58 code requirements for this application. The spreadsheet data demonstrates that NFPA 58 lack sufficient code requirements for this application. It is under this premise that the development of a new Chapter 12 has been developed to address this issue and provide new code requirements to move forward.

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NEW PROPOSED

Chapter 12 - Motor vehicles intended for licensed and on-road use propelled by Autogas

12.1 Scope

12.1.1 This chapter applies to the installation, servicing, and repair of propane fuel system components and containers installed on motor vehicles intended for licensed and on-road use, where the fuel is used for the engine propulsion of the vehicle (AUTOGAS).

12.1.2 This chapter applies to the installation of containers, for LPG powered engines on other motor vehicles, where the engine does not propel the vehicle, such as recreational vehicles, industrial trucks, outdoor food service units, portable engines, and other when propane is to be used for fuel purposes (other than motive power)

12.1.3 This chapter does not apply to vehicles qualified under the DOT or OEM FMVSS certification.

12.1.4 This chapter does not apply to propane used on boats

12.1.5 This chapter does not apply to the installation of systems on engines that are not used to propel the vehicle in licensed use on public roads

12.1.6 Where the term “propane” or “LPG” is used, the requirements of this chapter include, and apply equally to, any material that is composed predominantly of any of the following hydrocarbons or a mixture of them: propane, propylene, butane (normal butane or isobutane), and butylenes.

12.1.4 The term “Autogas” shall hereafter refer to LPG or propane used for the purpose of fueling motor vehicles defined above.

12.2 Training

12.2.1 Each person engaged in installing, repairing, filling, or otherwise servicing an LP-Gas engine fuel system shall be trained.

12.2.2 The training shall use an organized and managed program developed and administered by the manufacturer of the system brand or technology being installed.

12.3 General

12.3.1 For the purpose of this Code, other requirements contained separate chapters of this code, referencing valves, tanks, hoses, and other components, may apply.

12.3.1.2 Propane distributed for Autogas fuel purposes shall be odorized

12.3.1.3 An accessory, component, equipment, or any other item shall be installed in accordance with the manufacturer’s installation instructions and this Code.

12.3.1.4 Where a conflict exists between the manufacturer's installation instructions and this Code, the requirements of this Code shall prevail unless otherwise approved by the AHJ.

12.3.1.5 When a fuel tank is being repaired, re-qualified, or scrapped, its liquid contents shall only be removed by flaring or by transfer to another container.

12.3.1.6 Venting to the atmosphere, in any volume, in either liquid or vapor form, shall be prohibited.

12.3.1.7 The material of the equipment that is in contact with the propane shall be compatible with propane and the intended service, and with any other product or contaminant likely to be either entrained in the Autogas itself, or to be exposed to the equipment in normal daily operation.

12.3.2 Approval of accessories, components, equipment, and material

12.3.2.1 A valve, accessory, component, equipment, or material used in an installation shall be of a type and rating approved for the specific purpose for which it is employed.

12.3.2.2 When deviation from or postponement of these requirements is necessary, permission in writing shall be obtained from the authority having jurisdiction before the work proceeds, and this permission shall apply only to the particular installation on the specific vehicle, or series of vehicles, for which it is given.

12.3.2.3 Used accessories, components, and equipment shall be inspected and determined by qualified installer to be safe for use.

12.3.2.4 Valves, components, and accessories shall be approved to the relevant standards, as recognized by the AHJ.

12.3.2.5 Before delivery of a new installation, or release from maintenance/or repair of existing installation, the installer or representative of the installing company, shall ensure that any accessory, component, or equipment installed is in accordance with the Code requirements, and the person initially activating the propane fuel system shall ensure that the system is in safe working order.

12.3.2.6 A documented verification of the inspection shall be provided to the owner/operator of the vehicle at time of delivery.

12.3.3 Responsibilities of the Installer

12.3.3.1 The installer or representative of the installing company shall instruct the user in the safe and correct operation of the fuel system.

12.3.3.2 It shall be the responsibility of the installing company, to ensure that the vehicle is in a safe operating condition at the time of delivery to the user.

12.4.3.3 The installer shall ensure that the manufacturer's instructions supplied with the component, accessory, equipment or system, are left with the user.

12.3.3.4 Before installing any replacement part of a propane fuel system, the installer shall ensure that the replacement part provides operational characteristics at least equivalent to those of the original part, and is compatible with and approved by the original equipment or system manufacturer.

12.3.3.5 It shall be the responsibility of the installer of a piping or tubing system to perform pressure tests in accordance with Section x.xx and to ensure that the piping or tubing system is gas-tight at the completion of the tests.

12.3.3.6 It is the responsibility of the installer/installing company to ensure that each vehicle that they have sold as an OEM or aftermarket installation, has an owner's manual that shall provide the following minimum information:

- a. A description of the specific system installed, with component location
- b. An indication of the safety and emergency valves, and how to operate them.
- c. Basic maintenance intervals in either months for miles
- d. Any specification special maintenance items (oils, lubricants, filters, etc) unique to the Autogas system, which are different than those defined in the basic vehicle owner's manual.

12.3.3.7 All installation and service/maintenance work shall be performed by licensed, trained personnel.

12.3.3.8 Careful attention shall be paid not only to the mechanical execution of the work but also to the arrangement of the installation, including but not limited to component mounting position and security, access to all serviceable items and openings, protection from the elements, and with consideration given when determining component position, to possible damage from impact and accidents.

12.3.4 Smoking, welding, torch cutting grinding or any other source of ignition shall not be permitted in the area where work is being done on piping, tubing, or equipment that contains or has contained propane unless the piping, tubing, or equipment has been purged of all propane.

12.3.5 Isolating or rendering inoperative, or reducing the functionality of a relief valve or a safety component, accessory, or equipment shall be prohibited.

12.3.6 A light, including a flashlight, used in connection with a search for propane leakage shall be of a Class I, Group D explosion proof type

12.3.7 An electric switch either in or adjacent to an area of propane leakage shall not be operated unless of a Class I, Division 1/2, Group D type.

12.3.8 An ignition switch, accessory switch, or any source of ignition on a vehicle shall not be operated in an area of propane leakage.

12.4 Installation of propane fuel systems and tanks on motor vehicles

12.4.1 General

12.4.1.1 Where there is a difference between a requirement contained in Chapter 5 and a requirement in another clause of this Code, the requirement in Chapter 5 shall govern.

12.4.1.2 The propane supply for any fuel system shall be from a container that is permanently affixed to the chassis of the motor vehicle.

12.4.1.3 No engine fuel supply container shall be mounted on a trailer or articulated portion of a vehicle separate from the portion where the engine is mounted.

12.4.1.4 DOT cylinder or non-ASME containers, temporarily mounted to a vehicle, such as storage in a trunk or truck bed shall not be used for supply fuel to the engine propelling the vehicle.

12.4.1.5 The use of bulk delivery tanks for supplying fuel to an engine is permitted, where compatible with the specific engine system installed and not otherwise prohibited by any code or regulation.

12.4.1.6 The source of combustion air for a propane-fuelled engine shall be completely isolated from the ventilating or air-conditioning system of the vehicle.

12.4.1.7 Any part of the propane fuel system equipment that uses a drain valve or plug shall have the drain valve or plug located in the lowest possible position unless the equipment is removable for maintenance purposes.

12.4.1.8 Such service drains or pressure taps shall be equipped so as to permit the attachment of a hose or tube for remote discharge of the discharge gas to a safe area with proper ventilation. Under no circumstances shall any portion of a system bleed down in an enclosed area where the potential for a combustible mix of air and fuel, or displacement of oxygen could occur.

12.4.2 Containers

12.4.2.1 The fuel container used for any Autogas application shall be designed and approved in accordance with ASME pressure vessel code Section VIII.

12.4.2.2 A container for use on an Autogas vehicle manufactured after TBD shall have a design pressure for the tank and the set pressure of its relief valve not less than 312 psig (2150 kPa). The set pressure of the relief valve shall be equal to the design pressure of the tank.

12.4.2.3 A DOT cylinder shall not be installed as a permanent engine fuel container on an Autogas vehicle, but such a cylinder may be used in lieu of a tank for the purposes of shipping a vehicle, transporting between assembly lines/areas, or for such test purposes as tuning the engine.

12.4.2.4 The number of propane containers mounted on an Autogas vehicle shall be limited to 3 separate containers with a maximum aggregate capacity of 300 gallons water capacity.

12.4.2.5 A container from which the propane liquid and vapor has been completely removed is purged, both the container and connecting fuel lines, components, etc, shall be tested at 145 psig (1000 kPa) using air or an inert gas (carbon dioxide or nitrogen, or a mixture of these), before returning to service.

12.4.2.6 A new or reconditioned propane tank, or a tank that has had its interior exposed to the atmosphere (such as would occur during a service valve change), shall be purged of air in accordance with:

1. The procedure described in Annex X; or
2. Vacuum purged; or
3. An alternative method that ensures that moisture is removed and that the tank contains no more than 4% air by volume.

12.4.2.6.1 Tanks containing electrical components shall not be purged with propane.

12.4.2.7 Inlets and outlets of an engine fuel tank other than those for the relief valve and gauge shall bear a durable label made of metal or a material that is not adversely affected by water, UV exposure or temperature extremes.

12.4.2.8 The adhesive on the label shall not be water-soluble.

12.4.2.8.1 The label shall be attached adjacent to the inlet and outlet openings and shall designate the service (Vapor or Liquid space) of the opening.

12.4.2.8.2 The lettering of the label shall be a minimum of 0.25 in (6.4 mm) in height.

12.4.2.8.3 The method of affixing the labels to the tank in such a ways as to remain in place and readable, in the typical operating environment in which the vehicle will be placed, for a period of no less than ten (10) years, or the full useful vehicle life, whichever comes first.

12.4.2.8.4 Where “Multi-valves, Multi-function valves, combinations valves” with integrated functions in a single body or flange are used, the Liquid and Vapor openings shall be stamped, cast in or otherwise permanently marked on each functional opening in the integrated unit.

12.4.2.8.5 Where the mounting flange opening in the tank is in the liquid space at 80% full, as installed on the vehicle, the flange opening shall be marked as Liquid, and where the opening is in the vapor space, the opening shall be marked as vapor.

12.4.2.9 Welding shall not be done to the shell, head, or any other part of a tank subject to internal pressure except with the approval, and under the supervision, of the boiler and pressure vessel inspection authority of the province or territory in which the tank is installed.

12.4.2.9.1 Such welding shall be performed by a licensed ASME pressure vessel welder only.

12.4.2.9.2 Welding by a qualified welder for brackets or other attachments shall be permitted on “weld pads” or other Non-Pressure containing portion of the container, as approved by the container manufacturer.

12.4.2.10 Permanently installed containers shall meet the requirements of 5.3.3.4 and 5.5.10.

12.4.2.11 Field welding, by a qualified welder, where necessary, shall be made only on the saddle plates, weld plates, lugs, or brackets originally attached to the container by the manufacturer, and as approved by the container manufacturer.

12.4.3 Fuel Container Equipment

12.4.3.1 A container from which vapor only is to be withdrawn shall be installed or equipped in such a manner as to prevent the accidental withdrawal of liquid propane.

12.4.3.2 Relief valves

12.4.3.2.1 Each tank shall be provided with one or more relief valves of the spring-loaded internal type.

12.4.3.2.2 Each container shall be provided with a listed relief valve, with a rating in accordance with Table 5.7.4.1, installed in the vapor space of the container, in a position that ensures that the operating mechanism of the valve remains in the vapor space, as installed on the vehicle.

12.4.3.2.3 Manifolded containers, where the multiple cylinders are permanently conjoined and considered to be a single container, shall only require a single valve installed in the vapor space of the container section with the highest level when installed, so as to ensure that the valve mechanism is always in the vapor space of the tank.

12.4.3.2.4 Shut-off valves or other equipment shall not be installed between the relief valves and the tank.

12.4.3.2.5 The relief valve on a fuel tank shall have direct communication with the vapor space of the tank when the vehicle is parked on level ground.

12.4.3.2.6 Tank manufacturers shall either provide the relief valve or specify the type of relief valve to be used. It shall be installed in the container section with the highest level when installed, so as to ensure that the valve mechanism is always in the vapor space of the tank.

12.4.3.2.7 Except where a back check valve is built into a shut-off valve to permit excess pressure to bleed back into the tank, a hydrostatic relief valve shall be installed between each pair of shut-off valves on a propane liquid line, or where an isolation electro-solenoid valve is designed such that differential back pressure will permit pressure to bleed back to the tank.

12.4.3.2.7.1 The start-to-discharge pressure setting of such a hydrostatic relief valve shall be neither less than 375 psig (2585 kPa) nor more than 500 psig (3450 kPa).

12.4.3.2.7.2 The hydrostatic relief valve shall be located outside the engine compartment unless vented to the outside of the engine compartment directly or by means of a conduit.

12.4.3.3 Liquid-level gauges

12.4.3.3.1 A tank shall be equipped with a fixed-liquid-level gauge for the purpose of monitoring the performance of the stop fill valve. The fixed liquid level gauge shall not be required to be used as a means for routine filling of the tank.

12.4.3.3.2 A fixed-liquid-level gauge shall be designed so that the bleed valve opening is not larger than a No. 54 drill size (1.4 mm).

12.4.3.3.3 When a fixed-liquid-level gauge is used, the length of the dip tube, prefixed with the letters "DT", shall be stamped on the exterior of the valve to which the dip tube is connected and on the container opening where the dip tube is integral to the assembly of the tank, and not to the valve being installed.

12.4.3.3.4 When the fixed-liquid-level gauge is installed in a location remote from the tank, a No. 54 drill size (1.4 mm) orifice shall be installed at the tank and at the remote location.

12.4.3.4 Excess-flow and back check valves

12.4.3.4.1 A propane liquid withdrawal connection on a fuel container with an opening larger than a No. 54 drill size (1.4 mm) shall be equipped with an internal excess-flow valve sized according to the following:

1. On engines up to and including 240 hp operating on propane, the maximum throughput of the internal excess-flow valve shall not exceed 2.0 US gal (7.6 L) per minute.
2. On engines exceeding 240 hp operating on propane, or engines in excess of 240 hp where propane is mixed with another fuel, the size of the internal excess-flow valve shall be determined by calculating the maximum consumption per hour in US gallons (litres) per minute and adding a 50% safety factor. The maximum throughput of the internal excess-flow valve shall not exceed 3.2 US gal (12.1 L) per minute.
3. On engines up to and including 550 in3 (9000 cm3) displacement operating on liquid propane injection where an in-tank fuel pump is used, the maximum rating of the internal excess-flow valve shall not exceed 3.0 US gal (11.35 L) per minute.
4. On engines exceeding 550 in3 (9000 cm3) displacement operating on liquid propane injection where an in-tank fuel pump is used, the maximum rating of the internal excess-flow valve shall not exceed 3.8 US gal (14.38 L) per minute.
5. On engines with horsepower ratings less than those listed above, but where the liquid withdrawn from, or pumped out of the service tank, is in excess of the required demand of the engine, such as the recirculation of a liquid injection system, the maximum rating of the valve shall be no greater than 110% of the maximum flow rate of the fuel within the system, accounting for both that consumed by combustion and that returned to the tank, at the greatest flow demand in normal operation.

12.4.3.4.2 The filler valve of a direct-fill tank shall be equipped with:

1. One double or two single back check valves of the internal type, and a minimum of one seat of these valves shall be other than the metal-to-metal type, with a positive seal. The positive seal shall be the outer most seal for fully internal valve, or the inner most seal for partially or fully external valve; and
2. A protective cap for the fuelling connection that is secured to the filler valve or to the vehicle by means of a durable strap or a chain made of non-sparking material.
3. The sealing surface of the valve, where a nozzle or filling valve is attached, shall be of the design whereby the seal can be replaced as required in general maintenance to ensure a positive seal for the full useful life of the container in which it is mounted.

12.4.3.4.3 When the filling connection is remote from the container, the backflow prevention system shall be one of the following, and shall be equipped with a screw-on protective cap:

1. A single back check valve other than the metal-to-metal type at the filler connection plus a double back check valve of the internal type at the container (one seat of the double back check valve shall be other than the metal-to-metal type); or
2. A double back check valves at both the container and filler connection (one seat of each back check valve shall be other than the metal-to-metal type) with the container back check valve of the internal type

12.4.3.4.4 The filling valve connection for all Autogas vehicles shall be a low emissions type, one which when disconnected from the filling nozzle, shall not release more than a combined volume (Including the valve and the nozzle spaces combined) of more than 2.0 cc of liquid.

12.4.3.4.5 For Autogas tank installations made after 1 January 20XX, the filling valve shall be of the quick connect/release type in accordance with EN-13760.

12.4.3.4.5.1 Existing installations may continue to use the ACME 1-3/4" threaded connection until 1 January 20XX, at which time all in use vehicle shall be upgraded to the EN-13760 type or removed from service.

12.4.3.4.5.2 This shall apply to both direct and remote filling Autogas valves.

12.4.3.4.6 On each cylinder, any liquid supply opening of the tank, either as an integral part of a service valve, or as an internal function for any liquid supply opening, shall have an excess-flow valve in accordance with Section 5.3.4.1.

12.4.3.5 Shut-off and stop-fill valves

12.4.3.5.1 A propane withdrawal connection on a fuel tank shall be equipped with a shut-off valve that incorporates an internal excess-flow valve, either as part of the valve (where installed in a dedicated opening) or in the opening portion of a multipurpose valve body or manifold, where the service valve is attached. Such excess flow valve shall be of the fully internal type when installed.

12.4.3.5.2 All Autogas containers shall be equipped with a stop-fill valve (over-fill protection device, or OPD) that shall ensure that the maximum permitted liquid volume at the time of filling does not exceed 80% of the tank volume.

12.4.3.5.3 The use of a fixed-liquid-level gauge during refueling shall not be required when the motor fuel tank being filled is equipped with an OPD / stop-fill valve, except for annual test for verification of OPD function, or as often as required by the prevailing AHJ, or other applicable code.

12.4.3.5.4 In addition to fulfilling the requirements of Section 5.3.4.1, a tank shut-off valve shall be equipped with a manual shut-off and also be either of an integral solenoid type, or used in conjunction with a solenoid valve which is directly mounted or part of a multi-function valve body or manifold that prevents the flow of propane when the ignition is off or the engine is not running.

12.4.3.5.5 This solenoid valve shall be controlled so that it is automatically closed when the engine is not running, irrespective of the position of the ignition switch, and shall remain closed as long as the engine is not running.

12.4.3.5.6 A shut-off valve on a container shall be accessible, when the container is installed on the vehicle, without the use of any special tools.

12.4.5.6.1 Where the shutoff valve is not clearly visible from the outside of the vehicle, a label clearly visible with an arrow pointing to the area of the valve, and marked “Shut Off valve” shall be affixed.

12.4.3.7 Where a float gauge is used, it shall be installed in accordance with Annex X

12.4.3.8 Fuel pumps

12.4.3.8.1 The power to a fuel pump shall be switched off when the power to the vehicle is shut off or in the event of a crash that actuates the crash sensor.

12.4.3.8.2 The fuel pump shall be permitted to run in the “Run” position of an ignition switch, prior to starting and for a maximum of 30 seconds, for the purpose of purging vapor from the supply lines to the engine, where required.

12.4.3.8.3 A fuel pump shall be so designed that the outlet pressure is limited to 312 psig (2150 kPa) in the event that the outlet is plugged (e.g., by blocking of the outlet tube or the closing of the service valve).

12.4.3.8.3.1 The limit may be accomplished by switching off the pump, recirculating to the container, an integrated PRV discharging to the tank interior, or other suitable means.

12.4.3.8.4 Measures shall be taken to ensure that the heat buildup by the fuel pump(s) does not cause a potential ignition source, nor increase the tank pressure to cause the pressure relief valve to open when the engine is at its minimum fuel level but still operating.

12.4.3.8.5 Tanks or containers with the fuel pump inside shall be marked “Fuel pump inside”.

12.4.3.8.6 Pumps built to SAE J1537 and installed inside the tank are exempt from the provisions of Section 4.2.1 of SE J1537.

12.4.3.9 Electrical installation

12.4.3.9.1 The electrical components of the propane fuel system shall be protected against overloads, and at least one separate fuse shall be provided in the supply cable.

12.4.3.9.2 The fuse referred to in Section 5.3.8.1 shall be installed in a known location where it can be reached without the use of tools, and such location shall be clearly marked in the operator’s manual.

12.4.3.9.3 Propane-containing components, such as conductive hose, conductive valve bodies, etc., shall not be used to carry electrical current.

12.4.3.9.4 Where electrical components are contained within the propane, the system shall be purged with inert gas or vacuum purged.

12.4.3.9.4.1 Propane shall not be used to purge the system.

12.4.3.9.4.2 All electrical supply to the vehicle shall be removed, and the vehicle components shall be electrically grounded during purging

12.4.3.9.5 Electrical cables shall be protected from damage.

12.4.3.9.6 Bushings shall be used when cables pass through any bulkheads.

12.4.3.9.7 The electrical connections and components in the vapor box shall be constructed in such a way that no sparks are generated.

12.4.3.9.7.1 Such connection shall be made with sealed connectors, with positive locking mechanisms, with discreet connectors to prevent incorrect installation that could result in an electrical short or other potential ignition source.

12.4.3.9.8 Electrical connections made inside of a container, or in any portion of the system which contains fuel, shall be made with sealed connectors, of an OEM automotive type/quality/grade, with positive locking mechanisms, with discreet connectors to prevent incorrect installation that could result in an electrical short or other potential ignition source.

12.4.3.10 Propane Injectors - Liquid and Vapor Phase

12.4.3.10.1 Injectors shall be securely mounted.

12.4.3.10.1.1 Injectors shall be mounted in such a fashion as to prevent movement from vibration that might result in rubbing, abrasion or otherwise contacting any other material that could result in a failure or leak.

12.4.3.10.1.2 Injectors and their rail or body components and supply/return lines shall be mounted to ensure a minimum of 5mm clearance from any other component or material.

12.4.3.10.2 Electrical connections for injectors shall be of an OEM type, and shall plug into the OEM harness with either a direct connection using the same OEM standard OEM connector, or an adapter.

12.4.3.11 Fuel rails and injector blocks

12.4.3.11.1 Fuel rails and injector blocks shall be securely mounted and shall be able to resist motion due to engine vibration and thermal growth.

12.4.3.11.2 Fuel rails and injector blocks shall be mounted with consideration to safe clearance from direct exposure to extreme temperatures such as exhaust manifolds, turbos, etc.

12.4.3.11.3 Mounting position shall be such that reasonable access to connections is possible for periodic service, maintenance and inspection.

12.4.4 Container installation

12.4.4.1 For a tank located outside of an enclosed space on any non passenger carrying vehicle for hire or public transportation of any type), the design pressure for the tank and the set pressure of its relief valve shall each be not less than 250 psig (1725 kPa).

12.4.4.2 The set pressure of the relief valve shall be equal to the design pressure of the tank.

12.4.4.3 For a tank located in an enclosed space on any vehicle or a passenger vehicle for higher or public transportation of any type, the design pressure for the tank and the set pressure of its relief valve shall each be not less than 312 psig (2150 kPa).

12.4.4.4 The set pressure of the relief valve shall be equal to the design pressure of the tank.

12.4.4.5 When multiple tanks are installed on a vehicle, they shall have either have separate fill connections, or if equipped with a single filling connection, shall have a failsafe means of preventing over fill of any vessel, prior to the full 80% full level of all containers being reached, and be connected to the engine using a pressure-balanced tee.

12.4.4.6 For fuel systems that return excess fuel from the engine compartment to the containers during normal operation, a failsafe means of preventing the return fuel from overfilling any one of the tanks shall be installed.

12.4.4.7 When individual tanks are interconnected by piping, tubing, or hoses each liquid withdrawal line shall be equipped with a back check valve.

12.4.4.8 A containers on a vehicle shall be permanently installed, and proper anchorage shall be provided to prevent it from jarring loose, slipping, or rotating.

12.4.4.8.1 This requirement shall be deemed met when the force in a forward direction necessary to detach the tank from the vehicle is not less than 20 times the weight of the full tank, and the force in a rearward, sideways, or vertical direction necessary to detach the tank from the vehicle is not less than 8 times the weight of the full tank.

12.4.4.9 Fasteners used for mounting containers to the vehicle shall be a minimum of 3/8", grade 8, course thread bolts.

12.4.4.9.1 The bolts shall be retained with self-locking nuts, or shall use a lock washer backed by a flat washer.

12.4.4.9.2 The threads of the bolt, with the retaining nut tightened to proper torque, shall extend a minimum of ½ the bolt diameter beyond the nut for inspection and visual confirmation.

12.4.4.10 Where a bolt passes through a sheet metal portion of the vehicle, a backup steel reinforcing plate shall be provided.

12.4.4.10.1 This plate shall be a minimum 3/12" in (4.5 mm) thick with an area of at least 4.0 sq.in. (3870 mm²).

12.4.4.10.2 Sheet metal screws shall not be used as an attaching component, and where attachment is to a chassis of a unibody vehicle, existing frame holes shall be used where possible.

12.4.4.10.3 Support to prevent the weakening of the frame members shall be provided. Material used for reinforcement shall be of steel and have a minimum thickness of 0.125 in (3.2 mm) and a diameter four times the diameter of the hole.

12.4.4.10.4 Corrosion protection shall be applied to drilled and metal-reinforced areas.
See Annex X

12.4.4.11 Tank mounting brackets, complete with a resilient material to be installed between the supports or clamping bands and the container so that there is no direct metal-to-metal contact

which could result in abrasion or corrosion, shall be provided by, or approved by, the tank manufacturer.

12.4.4.12 Tanks shall be installed on a vehicle with the brackets supplied by, or approved by, the tank manufacturer and in accordance with the manufacturer's installation instructions.

12.4.4.13 Welding shall not be used as a means of attaching a tank bracket to a vehicle.

12.4.4.14 No portion of the vehicle chassis, unibody structure, chassis reinforcements, cross members, etc., shall be removed, cut or instrumentally modified, in any way that might change the structural integrity of the vehicle as designed and crash validated by the OEM manufacturer, without the document approval of the OEM manufacturer. In no case shall the container and brackets themselves, be used to replace structural members of the original design of the vehicle.

12.4.4.15 Prior to being returned to service, a tank that has been in service and is being reinstalled, or installed on another motor vehicle, shall be inspected and requalified in accordance with one of the following methods:

1. When the tank was previously installed in an enclosed space protected from the environment and the tank shows no evidence of general corrosion, line corrosion, or isolated pitting, and when all details of the manufacturer's specification plate are legible.
2. When the tank was previously installed in an area subject to environmental corrosion and the tank shows any potential evidence of general corrosion, line corrosion, or isolated pitting, the container shall be cleaned to bare metal, fully inspected and shall have its exterior refinished with a protective coating.

12.4.4.16 Re-examination shall be made only by qualified persons acceptable to the authority having jurisdiction, and the results of re-examination shall be recorded on a data sheet that contains provisions for recording the size of tank, inspection location, manufacturer's name, date of manufacture, serial number, date of inspection, and inspector's initials, any anomalies identified, and whether the tank was returned to service or removed from service.

12.4.4.17 Records showing the results of re-inspection and retesting shall be kept by the facility carrying out the inspection for a period of 10 years.

12.4.4.18 A tank shall not be installed in a manner that would require the filling attendant to lie on the ground to gain access to the filling connections.

12.4.5 Container and equipment protection

12.4.5.1 A tank:

1. On a vehicle shall be so located as to minimize the possibility of damage;
2. That is located at the rear of a vehicle and that is protected by a substantial bumper shall be deemed to comply with Item (a);
3. That is mounted within 10" (254 mm) of the engine or the exhaust system (not including the catalytic converter) shall be shielded against heat radiation with a shield located not less than 1 in (25 mm) from the tank. The heat shield shall not be attached to the exhaust system. The heat shield may be of reflective metal, or of other reflective/insulating material approved by the AHJ. The use of OEM style adhesive heat shield material, directly applied to the tank surface, shall not be prohibited;

4. That is located at the rear of a unibody vehicle shall be protected by the vehicle bumper reinforced by the addition of two $2 \times 2 \times 3/12$ in ($50 \times 50 \times 4.5$ mm) square steel tubes mounted utilizing the existing bumper's mounting points (see Figure B.3);
5. That is mounted behind the rear axle and under the chassis of a unibody bus shall be located
 - (i) A minimum of 4 in (100 mm) from the differential housing;
 - (ii) Not less than 12 in (305 mm) from the rearmost point of the bumper to the tank, tank valve(s), or any tank aperture; and
 - (iii) As high as practicable without modification to the vehicle structure (see Figure X.3); and
6. Shall not be mounted within 8 in (203 mm) of a catalytic converter.
7. Not project beyond the side of the vehicle;
8. Not be installed on the roof of the vehicle unless accepted by the authority having jurisdiction;
9. Not be mounted ahead of the front axle of a self-propelled vehicle;
10. When located on the A-frame of a vehicle designed to be towed, be mounted as close as possible
11. to the body of the vehicle; and
12. Not be attached to any door.

12.4.5.2 Subject to the approval of the authority having jurisdiction, other means of protection and mounting equivalent to those described in Items 4 and 5 may be used if designed in accordance with good engineering practice.

12.4.5.3 A tank or any other portion of the fuel system located outside a vehicle shall be installed with as much road clearance as practicable, but never less than the minimum road clearance of the vehicle when loaded to its gross vehicle weight rating.

12.4.5.4 This minimum clearance shall be measured from the bottom of the tank or from the lowest portion of any part of the fuel system when installed, whichever is lower, and shall not be less than the following:

1. Between the axles:
 - (i) 7 in (178 mm) on vehicles having a wheel base of 127 in (3225 mm) or less;
or
 - (ii) 9 in (225 mm) on vehicles having a wheel base in excess of 127 in (3225 mm);
2. Behind the rear axle, 8 in (203 mm).

12.4.5.4.1 The tank shall be installed above the plane formed by the point where bottom of the rear tires contact the surface and the lowest most rearward part of the vehicle as received from the manufacturer or as modified in accordance with the vehicle manufacturers' guidelines.

12.4.5.4.2 This plane shall be as measured with the vehicle under the full compression of suspension, when loaded to the rated load for the rear axles.

12.4.5.3 A propane container:

1. That has a relief valve set pressure equal to 250 psig (1750 kPa) shall not be exposed to temperatures in excess of 115°F (46 °C); and
2. That has a relief valve set pressure equal to 312 psig (2150 kPa) shall not be exposed to temperatures in excess of 135°F (57 °C).

12.4.5.4 A tank located on the outside of a vehicle chassis, shall not project beyond the sides of the vehicle.

12.4.5.5 No portion of the tank shall project above the highest point of the vehicle as received from the manufacturer or ahead of the front axle.

12.4.5.6 All valves, connections, and gauging devices on a container shall be protected to prevent damage due to accidental contact with stationary objects or from loose objects thrown up from the road.

12.4.5.7 Where parts of the vehicle provide protection to valves and fittings, the foregoing requirements shall be considered fulfilled.

12.4.5.8 Filling and gauging fittings in a location remote from the tank shall be protected from physical damage by one of the following means:

1. In a metal enclosure, or other material providing equivalent level of protection to the OEM fuel receptacle, that is permanently mounted to the vehicle and does not protrude outside the vehicle's body; or
2. Located in such a way that the rear bumper or some other part of the vehicle will provide protection.

12.4.5.9 Filling connections and related fittings shall not be installed in a manner which will facilitate access for filling in the passenger compartment or any contiguous portion of the vehicle, where the potential for vapors to migrate to the passenger compartment is possible (ie, trunk, etc.)

12.4.5.10 A new tank and its means of attachment that are exposed to corrosion or erosion shall be protected by a coating that has a minimum ASTM salt spray rating of 1000-hr as established in ASTM B 117, and shall show no visible signs of corrosion.

12.4.5.10.1 The test specimen shall be subjected to 42 cycles, consisting of 8 hours of continuous salt spray followed by 12 hours of ambient conditions.

12.4.5.10.2 The finished coating shall be resistant to such abrasion as can result from gravel or sand, or both, hitting the surface during normal usage.

12.4.6 Containers located within vehicles

12.5.6.1 A tank located within an enclosed space of a vehicle shall be:

1. Provided with a rigid gas-tight assembly that seals all tank equipment, inlets, and outlets from the interior of the vehicle; and
2. Equipped with remote fill outside fittings and installed with a conduit to prevent leakage from the piping, tubing, and/or hose assembly from entering the interior of the vehicle. The remote fill outside fittings shall be located so as to provide easy access for refueling without requiring a person to kneel or lie on the ground.

12.4.6.2 Containers which are mounted in the trunk of a vehicle, or in a cabinet portion of a bus, van or other type of vehicle, where the potential for vapors to migrate to the passenger compartment, either in the course of normal operation or in the case of a leak, shall have all openings and connections fully isolated and vented to the outside of the vehicle.

12.4.6.2.1 The following means of isolation shall be accepted:

1. A vapor shell of cover, fully sealed to the container body, which fully encloses all openings and connections in the tank, which may be accessed through the means of a latching mechanism, and with an opening no less than 2" in diameter (50 mm), for the purpose of routing all hoses and lines to the outside of the vehicle, through a vapor barrier sealed and secured to the remote venting opening, and sealed on the opposite end where the hoses and lines ultimately exit the vehicle.
2. Where the container must be mounted in the main compartment of a van, bus, or other cargo or passenger vehicle, where there is the potential for exposure to vapors, a sealed enclosure may be fabricated such that allows for service to the container, but that ensures a securely latched closure of the enclosure, with a full compression seal. The enclosure shall have the same provision as above for routing of hoses to the outside of the vehicle body. The enclosure cabinet shall be tested with the remote hose routing connection sealed to hold a minimum of 25 psi (1.7 bar), over a 10 minute pressure decay test, and shall be retested once per year and documented in the vehicle record.

12.4.6.3 The sealant or gasket used for the purposes specified in section 12.5.6.1 and 12.5.6.2 shall be:

1. Non-shrinking and non-swelling;
2. Resistant to damage by propane, road salt, and vehicle vibration; and
3. Effective for use from – 40°F (– 40 °C) to 113°F (45 °C).

12.5.6.4 A cylinder installed within a vehicle shall be:

1. In a recess that is of metal or metal-clad construction, that is vapor-tight to the inside of the vehicle, and that is accessible only from, and vented to, the outside;
2. In a metal cabinet that is vapour-tight to the inside of the vehicle. The cabinet shall be vented downwards from the bottom of the cabinet by means of a tube not less than 1 in (25 mm) in diameter that terminates at a point outside the vehicle and is directed away from any source of ignition on the vehicle; or
3. On a container support bracket that extends below the level of the floor but not below the bottom of the vehicle frame. The cover for that part of the container extending above the floor shall be of metal-clad construction that is vapor-tight to the interior of the vehicle.

12.4.6.5 When a container with a capacity in excess of 100 lb (45 kg) of propane is used on a commercial vehicle in a cabinet or recess, the cabinet or recess shall be vented at the top and bottom, and the combined vent area shall not be less than 5 sq. in (3000 mm²).

12.4.7 Piping and tubing systems, hose, and fittings

12.4.5.7.1 Piping

12.4.7.1.1 Piping shall be black or galvanized steel in accordance with ASTM A 53 or A 106, respectively, or brass in accordance with ASTM B 43.

12.4.7.1.2 Fittings used with steel pipe shall be of steel and shall comply with ANSI/ASME B12.3.

12.4.7.1.3 Propane vapor-phase piping with design pressure not exceeding 125 psig (860 kPa) shall be at least Schedule 40.

12.4.7.1.4 Vapor phase piping with operating pressures over 125 psig (860 kPa) and all liquid piping shall be at least Schedule 80.

12.4.7.2 Tubing

12.4.7.2.1 Tubing shall be stainless steel, brass, or copper and shall comply with the following:

1. Stainless steel tubing, 300 series.
2. Brass tubing: ASTM B 135, Standard Specification for Seamless Brass Tube
3. Copper tubing one of:
 - (i) Type K or L: ASTM B 88, Specification for Seamless Copper Water Tube
 - (ii) ASTM B 280, Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service
 - (iii) ASTM B 75
4. Be rated for the 5 times the design pressure of that location in the system

12.4.7.2.2 Tubing fittings shall be made of steel, brass or hard anodized aluminium and rated for a working pressure of not less than 125 psig (860 kPa) for operating pressures of 125 psig (860 kPa) or less.

12.4.7.2.3 For higher operating pressures, tubing and fittings shall be rated for a minimum of 250 psig (1725 kPa) of a material compatible with the tubing and have a pressure equal to or greater than the pressure rating of the tubing as per 5.7.2.1 (d).

12.4.7.2.4 All joints shall be made in locations where access is possible for inspections.

12.4.7.2.5 Immediately before sheathed copper tubing enters either a sealed compartment or an engine compartment, a 1 in (25 mm) piece of sheath shall be removed to provide ventilation around the copper tubing.

12.4.7.2.6 Except as specified in Section 12.4.7.3 every hose and hose fitting shall have a minimum design pressure of 350 psig (2415 kPa), and minimum burst pressure of 1705 psi (120 bar).

12.4.7.2.7 The hose shall comply with UL 25, CSA CAN/CGA-8.1 Type III, or EN R67.01 or equivalent, and shall be of either stainless-steel or synthetic reinforced, and approved for the application for intended use.

12.4.7.3 Hose

12.4.7.3.1 Hose and hose fittings used for vapor service shall be constructed of a material resistant to the action of propane (e.g., neoprene) and shall be rated by the manufacturer of the hose for the function and a minimum pressure of 65 psig (450 kPa).

12.4.7.3.2 The hose shall be continuously marked with the following information:

- (a) Manufacturer's name
- (b) Model number
- (c) Approval entity
- (d) Min WP / BP 350 / 1750 psi
- (e) Propane

12.4.7.3.3 A hose assembly shall be assembled and tested in accordance with manufacturer's recommendations, by a technician trained and certified by the hose material and fitting supplier, and with the tooling and machinery approved by the manufacturer.

12.4.7.4 Liquid propane piping, tubing, or hose shall have a greater capacity than the rated flow of the tank excess-flow valve to which it is connected.

12.4.7.5 Distribution blocks shall be made of corrosion-resistant materials, suitable to the environment in which it is installed (ie, engine temperature, vibration oil, grease and solvent resistant) and shall be approved for the system's design pressure, and marked accordingly.

12.5.7.6 Piping, tubing, and hose practices

12.4.7.6.1 Piping and fittings shall be cleaned and free from cutting burrs, threading burrs, scale, and defects.

12.4.7.6.2 The ends of all piping shall be reamed.

12.4.7.6.3 Except in cases where the structure provides support, propane piping, tubing, and hose shall be secured at intervals of not more than 2 ft (610 mm) by corrosion-resistant hose/tube mounting fixtures, constructed of metal, nylon or other material approved for the application, capable of retaining the load of 4 times the full weight of the suspended section of the hose/pipe/tubing, and shall be affixed to the vehicle securely.

12.4.7.6.4 The use of general purpose "tie-straps shall not be permitted.

12.4.7.6.5 Any connection not in use shall be securely capped or plugged. The connection shall be pressure/leak tested to 1.10% of the operating pressure, and shall be clearly marked "NOT USED"

12.4.7.7 Joints and connections

12.4.7.7.1 Piping joints shall be threaded.

12.4.7.7.2 A piping or fitting thread shall be tapered and shall comply with ANSI/ASME B1.20.1.

12.4.7.7.3 When a jointing sealant is used, it shall be certified in accordance with CAN/ULC-S642 and shall be applied to the male threads of a metal pipe.

12.4.7.7.3.1 When tape is used, it shall be stretched and applied in a clockwise direction with a 50% overlap and the first two starter threads shall be left bare.

12.4.7.7.3.2 Care shall be taken to ensure that no thread sealant material is inadvertently left in the fuel stream that may affect safety or performance of any downstream component or function.

12.4.7.7.3.3 Tape thread sealant shall be rated for use with gas and oils.

12.4.7.7.3.4 General purpose tape sealant shall not be used.

12.4.7.7.4 A joint in tubing shall be made by means of a flare joint, compression fitting, or other approved fitting.

12.4.7.7.5 A joint or connection shall not be located within a box section, driveshaft tunnel, or other inaccessible location.

12.4.7.7.6 A bulkhead fitting used to secure a propane line passing through a partition, firewall, frame, or other such vehicle part shall:

1. Be made of either steel, brass or hard anodized aluminum, and rated for the service pressure of the line;
2. Include a wrench flat on the body of the fitting;
3. Have a means for attachment that includes a clamping nut and lock-washer; and
4. Use a flare, tapered piping, compression fitting, or other approved fitting to connect the propane line fitting to the bulkhead fitting.

12.4.7.7.7 The number of joints shall be kept to a minimum.

12.4.7.7.8 All joints shall be positioned so as to provide easy access for inspection, leak testing, service and maintenance.

12.4.7.7.9 The use of “Quick Connect” fittings for both vapor and liquid lines, such as those used in OEM high pressure applications, shall be permitted, if approved for the application and use of propane.

12.4.7.7.9.1 All such fittings shall be of the type that a visual inspection, “poke-yoke” or other go-no-go tool may be used to ensure that the fitting is securely in place.

12.4.7.7.9.2 The separation and or disconnection of such fittings shall require either 2 separate actions, or a special removal tool, specific to the connection being used, so as to ensure that accidental separation will not occur.

12.4.7.7.10 All threaded connections, of any type, shall be fully tightened to the torque specification of the fitting or fuel system manufacturer specifications and shall not be over

tightened to the extent that could break or weaken the structural integrity of the fitting or the component into which it is threaded.

12.4.7.7.11 All connections shall be marked after the specified torque has been verified, in a means that can be visually inspected to ensure that proper attachment has been made.

12.4.7.7.12 Marking shall be made with indelible paint markers, tags, etc. that shall remain in place for the useable life of the system.

12.4.7.8 Prohibited practices

12.5.7.8.1 Bushings that are not steel or brass shall not be used.

12.4.7.8.1.1 Nesting of bushings shall be prohibited.

12.4.7.8.2 A pipe fitting containing both left- and right-hand threads shall not be used

12.4.7.8.3 A bend in piping or tubing shall be prohibited when such a bend reduces the internal area of or weakens the piping or tubing.

12.4.7.8.3.1 The minimum bend radius shall be equal to or greater than that recommended by the line manufacturer.

12.4.7.8.3.2 All bends shall be made with tooling approved or recommended by the manufacturer.

12.4.7.8.4 A close nipple shall not be used.

12.4.7.8.5 For the purpose of installing a tank, piping, tubing, hose, or any other portion of the fuel system, a structural member of the vehicle shall not be cut in such a manner as to reduce its strength to a level below that required for the purpose for which it was intended.

12.4.7.8.5.1 Cuts shall be straight, clean and at a 90-degree angle to the longitudinal run of the line.

12.4.7.8.5.1 Cuts shall be made only with a tool approved by the manufacturer for the specific type material used.

12.4.7.8.6 Piping and tubing shall not be installed between vehicle members or components that exhibit motion relative to each other.

12.4.7.8.7 Propane piping, tubing, or hose shall not interconnect separate vehicle units.

12.4.7.8.8 Defects in propane piping or tubing shall not be repaired. Inferior or defective material shall be replaced.

12.4.7.9 Protection of piping, tubing, and hose

12.4.7.9.1 Piping or tubing exposed to corrosive salts, etc., shall be protected against exterior corrosion by application of a corrosion-resistant coating or material.

12.4.7.9.2 Piping, tubing, and hose shall be mounted, braced, and supported to provide for protection from vibration abrasion and shall be protected against damage or breakage due to strain or wear.

12.4.7.9.3 Piping, tubing, and hose shall not be in contact with electrical wires.

12.4.7.9.4 Piping, tubing, and hose shall not run inside a frame or similar channel where they are concealed from visual inspection.

12.4.7.9.5 Tubing and hose within a luggage compartment, or other area contiguous to the passenger area of the vehicle, shall be in a protected location or shall be protected from damage by other means, and shall be routed through a remote venting vapor barrier in accordance with **Section**

12.4.7.9.6 A clearance of not less than 4 in (100 mm) shall be maintained between a hose or sheathed copper and an engine exhaust system, or the hose or sheathed copper shall be shielded against heat radiation and located not less than 1 in (25 mm) from the hose or sheathed copper and a minimum of 1 in (25 mm) from the exhaust system.

12.4.7.9.7 The heat shield shall be of a metal barrier, or an approved synthetic material barrier which full covers the full circumference of the hose, and shall extend for a minimum distance of 10" (250mm) beyond either edge of the heat generating area from which it is being shielded.

12.4.7.9.8 The heat shield shall not be attached to the exhaust system.

12.4.7.10 Testing of piping, tubing, hose, and fittings

12.4.7.10.1 All assembled piping, tubing, and hose in the liquid system shall be pressure tested using air or an inert gas (carbon dioxide or nitrogen, or a mixture of these).

12.4.7.10.1.1 The piping or tubing shall retain a test pressure of not less than 140 psig (1000 kPa) for not less than 10 minutes without showing any drop in pressure.

12.4.7.10.1.2 Pressure shall be measured with a pressure gauge or equivalent device.

12.4.7.10.1.3 The source of the test pressure shall be isolated before readings commence.

12.4.7.10.1.4 If a leak is indicated by the test, the source of the leak shall be located by the use of a liquid leak detector solution or device.

12.4.7.10.1.5 The leaking connection shall be fixed, or the leaking section of hose shall be replaced, and the test repeated until passing before returning the vehicle to service.

12.4.7.10.2 After repair or replacement of any piping, tubing, or hose used to conduct propane in the liquid phase, the entire system shall be tested in accordance with Section 12.4.7.10

12.4.7.10.3 Every tank fitting shall be checked with a liquid leak detector solution or device after the equipment is connected, activated and pressurized.

12.4.7.10.4 When a vehicle is involved in an accident causing damage to part or all of the propane fuel system, the system shall be tested in accordance with Section 12.4.7.10

12.4.7.10.5 Any section of hose, pipe or tubing, which has been involved in an accident or fire, and is suspected to have been either impacted, bent beyond manufacturer's limits, or exposed to excess heat or fire, even in the absence of obvious damage, shall be replaced and pressure tested before returning the vehicle to service.

12.4.8 Discharge lines from tank relief valves and hydrostatic relief valves

12.4.8.1 The discharge from a relief valve shall:

1. Be directed to the outside of any enclosed space;
2. Be directed as far as practicable from possible sources of ignition;
3. Be located in such a manner as to prevent contact between propane and any tank or vehicle;
4. Be directed downward to an angle not less than 45° from the horizontal, or upward through a discharge riser which vents no less than 6' above street level; and
5. Have a rain cap or other protector, where required.

12.4.8.2 A discharge conduit from a relief valve, where required, shall be connected by means of a pipe-away adapter and required fittings and shall be sized and located so as not to interfere with the rated flow of propane through the relief valve.

12.4.8.2.1 Except as permitted in 12.4.8.3 the discharge conduit assembly shall be capable of withstanding the pressure from the discharge of propane when the relief valve is fully open.

12.4.8.3 The discharge conduit shall be of a material or construction that when impacted will not permanently deform so as to restrict or prevent discharge of the pressure relief valve at its rated capacity.

12.4.8.4 The conduit material shall be such that in the event of an impact resulting in flow restriction, the conduit material itself, or the connector used to join it to the relief valve, shall be such that when the flow is restricted, and the pressure rises, the conduit or connection shall yield to all an alternate flow path for the propane at a rate equal to that of the valve.

12.4.8.5 The discharge conduit shall be secured at or near its termination to prevent its displacement.

12.4.8.6 Aluminum propane tanks shall be equipped with a fuse plug located in the lower portion of the tank.

12.4.9 Vaporizers, pressure regulator and valves

12.4.9.1 Every vaporizer, pressure regulator shall be of sufficient size to provide the required flow, and system required regulated outlet pressure of propane, at the extremes of inlet pressures to which it can be exposed.

12.4.9.2 A vaporizer, pressure regulator shall be securely fastened to the engine, chassis, fender apron, or firewall of the vehicle. The positioning and directional orientation shall be such that shall not interfere with the operation due to acceleration or deceleration. The position of mounting shall be such that the device is protected from collision.

12.4.9.3 Exhaust gas shall not pass through any vaporizer, pressure regulator unless the vaporizer, pressure regulator is designed for exhaust gas utilization.

12.4.9.4 A vaporizer, pressure regulator shall not be equipped with a fusible plug. A relief valve installed in the unit shall be routed to discharge at a point outside of the vehicle, or vehicle engine compartment.

12.4.9.5 A propane supply line to the vaporizer, pressure regulator shall be equipped with a fuel lock-off valve that prevents the flow of propane to the carburetor or fuel injector when the ignition switch is turned off or when the engine is not running, either intentionally or due to an accident.

12.4.9.5.1 On carbureted systems, the valve shall be located upstream of primary pressure regulator or vaporizer.

12.4.9.5.2 On propane injected systems, the valve shall be located upstream of the propane injection device provided as part of the propane conversion equipment.

12.4.9.5.2.1 The valve shall be controlled electrically or mechanically by:

1. Vacuum from the engine;
2. Oil pressure from the engine;
3. Centrifugal action; or
4. An electrical circuit only energized when the engine is running.

12.4.9.6 An atmospheric-type regulator (zero governor) is not acceptable

12.4.10 Carburetors, carburetor mixers, and carburetor adapters do not require approval, but shall be as approved for the application by the manufacturer of the equipment with which they are used.

12.4.11 Fuel lock-offs

12.4.11.1 Where a vehicle engine is equipped with both a propane and a gasoline fuel tank, each fuel system shall be equipped with a means of lock-off that is connected in such a manner so as to prevent the flow of the fuel not in use.

12.4.11.2 A fuel lock-off shall be used on the supply lines from each tank, where required to ensure that there is no possibility of one product flowing into the tank of the other product.

12.4.11.3 Where a lock-off valve is added between the gasoline fuel pump and the engine, the connection between the fuel pump and the lock-off valve shall be made with tubing or with hose and fittings equivalent to those used on the outlet of the fuel pump by the original manufacturer of the vehicle.

12.4.11.4 Where a vehicle is operated using propane only, the gasoline tank and fill connection shall be removed or permanently plugged after purging of any residual fuel or vapors.

12.4.11.5 Fuel Lock-Offs shall be mounted in accordance with manufacturer's recommendation and shall be secured in such a manner that prevents movement or damage from vibration, and in a position that is protected from collision.

12.4.11.6 The mounting shall be such that normal vibration resulting from vehicle operation does not affect the operation of the lock-off.

12.4.12 Wiring

12.4.12.1 All wiring shall be of the stranded type, and shall have an automotive grade insulation equal to or greater than the wire type used in the OEM wiring of the vehicle. The wire shall be of

a gauge size sufficiently rated for the current of the circuit in maximum amperes of normal operational power levels.

12.4.12.2 All wiring that passes through or along metal edges shall be protected from abrasion by sleeves or similar protection.

12.4.12.3 All wiring shall be supported in such a way that it remains secured in place, and routed so as to prevent damaged from rubbing, abrasion or scuffing, for the life of the vehicle.

12.4.12.4 All connections shall be watertight and vibration resistant.

12.4.12.4.1 All wiring connections shall either use OEM equivalent automotive grade connectors, or be soldered properly, and protected with heavy wall shrink insulation or other approved automotive quality means of insulation.

12.4.12.4.2 The use of “spade terminals”, “scotch-Locks”, Wire nuts” and other non OEM automotive quality connectors shall be prohibited.

12.4.12.5 All wiring bundles shall be protected in routing with automotive quality loom.

12.4.13 Marking and labeling

12.4.13.1 When a vehicle is converted to run on propane fuel, a label of approved design, shall be affixed by the installer on the vehicle, either under the hood in close proximity to the OEM labels, or in another position as specified by the authority having jurisdiction, and shall be affixed in such a way as to prevent removal (intentional or accidental) under normal operating and environmental conditions, for as long as the propane fuel system remains in place. See Figure X.4

12.4.13.2 After installation of the Autogas system, a permanent label of approved design shall be affixed on either a door latch or the inside of the glove compartment, for the purposes of documenting the required annual function test of the tank overfill protection device.

12.4.13.2.1 The label shall have provision for a minimum often (10) entries of the test date and initials or license number of the technician who conducted the test. See Figure X.5

12.4.13.3 A propane-fuelled motor vehicle shall be identified by a weather-resistant diamond-shaped label affixed to its exterior vertical, or near vertical, lower right rear surface, but not to its bumper.

12.4.13.3.4 The label shall be approximately 4-3/4 in (120 mm) wide by 3-1/4 in (83 mm) high. The label marking shall consist of a border and the word “PROPANE” in letters not less than 1 in (25 mm) in height, centered in the diamond, of silver or white reflective luminous material on a black or blue background.

12.4.13.4 The propane fuel system shall be inspected in accordance with the requirements and regulations of the authority having jurisdiction.

12.4.14 Servicing, parking, and display of vehicles indoors

12.4.14.1 Except for a vehicle with an installed tank that is equipped with a stop-fill valve, a propane-fuelled vehicle shall not be parked in any underground public parking facility or within enclosed public structures designed for parking vehicles.

12.4.14.2 A propane-fuelled vehicle may be serviced indoors, provided that it has been verified that there are no leaks in the propane system and the tank is not filled beyond its maximum permitted filling density.

12.4.14.3 When located in a repair garage, a propane-fuelled vehicle shall have all tank shut-off valves closed except when propane is required for engine operation.

12.4.14.4 A propane tank on a vehicle that is parked or being serviced indoors shall not be exposed to temperatures in excess of 100°F (38 °C).

12.4.14.5 When the propane system on a vehicle is being serviced indoors, the vehicle shall not be parked within 10 feet (3 m) of an open flame, combustion heater, welders, grinders, cutting torches, or any source of ignition, or an open pit or drain.

12.4.14.6 A propane-fueled vehicle may be displayed indoors, provided that:

1. The fuel system is leak free;
2. The tank is not filled beyond 25% of its water capacity;
3. All tank shut-off valves are closed and secured from tampering;
4. The battery terminals are disconnected; and
5. The vehicle engine is operated until the fuel line is empty.
6. The fill valve, shutoff valves and disconnected battery cables shall be marked with red tape or means so as to visually indicate that the vehicle is not in use, in accordance with the authority having jurisdiction

12.4.14.7 Garaging and repair facilities, which will routinely service, repair or store Autogas vehicles, shall have adequate ventilation to ensure that any accidental release of propane vapor is dissipated below the lower ignition point, and to prevent asphyxiation of personnel in the area.

**Public Input No. 169-NFPA 58-2014 [New Section after 15.1]****TITLE OF NEW CONTENT**

Type your content here ...

Additional Proposed Changes**File Name****Description Approved**

NFPA_58_proposal_to_add_chapter_tables_o_and_p_.docx

Statement of Problem and Substantiation for Public Input

Two CSST sizing tables are provided for sizing CSST at inlet pressures of 5 psig and 10 psig. CSST is listed for use at these pressures, and sizing information is needed by installers where CSST is used between the first stage pressure regulator and the second stage pressure regulator. The tables were developed by Omega Flex based on flow tests, and are applicable to CSST from other manufacturers.

Submitter Information Verification**Submitter Full Name:** Theodore Lemoff**Organization:** TLemoff Engineering**Affiliation:** Omega Flex**Street Address:****City:****State:****Zip:****Submittal Date:** Mon Jun 30 15:51:05 EDT 2014

Table 15.1(p) Sizing of CSST between First-Stage (High-Pressure) Regulator and Second-Stage (Low-Pressure) Regulator

																				Gas:		Undiluted Propane										
																				Inlet Pressure		10.0 psig										
																				Pressure Drop		7.0 psi										
																				Specific Gravity		1.52										
Intended Use Sizing Between First-Stage Pressure Regulator and Second-Stage (Low Pressure) Regulator																																
EHD* Flow Designation	Tubing Length (ft)																															
	5	10	15	20	25	30	40	50	60	70	75	80	90	100	125	150	200	250	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	
	15	769	1289	1070	939	847	779	684	617	568	529	513	497	472	450	405	374	328	296	272	237	215	198	184	173	165	157	150	144	139	135	130
	19	4091	2975	2470	2164	1952	1795	1574	1420	1306	1216	1178	1145	1085	1032	933	857	750	678	624	546	492	453	421	397	375	358	342	329	317	307	298
	25	9699	7106	5923	5206	4710	4340	3814	3450	3179	2967	2877	2794	2650	2528	2286	2107	1852	1675	1544	1357	1227	1130	1054	994	942	899	861	828	800	773	749
	31	16387	12036	10049	8841	8005	7381	6495	5880	5421	5062	4910	4770	4527	4319	3911	3605	3173	2872	2649	2331	2109	1946	1816	1712	1624	1550	1485	1428	1379	1333	1294
	37	25229	18683	15673	13836	12560	11605	10245	9302	8594	8040	7802	7587	7210	6887	6252	5777	5101	4631	4278	3778	3429	3168	2964	2798	2658	2540	2437	2346	2266	2194	2129
46	47720	34645	28728	25153	22690	20858	18261	16474	15142	14102	13659	13258	12557	11960	10788	9918	8683	7832	7199	6303	5686	5226	4867	4576	4333	4128	3950	3795	3657	3534	3423	
62	90199	66037	55530	49105	44639	41293	36516	33195	30706	28749	27913	27153	25820	24683	22438	20757	18355	16686	15435	13649	12408	11477	10746	10149	9652	9226	8858	8534	8247	7991	7758	

CSST: Corrugated stainless steel tubing. EHD: Equivalent hydraulic diameter

Notes:

- (1) Table does not include effect of pressure drop across the line regulator. Where regulator loss exceeds 1/2 psi (based on 13 in. w.c. outlet pressure), do not use this table. Consult with regulator manufacturer for pressure drops and capacity factors. Pressure drops across a regulator may vary with flow rate.
- (2) CAUTION: Capacities shown in table may exceed maximum capacity for a selected regulator. Consult with regulator or tubing manufacturer for guidance.
- (3) Table includes losses for four 90 degree bends and two end fittings. Tubing runs with larger number of bends and/or fittings shall be increased by an equivalent length of tubing according to the following equation: $L = 1.3n$, where L is additional length (ft) of tubing and n is the number of additional fittings and/or bends.

PI No. 266 Section 15.1

Revise Section 15.1 as follows:

1. Delete Table 15.1 (a) and substitute NFPA 54 Table 6.3 (a)
2. Delete Table 15.1 (b) and substitute NFPA 54 Table 6.3 (c)
3. Delete Table 15.1 (c) and substitute NFPA 54 Table 6.3 (d)
4. Table 15.1 (d), no revisions
5. Table 15.1 (e), no revisions
6. Delete Table 15.1 (f) and substitute NFPA 54 Table 6.3 (e)
7. Delete Table 15.1 (g) and substitute NFPA 54 Table 6.3 (f)
8. Delete Table 15.1 (h)
9. Delete Table 15.1 (i) and substitute NFPA 54 Table 6.3 (g)
10. Delete Table 15.1 (j)
11. Delete Table 15.1 (k)
12. Delete Table 15.1 (l)
13. Delete Table 15.1 (m) and substitute NFPA 54 Table 6.3 (i)
14. Delete Table 15.1 (n) and substitute NFPA 54 Table 6.3 (h)
15. Table 15.1 (o), no revisions.
16. Table 15.1, no revisions.
17. Delete Table 15.1 (q) and substitute NFPA 54 Table 6.3 (m)
- 15.1 Sizing Pipe and Tubing.

		Gas:	Undiluted Propane
		Inlet Pressure:	11 in. w.c.
		Pressure Drop:	0.5 in.
		Specific Gravity:	1.52
Plastic Tubing	1/2 in.	1 in.	
Length	SDR 7.00	SDR 11.00	
(ft)	(0.445)	(0.927)	
225	22	154	
250	21	145	
275	20	138	
300	19	132	
350	18	121	
400	16	113	
CTS: Copper tube size. SDR: Standard dimension rating.			
Notes:			
(1) Capacities are in 1000 Btu/hr.			
(2) Dimensions in parentheses are inside diameter.			

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
Chapter_15_revisions_.pdf	

Statement of Problem and Substantiation for Public Input

The piping materials sizing tables are revised by

1-3. Tables 15.1 (a), (b), and (c) are deleted and corresponding tables from NFPA 54 are substituted. The tables in NFPA 54 have been revised to include an "intended use" box to more clearly highlight the use of the tables, and values have been rounded to 3 significant digits for ease of use.

4 - 5 Tables 15.1 (d) and (e) are retained as there are no corresponding tables in NFPA 54. It is the submitter's intent to develop replacement tables and submit them at a later date.

6 - 7 Tables 15.1 (f) and (g) are deleted and corresponding tables from NFPA 54 are substituted. The tables in NFPA 54 have been revised to include an "intended use" box to more clearly highlight the use of the tables, and values have been rounded to 3 significant digits for ease of use.

8 Table 15.1 (h) is deleted as it is included in Table 15.1 (f).

9 - 10 Tables 15.1 (i) and (j) are deleted and corresponding tables from NFPA 54 are substituted. The tables in NFPA 54 have been revised to include an "intended use" box to more clearly highlight the use of the tables, and values have been rounded to 3 significant digits for ease of use.

11 - 12 Tables 15.1 (k) and (l) are deleted as they are included in Tables 15.1(f) and 15.1 (j).

13 - 14 Tables 15.1 (m) and (n) are deleted and corresponding tables from NFPA 54 are substituted. The tables in NFPA 54 have been revised to include an "intended use" box to more clearly highlight the use of the tables, and values have been rounded to 3 significant digits for ease of use.

15 - 16 Tables 15.1 (o) and (p) are retained as there are no corresponding tables in NFPA 54. It is the submitter's intent to submit replacement tables separately.

17 Table 15.1 (q) is deleted and corresponding tables from NFPA 54 are substituted. The tables in NFPA 54 have been revised to include an "intended use" box to more clearly highlight the use of the tables, and values have been rounded to 3 significant digits for ease of use.

These revisions, along with other tables submitted separately, will make the propane pipe and tubing sizing tables in Chapter 15 completely consistent with the propane pipe and tubing sizing tables in NFPA 54. The tables in NFPA 54 were revised in the 2006 edition. The tables in NFPA58 were revised to incorporate some, but not all of the changes made in NFPA 58. Not included were restating all table values with 3 significant digits, and the "intended use" line. These are now proposed to be incorporated in NFPA 58. This will make corresponding propane pipe and tubing sizing tables in NFPA 54 and NFPA 58 identical. This is important, as the tables can be used interchangeably, and are used in the Propane Industry's Certified Employee Training Program.

Submitter Information Verification

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Submittal Date: Sun Jul 06 20:24:59 EDT 2014

PI No. 267 Section 15.1 tables o and p

		Gas:	Undiluted Propane
		Inlet Pressure:	11 in. w.c.
		Pressure Drop:	0.5 in.
		Specific Gravity:	1.52
Plastic Tubing		$\frac{1}{2}$ in.	1 in.
Length		SDR 7.00	SDR 11.00
(ft)		(0.445)	(0.927)
250	21		145
275	20		138
300	19		132
350	18		121
400	16		113

CTS: Copper tube size. SDR: Standard dimension rating.

Notes:

(1) Capacities are in 1000 Btu/hr.

(2) Dimensions in parentheses are inside diameter.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
Revised_Tables_15.1_o_and_p_.pdf	

Statement of Problem and Substantiation for Public Input

Tables 15.1 (o) and (p) are revised to be consistent with the style of similar tables in NFPA 54. The table entries have been rounded to 3 significant digits, and an "Intended Use" line is added. As these tables are used for the same systems as the corresponding tables in NFPA 54, making them identical will eliminate any confusion on the part of users and enforcers.

Submitter Information Verification

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Submission Date: Sun Jul 06 20:38:35 EDT 2014

1. Revise Table 15.1(o) to read:

Table 15.1(o) Polyethylene Plastic Pipe - IPS

		Gas		Undiluted Propane		
		Inlet Pressure		10.0 psig		
		Pressure Drop		1.0 psig		
		Specific Gravity		1.52		
Plastic Pipe Length (ft.)	1/2 in. SDR 9.33 (0.660)	3/4 in. SDR 11 (0.860)	1 in. SDR 11 (1.007)	1 1/4 in. SDR 11 (1.328)	1 1/2 in. SDR 11 (1.554)	2 in. SDR 11 (1.943)
Intended Use Sizing Between First-Stage Pressure Regulator and Second-Stage (Low Pressure) Regulator						
30	2140	2390	7740	13420	20300	36400
40	1840	3670	6630	11480	17300	31200
50	1630	3260	5870	10180	15400	27600
60	1470	2950	5320	9220	13900	25000
70	1360	2710	4900	8480	12800	23000
80	1260	2530	4560	7890	11900	21400
90	1180	2370	4270	7400	11200	20100
100	1120	2240	4040	6990	10600	19000
125	990	990	3580	6200	9360	16800
150	897	897	3240	5620	8480	15200
175	826	826	2980	5170	7800	14000
200	778	778	2780	4810	7260	13000
225	721	721	2600	4510	6810	12200
250	681	681	2460	4260	6430	11600
275	646	646	2340	4050	6110	11000
300	617	617	2230	3860	5830	10470
350	567	567	2050	3550	5360	9640
400	528	528	1910	3300	4990	8970
450	495	495	992	3100	4680	8410
500	468	468	937	2930	4420	7950
600	424	424	849	2650	4010	7200
700	390	390	781	2440	3690	6620
800	363	363	726	2270	3430	6160
900	340	340	682	2130	3220	5780
1000	322	322	644	2010	3040	5460
1500	258	258	517	933	1616	4390
2000	221	221	443	798	1383	3750

IPS: Iron pipe size. SDR: Standard dimension ratio.

Notes:

(1) Capacities are in 1000 Btu/hr.

(2) Dimensions in parentheses are inside diameter.

2. Revise Table 15.1 (p) to read:

Table 15.1(p) Polyethylene Plastic Tubing - CTS

Gas		Undiluted Propane
Inlet Pressure		10.0 psig
Pressure Drop		1.0 psig
Specific Gravity		1.52
Plastic Pipe	1/2 in.	1 in.
Length	SDR 7.00	SDR 11
(ft.)	(0.445 OD)	(1.007 OD)
Intended Use Sizing Between First-Stage Pressure Regulator and Second-Stage (Low Pressure) Regulator		
30	762	5230
40	653	4470
50	578	3960
60	524	3590
70	482	3300
80	448	3070
90	421	2880
100	397	2720
125	352	2410
150	319	2190
175	294	2010
200	273	1870
225	256	1760
250	242	1660
275	230	1580
300	219	1500
350	202	1380
400	188	1290
450	176	1210
500	166	1140
600	151	1030
700	139	951
800	129	884
900	121	830
1000	114	784
1500	92	629
2000	79	539

CTS: Copper tube size. SDR: Standard dimension rating.

Notes:

(1) Capacities are in 1000 Btu/hr.

(2) Dimensions in parentheses are inside diameter.

**Public Input No. 301-NFPA 58-2014 [New Section after A.1.1]**

A.1.3.2(3) Propane installations commonly termed 'propane vapor distribution systems' or 'small propane distribution systems' fall within the scope of this code or within the scope of NFPA 59. The determination of which code applies to a specific installation depends on the amount of LP storage and the number of customers served. The table below indicates which NFPA code applies to a particular installation. For further detail refer to NFPA 59 sections 1.1.1, 1.2 and 3.3.39.

Code application for utility plants	Storage of 4,000 gallons water capacity or less	Storage of more than 4,000 gallons water capacity
Serves 9 or fewer customers	NFPA 58	NFPA 58
Serves 10 or more customers	NFPA 58	NFPA 59

Statement of Problem and Substantiation for Public Input

Propane installations commonly termed 'propane vapor distribution systems' or 'small propane distribution systems' may fall within the scope of NFPA 58 or within the scope of NFPA 59. Making the determination of which code applies can be a confusing and frustrating task. Facility owners and regulators must refer to both codes since they are unable to make this determination simply by reading NFPA 58. NFPA 58 does not cover Utility Gas Plants, referring these systems to NFPA 59. However, NFPA 59 refers some of those utility systems back to NFPA 58. NFPA 59 currently defines a 'Utility Gas Plant' as "A plant that stores and vaporizes LP-Gas for distribution that supplies either LP Gas or LP-Gas-air mixture to a gas distribution system of 10 or more customers."

Because of the references between documents and the difficulty in following applications and nonapplications of the codes, it is not clear to some industry members that some propane distribution systems now are included in NFPA 59 that were formerly under NFPA 58.

This proposed change should clarify and help emphasize the proper application of NFPA 58 by identifying which distribution systems are included in NFPA 58 and which are not.

Proposed changes to sections 1.3.1, 1.3.2(3) and A1.3.2(3) should be considered together.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 293-NFPA 58-2014 [New Section after 1.3.1]	
Public Input No. 295-NFPA 58-2014 [Section No. 1.3.2]	

Submitter Information Verification

Submitter Full Name: Michael Osmundson
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Street Address:
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Submittal Date: Mon Jul 07 14:39:54 EDT 2014

**Public Input No. 180-NFPA 58-2014 [Section No. A.4.2.3]****A.4.2.3**

Another method of determining the presence of odorant is the stain tube test. This method involves using a small hand-held handheld pump to draw a sample across a filled glass tube and reading the through a stain tube (a glass tube filled with a chemical indicator), and it requires reading the resulting length of color change. For additional information, see

GPA Standard 2488, Tentative

ASTM D5305 Standard Test Method for

the

Determination of Ethyl Mercaptan in LP-Gas

Using Length of Stain Tubes,

Vapor, and CAN/CGSB-3.0 No. 18.5, Test for Ethyl Mercaptan Odorant in Propane, Field Method.

At the time of the preparation of this code, additional analytical methods were under development.

The method found in ASTM D5305 indicates the concentration of ethyl mercaptan in the vapor. Stain tube manufacturers' instructions should be followed.

Due to the boiling point difference between ethyl mercaptan and propane, the concentration of ethyl mercaptan within propane vapor will be less than that found in the same sample of liquid propane. For example, a liquid concentration of 1 lb. of ethyl mercaptan per 10,000 gallons of propane (16.7 ppmv) will result in a stain tube value of 3.0 ppmv of the vapor sample at 32 F and will be greater at higher temperatures. For more information, see the supplement on fuel gas odorization in the National Fuel Gas Code Handbook. The appendix of ASTM D5305 addresses the corrections required to determine the concentration within the liquid. The ethyl mercaptan concentration cited in A.4.2.1 is the liquid concentration. The Canadian method (CAN/CGSB-3.0), will yield a value approximately equal to the liquid concentration.

Statement of Problem and Substantiation for Public Input

The concentration of ethyl mercaptan in the vapor will always be lower than in the liquid, even if the same technician takes both samples at the same time from the same container. The reason that this occurs is due to vapor-liquid equilibrium phenomena; the technical reasons for which are beyond the scope of this proposal. Problems arise when the technicians performing verification tests are not aware of the differences between the two methods and expect that the readings for vapor and liquid samples should be equal. The proposed revisions are intended to explain that they are not equal, nor are they expected to be equal.

Submitter Information Verification

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Submittal Date: Tue Jul 01 13:34:12 EDT 2014

**Public Input No. 168-NFPA 58-2014 [New Section after A.5.2.1.1]**

Add a new A.5.2.1.2 (B) to read:

A.5.2.1.2 (B) Information on the API-ASME Code is located in Annex D.

Statement of Problem and Substantiation for Public Input

Reference is provided to Annex D, which explains the API-ASME as the definition has been deleted.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff

Organization: TLemoff Engineering

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Zip:

Submittal Date: Mon Jun 30 13:19:55 EDT 2014

**Public Input No. 43-NFPA 58-2013 [New Section after A.5.7.1.2]****5.7.2 PRESSURE RELIEF VALVES**

Extract section A10.1 from NFPA 59 and renumber as A5.7.2

A.10.1 Experience has indicated that a vertical and unimpeded vent of high-velocity hydrocarbon gases will entrain sufficient air within a very short distance so that the resultant plume will be diluted below the lower flammable limit. This behavior is documented in ANSI/API 521, *Guide for Pressure- Relieving and Depressuring Systems* . This document was based, in part, on an API-commissioned study by Battelle Memorial Institute, "The Effect of Velocity, Temperature, and Gas Molecular Weight on Flammability Limits in Wind-Blown Jets of Hydrocarbon Gases."

These reports clearly indicate that a vertical and unimpeded jet will be diluted below its lower flammable limit within 50 pipe diameters of the issuing jet and that the effects of "wind-tilt" can be safely neglected if a 50 ft (15 m) horizontal clearance is provided between the jet and a source of ignition. High velocity jet is defined as a jet having an exit velocity in excess of 100 ft/sec (30.5 m/sec), which is slightly more than an order of magnitude less than the acoustic velocity that can be anticipated at the throat of an operating relief valve. ANSI/API 521 also indicates that a partially open relief valve will produce a velocity sufficient to achieve the necessary dilution.

Once such a mixture has been diluted below its flammable limit, there are no known natural forces (including gravitational forces) that will cause the reconcentration of the LP-Gases so as to create a flammable cloud. The application of water, as either a

fog or a heavy stream, will not hasten and can actually inhibit the dilution of the jet stream. It is recommended that this information be included in any emergency procedure manual and that the responding emergency services be made aware of this information.

Additional Proposed Changes

<u>File Name</u>	<u>Description Approved</u>
RELIEF_DOCUMENT.docx	

Statement of Problem and Substantiation for Public Input

This is extremely important information, which should be included in NFPA 58 as it has been in NFPA 59 for several editions.

Submitter Information Verification

Submitter Full Name: William Young
Organization: Superior Energy Systems, Ltd.
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State:
Zip:
Submittal Date: Mon Dec 23 16:16:37 EST 2013

A.5.7.2 Experience has indicated that a vertical and unimpeded vent of high-velocity hydrocarbon gases will entrain sufficient air within a very short distance so that the resultant plume will be diluted below the lower flammable limit. This behavior is documented in ANSI/API 521, *Guide for Pressure-Relieving and Depressuring Systems*. This document was based, in part, on an API-commissioned study by Battelle Memorial Institute, “The Effect of Velocity, Temperature, and Gas Molecular Weight on Flammability Limits in Wind-Blown Jets of Hydrocarbon Gases.”

These reports clearly indicate that a vertical and unimpeded jet will be diluted below its lower flammable limit within 50 pipe diameters of the issuing jet and that the effects of “wind-tilt” can be safely neglected if a 50 ft (15 m) horizontal clearance is provided between the jet and a source of ignition. A high velocity jet is defined as a jet having an exit velocity in excess of 100 ft/sec (30.5 m/sec), which is slightly more than an order of magnitude less than the acoustic velocity that can be anticipated at the throat of an operating relief valve. ANSI/API 521 also indicates that a partially open relief valve will produce a velocity sufficient to achieve the necessary dilution.

Once such a mixture has been diluted below its flammable limit, there are no known natural forces (including gravitational forces) that will cause the reconcentration of the LP-Gases so as to create a flammable cloud. The application of water, as either a fog or a heavy stream, will not hasten and can actually inhibit the dilution of the jet stream. It is recommended that this information be included in any emergency procedure manual and that the responding emergency services be made aware of this information.

**Public Input No. 207-NFPA 58-2014 [New Section after A.5.7.3.2]****TITLE OF NEW CONTENT**

Add a new A.5.7.4.4 to read:

A.5.7.4.4

The list of required appurtenances for container over 4,000 gallons provides safety and operational needs. Other appurtenances are not prohibited. Larger installations, such as rail and marine terminals are sometimes required to take liquid propane samples to analyze the gas, determine the level of odorant, and to verify that the specification for the gas are met. A sampling valve can be added to the tank where sampling is anticipated.

Statement of Problem and Substantiation for Public Input

There is a need to occasionally to take samples from propane storage containers larger than 4,000 gallons to analyze the propane. Taking samples can be difficult as storage tanks are rarely equipped with sampling valves. The need is most prevalent in terminals which handle a high volume of propane. Propane is sometimes analyzed for contaminants, such as hydrogen sulfide, when off-spec propane has been pumped into storage tanks. There also exists a need to analyze propane for the level of odorant. While propane samples are only occasionally required, it can be difficult to obtain samples safely. By adding this information to Annex A the option for a sampling valve is highlighted.

Submitter Information Verification

Submitter Full Name: Theodore Lemoff

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Submittal Date: Wed Jul 02 16:09:27 EDT 2014

**Public Input No. 244-NFPA 58-2014 [New Section after A.6.4.4.4]****TITLE OF NEW CONTENT**

A.6.4.4.5 Some examples of Class I flammable liquids are gasoline and methanol. Some examples of Class II combustible liquids are diesel, kerosene, or fuel oils.

Statement of Problem and Substantiation for Public Input

This proposal will provide some examples of both Class I flammable and Class II combustible liquids.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 243-NFPA 58-2014 [Section No. 6.4.4.5]	

Submitter Information Verification

Submitter Full Name: Bruce Swiecicki
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Zip:
Submittal Date: Thu Jul 03 15:04:37 EDT 2014

**Public Input No. 229-NFPA 58-2014 [Section No. A.6.4.4.14]**A.6.4.4.14

~~Because of the anticipated flash of some nonrefrigerated LP-Gases when released to the atmosphere, dikes normally serve no useful purpose for these nonrefrigerated installations.~~

Statement of Problem and Substantiation for Public Input

6.4.4.14. should be deleted because according to 6.1.2 (1) Chapter 6 does not apply to refrigerated containers. If 6.4.4.14 is deleted A 6.4.4.14 should also be removed.

Submitter Information Verification

Submitter Full Name: John King

Organization: Federated Mutual Insurance Company

Street Address:

City:

State:

Zip:

Submittal Date: Thu Jul 03 11:31:23 EDT 2014

**Public Input No. 245-NFPA 58-2014 [New Section after A.6.5.1.1]****TITLE OF NEW CONTENT**

A. Table 6.5.2.1(J), (K) Some examples of Class I flammable liquids are gasoline or methanol and Class II combustible liquids are diesel, kerosene, or fuel oils.

Statement of Problem and Substantiation for Public Input

The informational material will add clarification by providing examples of the different liquid classifications.

Submitter Information Verification

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Submittal Date: Thu Jul 03 15:15:08 EDT 2014

**Public Input No. 233-NFPA 58-2014 [New Section after A.6.6.1.4]****TITLE OF NEW CONTENT**

A.6.6.3.4. An isolated location might be where there are no churches, schools, hospitals, nursing homes, correctional institutions, or other buildings in which more than ten persons would be present continuously or on a regular basis within 1000 feet of the container.

Statement of Problem and Substantiation for Public Input

I am submitting this proposal on behalf of the Skid Tank Task Force. Some AHJs have requested clarification of what might constitute an "isolated location" as used in 6.6.3.4. This proposal is an attempt to honor that request, and is admittedly a "starting point." The proposal is based on the thought that unprotected supports as described in 6.6.3.4 could be quite vulnerable to failure under fire conditions. With this in mind, providing a generous clearance between such a container and buildings housing vulnerable or captive populations, or large gatherings of persons, could help further life safety by reducing the distance necessary to evacuate any such persons to a safe area if necessary.

Submitter Information Verification

Submitter Full Name: John King

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Submittal Date: Thu Jul 03 14:19:38 EDT 2014

**Public Input No. 251-NFPA 58-2014 [Section No. A.6.16.1]**A.6.16.1

The variables that affect the potential for damage to outdoor gas system components present in areas where heavy snowfalls occur are numerous. Therefore, the selection of an appropriate method to mitigate potential damage from snow and ice should be based upon the characteristics of the installation site and the forces that are anticipated. Some alternatives include the following:

- (1) Locating aboveground piping, regulators, and meters above snow levels
- (2) Locating aboveground piping, regulators, and meters on the gable end of buildings
- Protecting aboveground piping, regulators, and meters with extended roof overhangs and eaves
 - (1) Adding support to aboveground piping, regulators, and meters or securing them to the structure to withstand snow and ice load
 - (2) Installing dedicated covers for regulators, and meters that are designed to withstand a vertical static load equal to two times the ground snow load (psf) for the area but not less than 350 psf

Gas systems located below roof eaves can be impacted by snow shedding from a roof as the snow tends to curl back under the eave when shedding from the roof. Consideration should be given to installing the gas system in a location that provides some protection, such as at the gable end of the structure.

- (1) Locating aboveground piping, regulators, and meters in an elevated and protected location under extended roof overhangs and eaves. The equipment should be located near the elevation of the bottom of the eave or overhang. If the equipment is located too far below the eave or overhang, snow shedding from the roof can curl back under the eave and impact equipment. See Figure A.6.?

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Ice_Photo_23.jpg	Figure A.6.? Photograph of snow shedding from a metal roof on house and snow curling back underneath eave.	

Statement of Problem and Substantiation for Public Input

Clarifying information about locating equipment under roof eaves or overhangs. The current language may provide a false source of security as unless equipment is located high on a wall near the overhang or eave, it still may be impacted by snow shedding from the roof. Note: My revisions were formatted incorrectly by the NFPA system. The list should be numbered items 1 through 5. The original item 3 had been moved to new item 5 and merged with text that existed after the numbered list. Original items 1, 2, 4 and 5 were not edited.

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**Public Input No. 299-NFPA 58-2014 [Section No. A.8.4.1]**A.8.4.1

The filling process in [8.4.1.4](#) refers to the time period beginning when a cylinder or cylinders are brought to a dispensing ~~station~~ system to be filled and ending when the last cylinder is filled and all the cylinders are removed from the filling area. This is meant to define a continuous process, with the cylinders being unattended for only brief periods, such as operator breaks or lunch.

Statement of Problem and Substantiation for Public Input

This is an editorial change to the code based on the change to the definition as described in P.I. 272.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 272-NFPA 58-2014 [Section No. 3.3.20]	

Submitter Information Verification

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Submittal Date: Mon Jul 07 14:37:12 EDT 2014

**Public Input No. 219-NFPA 58-2014 [Section No. A.9.4.7]**

A.9.4.7 —

Also see NFPA 10, *Standard for Portable Fire Extinguishers*.**Statement of Problem and Substantiation for Public Input**

Annex paragraph A.9.4.7 is no longer needed as NFPA 10 is referenced in the new paragraph 4.7(B).

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 194-NFPA 58-2014 [New Section after 4.6]	

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**Public Input No. 172-NFPA 58-2014 [Section No. A.14.2.1.6]****A.14.2.1.6**

The term *in use* can address containers at facilities that are feeding a process, system, or engine fuel (autogas) refueling facility through the liquid opening primary shutoff valve. For some applications a system might be considered to be in use even though gas is not continuously flowing through the valve. The facility is considered to be attended when an employee of the company or operator is on site, is knowledgeable about the valves shutdown system, and is able to activate the emergency shutdown system in the event of an emergency.

Statement of Problem and Substantiation for Public Input

This change will clarify that ability to activate the emergency shutdown system includes not just the physical ability to activate the system, but also the knowledge for how that is accomplished. This would allow office staff or others who may not normally receive training for handling or transferring product to qualify as being in attendance for keeping the site open if they have been trained in how to activate the emergency shutdown system.

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Public Input No. 97-NFPA 58-2014 [Section No. M.1.2]

M.1.2 Other Publications.M.1.2.1 API Publications.

American Petroleum Institute, 1220 L Street, NW, Washington, DC 20005-4070.

API ~~620~~ **STD 620**, *Design and Construction of Large, Welded, Low-Pressure Storage Tanks*, 2011 **2012**.

API ~~RP~~ **1632**, *Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems*, 2011.

API ~~STD~~ **2510**, *Design and Construction of LP-Gas Installations*, 2001, **Reaffirmed 2011**.

API-ASME *Code for Unfired Pressure Vessels for Petroleum Liquids and Gases*, Pre-July 1, 1961.

M.1.2.2 ASME Publications.

American Society of Mechanical Engineers **ASME International**, Two Park Avenue, New York, NY 10016-5990.

ASME *Boiler and Pressure Vessel Code*, 2010 **2013**.

ASME B31.3, *Process Piping*, 2010 **2014**.

M.1.2.3 ASTM Publications.

ASTM International, 100 Barr Harbor Drive, P.O. Box C700, Conshohocken, PA 19428-2959.

ASTM A 47/~~A 47M~~, *Standard Specification for Ferritic Malleable Iron Castings*, 2009 **1999, reaffirmed 2014**.

ASTM A 395/~~A 395M~~, *Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures*, 2009 **1999, reaffirmed 2014**.

ASTM B 88, *Standard Specification for Seamless Copper Water Tube*, 2003 **2009**.

ASTM B 280, *Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service*, 2008 **2013**.

ASTM D 638, *Standard Test Method for Tensile Properties of Plastics*, 2010.

ASTM D 1835, *Standard Specification for Liquefied Petroleum (LP) Gases*, 2011 **2013**.

ASTM E 84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, 2012b **2014**.

M.1.2.4 AWS Publications.

American Welding Society, 550-~~8669~~ **NW LeJeune Road 36 Street, #130, Miami, FL** 33126, www.aws.org, ~~33166-6672~~ **33166-6672**.

AWS Z49.1, *Safety in Welding, Cutting, and Allied Processes*, 2005 **2012**.

M.1.2.5 CAN/CSGB Publications.

Canadian General Standards Board, Place du Portage III, 6B1, 11 Laurier Street, Gatineau, QC, K1A 1G6, Canada.

CAN/CSGB-3.0 No. 18.5, *Test for Ethyl Mercaptan Odorant in Propane, Field Method*, March 2006.

M.1.2.6 CGA Publications.

Compressed Gas Association, 14501 George Carter Way, Suite 103, Chantilly, VA 20151-2923.

CGA C-6, *Standard for Visual Inspection of Steel Compressed Gas Cylinders*, 2009 **2011**.

CGA C-6.3, *Guidelines for Visual Inspection and Requalification of Low Pressure Aluminum Compressed Gas Cylinders*, 2005.

CGA S-1.1, *Pressure Relief Device Standards, Part 1 — Cylinders for Compressed Gases*, 2011.

CGA S-1.2, *Pressure Relief Device Standards, Part 2 — Cargo and Portable Tanks for Compressed Gases*, 2009.

CGA S-1.3, *Pressure Relief Device Standards, Part 3 — Compressed Gas Storage Containers*, 2008.

M.1.2.7 GPA Publications.

Gas Processors Association, 6526 East 60th Street, Tulsa, OK 74145.

~~Standard 2140~~ **GPA STD 2140**, *Liquefied Petroleum Gas Specifications for Test Methods*, 1997.

~~Standard 2188~~ **GPA STD 2188**, *Tentative Method for the Determination of Ethyl Mercaptan in LP-Gas Using Length of Stain Tubes*, 1989.

M.1.2.8 NACE Publications.

NACE International, 1440 South Creek Drive, Houston, TX 77084-4906.

SP0169, *Control of External Corrosion on Underground or Submerged Metallic Piping Systems*, 2007 **2013**.

SP0285, *External Corrosion Control of Underground Storage Tank Systems by Cathodic Protection*, 2011.

M.1.2.9 PERC Publications.

Propane Education and Research Council, Suite 1075, 1140 Connecticut Avenue, NW, Washington, DC 20036.

Cathodic Protection Manual and Quiz #20689590.

"Cathodic Protection Systems Video".

M.1.2.10 UL Publications.

Underwriters Laboratories Inc., 333 Pfingsten Rd., Northbrook, IL 60062-2096.

ANSI/UL 651, *Schedule 40 and 80 TYPE EB and A Rigid PVC Conduit and Fittings*, 2005, Revised 2009 **2014**.

ANSI/UL 723, *Standard for Test for Surface Burning Characteristics of Building Materials*, 2008, Revised 2010.

ANSI/UL 1746, *External Corrosion Protection Systems for Steel Underground Storage Tanks*, 2007, **Revised 2012**.

M.1.2.11 ULC Publications.

Underwriters Laboratories of Canada, 7 Underwriters Road, Toronto, ON M1R 3A9, Canada.

CAN/ULC S603.1, *Standard for External Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids*, 2011.

M.1.2.12 U.S. Government Publications.

U.S. Government Printing Office, Washington, DC 20402.

A New Look at Odorization Levels for Propane Gas, BERC/RI-77/1, United States Energy Research and Development Administration, Technical Information Center, September 1977.

15 U.S.C. 1261, Federal Hazardous Substances Act.

Title 16, Code of Federal Regulations, "Commercial Practices," Chapter 11, "Consumer Product Safety Commission."

Title 33, Code of Federal Regulations.

Title 49, Code of Federal Regulations, Part 178, "Specifications for Packaging."

Title 49, Code of Federal Regulations, Part 179.105-4, "Thermal Protection."

Title 49, Code of Federal Regulations, Part 180.209.

Title 49, Code of Federal Regulations, Parts 192.281(e) and 192.283(b).

Title 49, Code of Federal Regulations, Parts 192 and 195, "Transportation of Hazardous Liquids by Pipeline."

Statement of Problem and Substantiation for Public Input

Updated titles, edition years and address for American Welding Society.

Related Public Inputs for This Document

<u>Related Input</u>	<u>Relationship</u>
Public Input No. 96-NFPA 58-2014 [Section No. 2.3]	Referenced current editions, titles, and addresses.

Submitter Information Verification

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Submittal Date: Mon Jun 09 00:21:33 EDT 2014

**Public Input No. 149-NFPA 58-2014 [Section No. M.1.2.3]****M.1.2.3** ASTM Publications.

ASTM International, 100 Barr Harbor Drive, P.O. Box C700, Conshohocken, PA 19428-2959.

ASTM A 47, *Standard Specification for Ferritic Malleable Iron Castings*, 2009.

ASTM A 395, *Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures*, 2009.

ASTM B 88, *Standard Specification for Seamless Copper Water Tube*, 2003.

ASTM B 280, *Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service*, 2008.

ASTM D 638, *Standard Test Method for Tensile Properties of Plastics*, 2010.

ASTM D 1835, *Standard Specification for Liquefied Petroleum (LP) Gases*, 2011.

ASTM E 84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, ~~2012b~~ 2014 .

Statement of Problem and Substantiation for Public Input

standard date update

Submitter Information Verification

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**Public Input No. 269-NFPA 58-2014 [Section No. M.1.2.3]****M.1.2.3** ASTM Publications.

ASTM International, 100 Barr Harbor Drive, P.O. Box C700, Conshohocken, PA 19428-2959.

ASTM A 47/A47M , *Standard Specification for Ferritic Malleable Iron Castings*, ~~2009~~ 99(2014) .

ASTM A 395/A395M , *Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures*, ~~2009~~ 99(2014) .

ASTM B 88, *Standard Specification for Seamless Copper Water Tube*, ~~2003~~ 2009 .

ASTM B 280, *Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service*, ~~2008~~ 2013 .

ASTM D 638, *Standard Test Method for Tensile Properties of Plastics*, 2010.

ASTM D 1835, *Standard Specification for Liquefied Petroleum (LP) Gases*, ~~2014~~ 2013 .

ASTM E 84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, ~~2012b~~ 2014 .

Statement of Problem and Substantiation for Public Input

Update the year date for standard(s)

Submitter Information Verification

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Submittal Date: Mon Jul 07 09:53:12 EDT 2014

**Public Input No. 133-NFPA 58-2014 [New Section after M.3]**

New Annex to provide information for Autogas practices

Additional Proposed Changes

<u>File Name</u>	<u>Description</u>	<u>Approved</u>
Ch_12_Annex_Autogas.docx	Information on Autogas practices. This is being provided as backup information for the proposed new Chapter 12 on Autogas applications. Refer substantiation for the Chapter 12 submission for details.	

Statement of Problem and Substantiation for Public Input

The problem is understanding new information on the separation of Chapter 11 into two chapters, 11 & 12. This separation focuses Chapter 12 on specific motorized applications. This addition of this annex would provide additional useful information for the user, as well as the AHJ. Please refer to the substantiation for the Ch 12 submission for details.

Submitter Information Verification

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Zip:
Submittal Date: Thu Jun 26 22:45:07 EDT 2014

Annex X: Autogas Vehicle Information

X.1 Purging air and moisture using propane vapor

Note: This informative Annex has been written in normative language to facilitate adoption where users of the Code or regulatory authorities wish to adopt it formally as additional requirements to this Code.

1. To remove air and moisture from a container being prepared for propane service using a purging assembly as shown in Figure A.1, complete the following steps:
2. Open the container service valve and blow down air trapped in the container to atmospheric pressure.
3. Inject into the container through the service valve 1 mL of anhydrous methanol per 1L capacity of the container being purged and rotate the container until all its interior metal has been exposed to the anhydrous methanol.
4. Drain all liquid residues from the container.
5. Connect the vapour purge line to the service valve on the container and pressure to 15 psig (103 kPa).
6. Close the vapour purge line and blow the contents to atmosphere.
7. Repeat the steps in Items (d) and (e) four more times.
8. Open the vapour purge supply line and pressure the container to 15 psig (103 kPa).
9. Close the vapour purge supply valve and the container service valves and retain the last 15 psig (103 kPa) filled into the container.
10. Disconnect the vapour purge supply line.
11. Connect the liquid supply line to the container service valve. Open the liquid supply and tank service valves and charge to vapour pressure.
12. Apply leak-detection solution to all surfaces of the service valve, service valve threads, and all welded seams of the tank.
13. If no bubble leaks are apparent, the container may be filled and placed in service.
14. **CAUTION:** When purging containers, never use liquid propane. Use only vapour and always purge in a safe, ignition-free location.

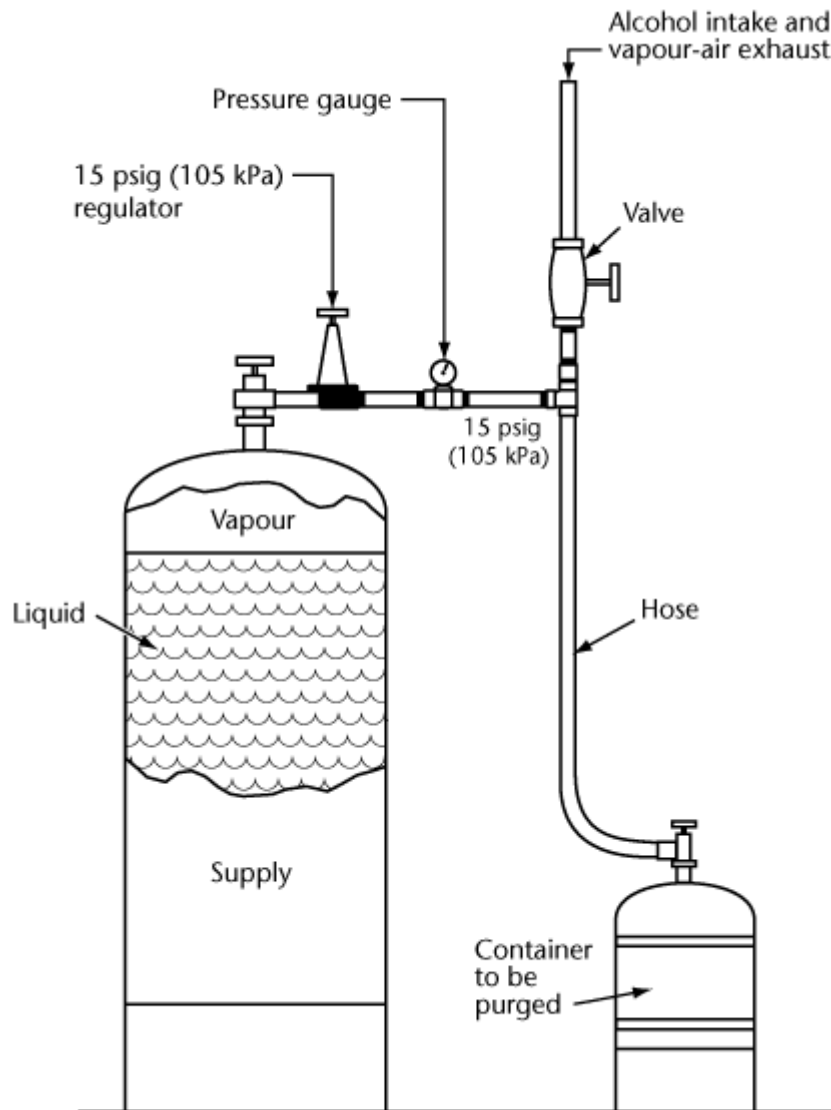


Figure X.1 Typical container purging system.

X.2 Guide for motor fuel tank installations

X.2.1 Motor fuel tank installations

For the purpose of installing a *tank* on a unibody vehicle, a structural member of the vehicle shall not be cut in such a manner as to reduce the strength of the member to a level below the strength required for the purpose for which the member is intended. When drilling through a floor pan or frame member, adequate reinforcement shall be provided on the top, sides, and bottom of the *tank* mounting area (See Figure X.2). Existing holes shall be used wherever possible.

Wherever a hole is drilled or metal is reinforced, corrosion protection shall be provided.

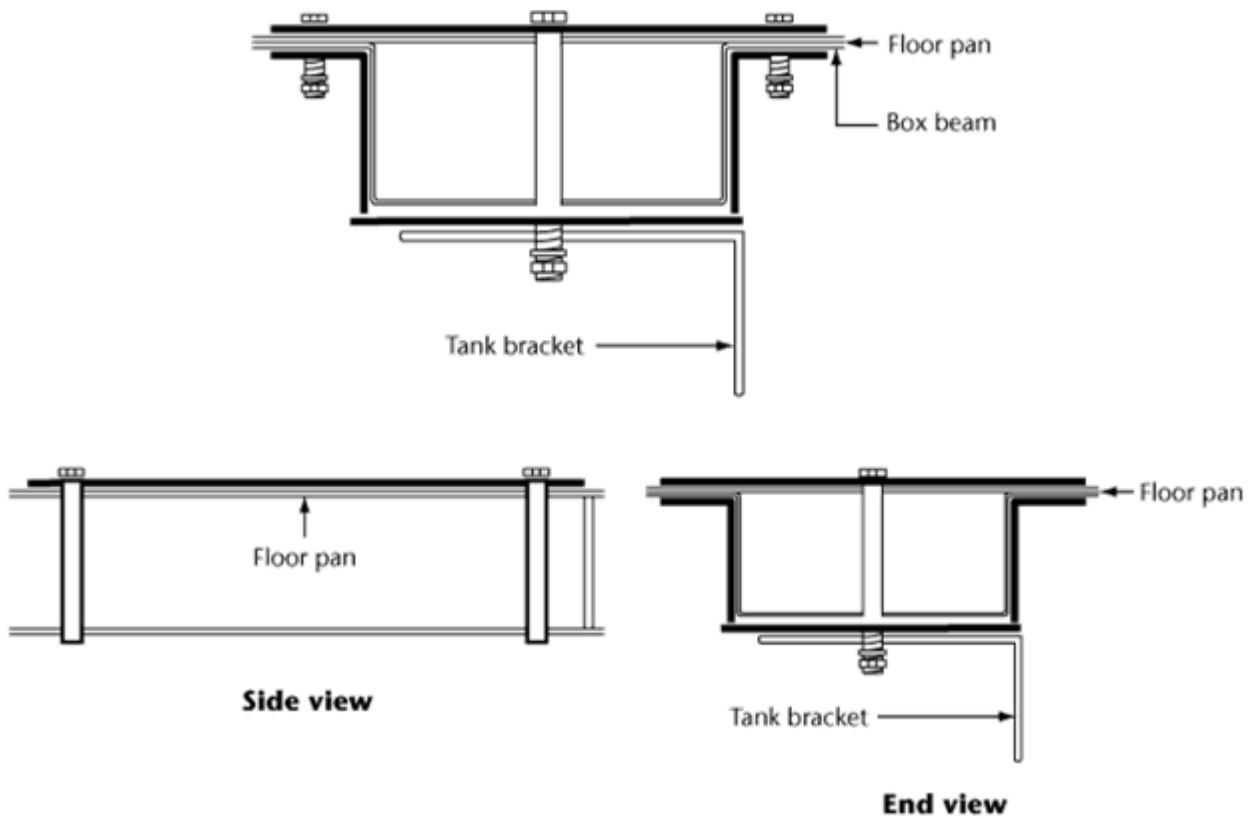


Figure X.2 Mounting on unibody vehicles

X.3 Mounting behind the rear axle and under the chassis of a unibody vehicle

A rear-mounted *tank* is vulnerable to damage and shall be installed in an area where it will be less exposed to physical damage in the event of an impact (See Figure X.3)

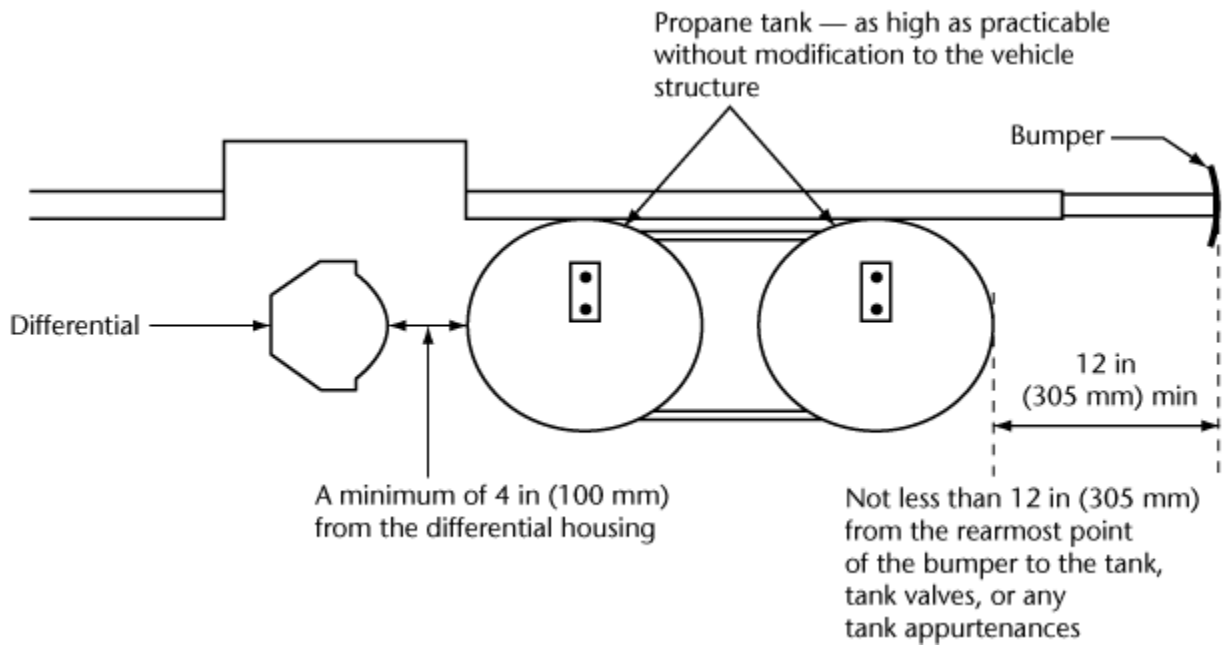


Figure X.3 Propane tank located behind the rear axle

X.4 Bumper protection for a unibody bus

Reinforced bumpers enhance the safety of a rear-mounted *tank* in the event of a vehicular impact. The guidelines shown in Figure X.4 are intended for reinforcement of standard vehicle bumpers. Other means of protection may be used if designed in accordance with good engineering practice.

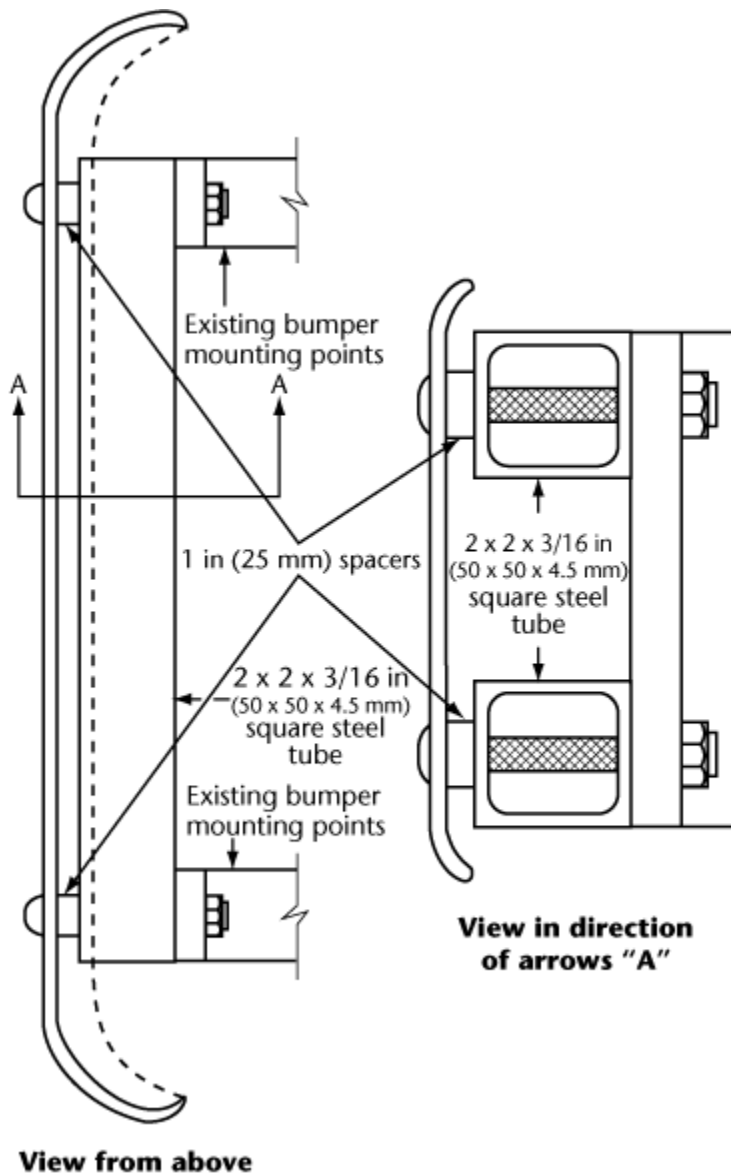


Figure X.4 Bumper protection for a unibody bus

X.5 Recommended vehicle labels

To be determined

X.6 Relevant Standards for valves, components, and accessories (excluding off road vehicles such as industrial tractors, landscaping vehicles and lift trucks)

Component	Reference Standard
-----------	--------------------

Automatic liquid level control (stop-fill) valves	UL 125 or Annex 3 of Standard R67 *
Back check valves	UL 125 or Annex 7 of Standard R67 *
Carburetor, mixers, and adapters	Annex 11 of Standard R67
Electronic liquid level sensor	Annex 3 of Standard R67 *
Filler valves (remote fuelling)	UL 125 or Annex 9 of Standard R67 *
Fixed liquid level vent valves	UL 125 or Annex 3 of Standard R67 *
Float type liquid level gauges	UL 565 or Annex 3 of Standard R67 *
Fuel filters	Annex 5 of Standard R67 *
Fuel rail	Annex 11 of Standard R67 *
Fuel tanks	See <u>Clause 5.2</u> of this Code
Gas dosage unit	Annex 12 of Standard R67 *
Gas pressure regulator	Annex 6 of Standard R67 *
Hydrostatic relief valves	UL 132
Liquid excess flow valves	UL 125 or Annex 3 of Standard R67 *
Power supply bushing	Annex 3 of Standard R67 *
Pressure and temperature sensors and switches	Annex 13 of Standard R67 *
Propane fuel pumps	Annex 4 of Standard R67 * or SAEJ1537
Propane heat exchanger	CSA B51
Propane injection devices	Annex 11 of Standard R67 *
Solenoid valves	UL 429 and UL 125; or Annex 3 of Standard R67 *
Supply/return lines	See <u>Clauses 5.7.2</u> and <u>5.7.3</u> of this Code
Vaporizers	Annex 6 of Standard R67*
Withdrawal (service) valves other than solenoid type valves	UL 125 or Annex 7 of Standard R67 *

**R67 Components shall be suitable for temperatures of – 40 °C and relief pressures based on service.*

X.7 Use of propane components tested and approved by a recognized laboratory or approval entity, other than UL/ETL/FM or other US based recognized entity:

X.7.1

Components in compliance with R67 as determined by a recognized laboratory, either through certification testing, or OEM/DOT level review by a qualified PE.

X.7.2

R67 approved Components shall bear a marking of a circle surrounding the letter “E” followed by the distinguishing number of the country which has granted approval, as stated in section 5 of R67 e.g. **Germany** = E1, **Czech Republic** = E8, etc.

X.7.3

Homologation and test reports shall be reviewed by a certification or listing body recognized by the automotive industry and acceptable to the authority having jurisdiction

X.7.4

The distributor/installer shall have the responsibility to ensure that all Autogas kits, OEM systems or components are compatible with and of a quality and safety approval equal to the specifications of the OEM manufacturer of the system.

X.7.5

Components shall bear a marking identifying the name of the manufacturer or importer/distributor in whose name any safety approvals exist.

X.8 Non-mandatory Inspection/Re-examination Checklist

This annex is intended as a guide to ensure that the installation of the LPG Autogas system components meet the requirements of code. It is mandatory that you have a copy of the current version of the code to refer to during the inspection process to ensure proper compliance.

Customer: _____
Date: _____ Make: _____ Model _____ Year: _____
Vin. No.: _____ License No.: _____

(4.4.1) Application:

(4.1.1) CAN/CGSB-3.14 or CAN/CGSB-3.13 shall
apply Pass: _____ Fail: _____ N/A: _____

(4.6) Isolation of safety devices:

(4.6) Isolating or rendering inoperative shall be prohibited Pass: _____ Fail: _____ N/A: _____

(5.1) General:

(5.1.2) Bulk tank supply line Pass: _____ Fail: _____ N/A: _____

(5.1.3) Combustion air source Pass: _____ Fail: _____ N/A: _____

(5.1.4) Drain valve Pass: _____ Fail: _____ N/A: _____

(5.1.5.1) OEM general use lift trucks Pass: _____ Fail: _____ N/A: _____

(5.1.5.2) Conversion to manufacturers instructions Pass: _____ Fail: _____ N/A: _____

(5.1.5.3) Hazardous use lift trucks Pass: _____ Fail: _____ N/A: _____

(5.2) Storage Vessel (Fuel Tank):

_____	(5.2.1)	Approved fuel tank	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.2.2)	Design pressure	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.2.3)	Permanent engine fuel tank	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.2.4)	Unibody bus tanks	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.2.5)	Tank testing	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.2.6)	Reconditioned tank purge	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.2.7)	Durable labels	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.2.8)	Approved welding	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.2.9)	Permanently installed cylinders	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.2.10)	Field welding	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:

Fuel container equipment:

_____	(5.3.1.1)	Vapour withdrawal tank installation	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.1.2)	Removable container	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.2.1)	Installed relief valves	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.2.2)	Relief valve requirements	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.2.3)	Shut-off valve location	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.2.4)	Relief valve installation	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.2.5)	Back check/hydrostatic valve	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.3.1)	Fixed liquid level gauge equipped	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.3.2)	Fixed liquid level gauge design	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.3.3)	Fixed liquid level gauge tube length	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.3.4)	Fixed liquid level gauge remote location	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.4.1)	Internal excess flow valve	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.4.2)	Direct fill tank valve	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.4.3)	Remote fill tank valve backflow prevention	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.4.4)	Excess flow valves on cylinders	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.5.1)	Withdrawal shut of valve/internal excess flow valve	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:

_____	(5.3.5.2) 80% stop fill valve	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.5.3) Fixed liquid level gauge requirement	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.5.4) Variable liquid level gauge usage	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.5.5) Manual and solenoid shut-off valves	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.5.6) Shut-off valve accessibility	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.6) Float gauge installation	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.7.1) Fuel pump power shut-off	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.7.2) Fuel pump outlet pressure design	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.7.3) Fuel pump heat buildup	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.7.4) Internal fuel pump marking	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.7.5) Fuel pump SAE J1537 standard exemption	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.8.1) Propane electrical components overload protection	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.8.2) Fuse location (Clause 5.3.7.1)	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.8.3) Propane components not to carry electrical current	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.8.4) Inert gas or vacuum purged	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.8.5) Electrical cable protection	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.8.6) Vapour box electrical connections	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.9.1) Injectors securely mounted	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.9.2) OEM type electrical connections	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.10) Fuel rail and injector block mounting	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
Fuel container equipment:				
_____	(5.3.1.1) Vapour withdrawal tank installation	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.1.2) Removable container	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.2.1) Installed relief valves	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.2.2) Relief valve requirements	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.2.3) Shut-off valve location	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:

_____	(5.3.2.4)	Relief valve installation	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.2.5)	Back check/hydrostatic valve	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.3.1)	Fixed liquid level gauge equipped	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.3.2)	Fixed liquid level gauge design	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.3.3)	Fixed liquid level gauge tube length	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.3.4)	Fixed liquid level gauge remote location	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.4.1)	Internal excess flow valve	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.4.2)	Direct fill tank valve	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.4.3)	Remote fill tank valve backflow prevention	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.4.4)	Excess flow valves on cylinders	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.5.1)	Withdrawal shut of valve/internal excess flow valve	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.5.2)	80% stop fill valve	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.5.3)	Fixed liquid level gauge requirement	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.5.4)	Variable liquid level gauge usage	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.5.5)	Manual and solenoid shut-off valves	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.5.6)	Shut-off valve accessibility	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.6)	Float gauge installation	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.7.1)	Fuel pump power shut-off	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.7.2)	Fuel pump outlet pressure design	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.7.3)	Fuel pump heat buildup	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.7.4)	Internal fuel pump marking	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.7.5)	Fuel pump SAE J1537 standard exemption	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.8.1)	Propane electrical components overload protection	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.8.2)	Fuse location (Clause 5.3.7.1)	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.8.3)	Propane components not to carry electrical current	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.3.8.4)	Inert gas or vacuum purged	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:

_____	(5.3.8.5)	Electrical cable protection	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.3.8.6)	Vapour box electrical connections	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.3.9.1)	Injectors securely mounted	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.3.9.2)	OEM type electrical connections	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.3.10)	Fuel rail and injector block mounting	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:

Tank and cylinder installation:

_____	(5.4.1)	Tank located outside of an enclosed space	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.4.2)	Tank located in an enclosed space	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.4.3)	Tank used on a lift truck or industrial vehicle	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.4.4)	Multiple tanks on a vehicle	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.4.5)	Interconnected tanks	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.4.6)	Permanently installed tanks on a vehicle	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.4.7)	Cylinders secured	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.4.8)	Tank attachment	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.4.9)	Tank mounting brackets	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.4.10)	Tank installation with manufacturer	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A: _____
brackets	(5.4.11)	In service tank re-installation	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.4.12)	Re-examination of tanks	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.4.13)	Re-examination records	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.4.14)	Tank installation filling requirements	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:

(5.5) Tank and equipment protection:

_____	(5.5.1)	Tank location to minimize damage	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.5.2)	Number of cylinders on a food or wash mobile unit	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.5.3)	Tank road clearance	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.5.4)	Propane container heat exposure	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.5.5)	Propane cylinder cabinet clearance	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.5.6)	Tank located outside of a vehicle	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:

_____	(5.5.7)	Valves, connections and gauging on a container	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.5.8)	Remote filling and gauging fittings	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.5.9)	Latching of hoods, dome or cabinet doors	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.5.10)	Cylinder valve protection	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.5.11)	New tank and attachment corrosion protection	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
(5.6) Tanks and cylinders located within vehicles:			
_____	(5.6.1)	Tank located within an enclosed space of a vehicle	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.6.2)	Enclosure requirements (Clause 5.5.5a)	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.6.3)	Gasket and sealant requirements	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.6.4)	Cylinder installed within a vehicle	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.6.5)	Cylinder capacity on a commercial vehicle	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
Piping and tubing systems, hose and fittings:			
_____	(5.7.1.1)	Piping requirements	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.7.1.2)	Fittings used with steel pipe requirements	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.7.1.3)	Vapour phase piping requirements	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.7.2.1)	Tubing requirements	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.7.2.2)	Tube fitting requirements	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.7.2.3)	Joint locations	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.7.2.4)	Sheathed copper tubing requirements	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.7.3.1)	Hose and hose fitting design pressure	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.7.3.2)	Hose and fittings used for vapour service	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.7.3.3)	Hose assembly testing requirements	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.7.4)	Liquid propane piping, tubing or hose size	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.7.5)	Distribution block requirements	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.7.6.1)	Piping and fittings clean of burrs and defects	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.7.6.2)	Ends of piping reamed	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.7.6.3)	Piping, tubing and hoses secured	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:

_____	(5.7.6.4)	Cylinder system automatic change over regulator valve	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.6.5)	Unused connections capped or plugged	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.7.1)	Piping joints shall be threaded	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.7.2)	Piping or fitting thread shall be tapered	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.7.3)	Pipe joint sealant and tape shall be certified	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.7.4)	Joint in tubing shall be a flare joint or an approved fitting	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.7.5)	Joint or connection shall not be inaccessible	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.7.6)	Bulkhead fitting used to secure propane line	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.7.7)	Number of joints kept to a minimum	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.8.1)	Bushings that are not steel or brass shall no be used	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.8.2)	Pipe fitting with left and right hand threads not used	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.8.3)	Piping or tubing bends prohibited	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.8.4)	A close nipple shall not be used	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.8.5)	Structural member of vehicle shall not be cut	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.8.6)	Piping & tubing not be installed conditions	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.8.7)	Piping & tubing not be used to interconnect vehicle units	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.8.8)	Defects in piping & tubing shall not be repaired	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.9.1)	Piping or tubing shall be protected against corrosion	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.9.2)	Piping, tubing and hose protected against damage	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.9.3)	Piping, tubing and hose shall not be concealed	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.9.4)	Tubing and hose protected within a luggage compartment	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.9.5)	Clearance from an engine exhaust	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A: _____
system	(5.7.10.1)	Assembled liquid piping, tubing & hose pressure tested	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.10.2)	Replacement or repair of tubing, piping & hose testing	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.10.3)	Tank fitting testing with liquid leak detector or device	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A:
_____	(5.7.10.4)	Vehicle accident causing damage testing	<u>Pass:</u> _____	<u>Fail:</u> _____	N/A: _____
requirements					

Discharge lines from tank valves and hydrostatic relief valves:

_____	(5.8.1)	Discharge from a relief valve	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.8.2)	Relief valve discharge conduit	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.8.3)	Discharge conduit materials	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.8.4)	Discharge conduit secured	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.8.5)	Aluminum tanks shall be equipped with a fuse plug	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
(5.9) Vaporizers, pressure regulator and valves:			
_____	(5.9.1)	Vaporizer, pressure regulator of sufficient size	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.9.2)	Vaporizer, pressure regulator securely fastened	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.9.3)	Vaporizer, pressure regulator, exhaust gas usage	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.9.4)	Vaporizer, pressure regulator, fusible plug usage	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.9.5)	Propane supply line fuel lock-off valve requirements	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.9.6)	Atmospheric type regulator not acceptable	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
(5.10) Carburetors, carburetor mixers and carburetor adapters:			
_____	(5.10.1)	Do not require approval	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
(5.11) Fuel lock-offs:			
_____	(5.11.1)	Propane and gasoline fuel tank lock-off requirements	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.11.2)	Gasoline fuel lock-off installation requirements	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.11.3)	Gasoline tank and fill connection removal or plugged	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
(5.12) Wiring:			
_____	(5.12.1)	Wiring shall be stranded style and rated for usage	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.12.2)	Wiring protected from abrasion	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.12.3)	Wiring shall be supported	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
resistant	(5.12.4)	Wiring connections water tight and vibration	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A: _____
(5.13) Marking and labeling:			
_____	(5.13.1)	Approved propane label affixed near filling location	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.13.2)	Approved permanent label affixed (see figure C.1)	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:
_____	(5.13.3)	Approved diamond shaped label affixed	<u>Pass:</u> _____ <u>Fail:</u> _____ N/A:

(5.13.4) Inspected in accordance to local authority regulations Pass: ____ Fail: ____ N/A:

Inspector's comments:

Inspection Facility: _____

Inspector Name: _____

ICE-P License No.: _____

Inspector Signature: _____