

# The Clock Is Ticking on Internal Valve Retrofits



**W**ith approximately four years left before the July 1, 2011 deadline to implement the National Fire Protection Association's (NFPA) Code 58 internal valve retrofit requirement, companies with storage facilities that will have to be brought into compliance might think they have a lot of time left.

Maybe they do; maybe they don't.

With some estimates hovering around 70,000-plus storage facilities—marketer, wholesale, customer storage sites—across the country that may be affected by the requirement, that's a whole lot of internal valves that have to be retrofitted. And depending on how one looks at the time left—just under 1400 days, not counting 104 weekend days or holidays, or winter days when the work can't be done—and then factoring in scheduling someone to do the work and possibly waiting for parts to arrive, there might be a lot less time left to get the job done.

Compliance, of course, is dependent on which NFPA 58 edition (or how much of it) a state or local authority has adopted and enforces. In Texas, the Texas Railroad Commission in 2003 adopted the 2001 edition, but some sections were not adopted by reference or were adopted and amended with additional requirements or corrections, according to Jim Osterhaus, deputy director of the Commission's Safety Division. The retrofit requirement for containers over 4000 gallons was adopted, but the retrofit date was changed to Feb. 1, 2006. These regulations are in Section 9.403 of the Texas LP-Gas Safety Rules and can be found on the



**RegO Products and Fisher Controls are currently the only two companies selling internal valves compliant with NFPA's Code 58 retrofit requirement.**

number of their marketer customers have already scheduled the work at their plants. In addition to the distributors that are offering their services to do the work, there are other contractors that have been advertising their services, and many marketers plan to do the work themselves.

As for customer storage vessels, the number of answers as to who is responsible for the work, when will it be done, and who will pay for it, is as extensive as the number of marketers in the country.

### The Details

Liquid transfer operations were the primary target of the changes to Section 5.7.7.2 and Table 5.7.7.3 of NFPA 58 2004 edition, which, in summary, calls for (check the code for the specific requirements):

(A) Vapor withdrawal openings, in containers with 2001 gallon water capacity (WC) or larger, equipped with either a positive shutoff valve located as close to the container as practical, in combination with an excess-flow valve installed in the container, or an internal valve.

(B) Liquid withdrawal openings in newly-installed containers of 4000 gallon WC or greater must 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 feet (1.5 meters) of the internal valve. Liquid withdrawal openings in con-

Commission's website, [www.rrc.state.tx.us](http://www.rrc.state.tx.us).

At least 27 other states have adopted the 2001 or 2004 NFPA 58 edition, according to an early 2007 survey of states code adoption conducted by the National Propane Gas Association (NPGA). The results are shown in the table on p. 39 and are posted on its website, [www.npga.org](http://www.npga.org), in the regulatory section.

The code change requiring the retrofit, Section 5.7.7.2 (2004 edition), was introduced in the 2001 edition and covered storage vessels with a water capacity of 4000 gallons or greater. Two of the changes were required as early as July 1, 2003. New safety regulations also were adopted for openings on containers from 2001 to 4000 gallons. Minor changes and an amendment, 6.24 "Alternate Provisions for Installation for ASME Containers," were added in the 2004 edition. The code changes mandated that all new storage vessels installed after the effective date of the code (in any jurisdiction) had to meet the requirement in accordance with 5.7.7.2(A) through 5.7.7.2(H) and Table 5.7.7.3. Those facilities built prior to the effective date have to be retrofitted by July 1, 2011.

According to equipment distributors around the country, a fair number of marketers have at least begun to ask about the availability of equipment and scheduling the retrofit. A couple of distributors noted that they have customers in states following earlier code 58 editions that have already or will be getting the retrofit done. Several distributors told *BPN* that a



**Incidents in the 1990s prompted members of NFPA's Technical Committee on LPG to review the code covering internal valves.**

# BULK STORAGE PLANT

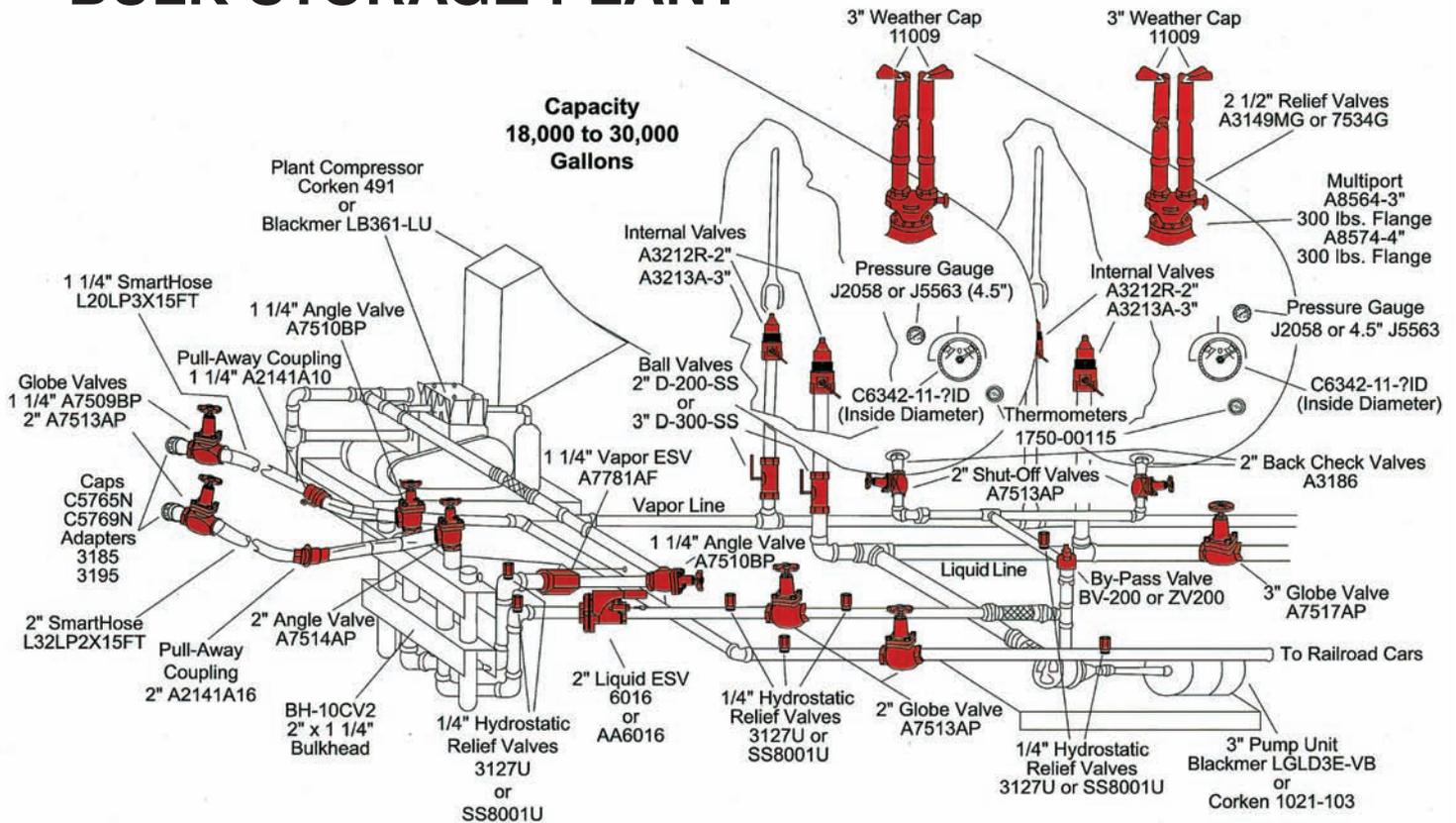


Diagram courtesy of RegO Products Co.

tainers 2000 to 4000 gallon WC can either have an internal valve or a positive shutoff valve installed as close as practical to an excess-flow valve.

- (C) Liquid withdrawal openings in existing installations where the container is greater than 4000 gallon WC and is equipped with an internal valve that is not fitted for remote closure and automatic shutoff using thermal actuation were required to be equipped for remote and thermal closure by July 1, 2003, according to the 2001 edition of NFPA 58.
- (D) Liquid withdrawal openings in existing containers of 4000 gallon WC or greater shall be equipped by July 1, 2011 with either an internal valve that is fitted for remote closure and automatic shutoff using thermal actuation, where the thermal element is located within 5 feet of the internal valve, or 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 in containers greater than 2000 gallon WC shall be equipped with either a positive shutoff valve that is located as close to the container as practical, in combination with either a backflow check valve or excess flow valve installed in the container, or an internal valve.
- (F) Liquid inlet openings in new containers 2000 to 4000 gallon WC must have one of the following: an internal valve that is fitted for remote closure and automatic shutoff; a positive shutoff valve that is located as close to the

container as practical, in combination with a backflow check valve installed in the container; or a positive shutoff valve that is located as close to the container as practical, in combination with an excess-flow valve. Liquid inlet openings in new containers greater than 4000 gallon WC must be equipped with either a positive shutoff valve installed as close as practical to a backflow check valve designed for the intended application and installed in the container, or an internal valve equipped for remote closure and automatic shutoff using thermal actuation within 5 feet of the valve.

- (G) Liquid inlet openings in existing installations where the container is greater than 4000 gallon WC and is equipped with an internal valve that is not fitted for remote closure and automatic shutoff using thermal actuation had to be equipped for remote and thermal closure by July 1, 2003.
- (H) Liquid inlet openings in existing containers greater than 4000 gallon WC have to be equipped with one of four options: an internal valve that is fitted for remote closure and automatic shutoff using thermal actuation, where the thermal element is located within 5 feet of the internal valve; an emergency shutoff valve that is installed in the line upstream as close as practical to a positive shutoff valve installed in the container; 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 con-

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tainer; or 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.

These requirements are also spelled out in Table 5.7.7.3, "Connection and Appurtenance Requirements for New and Existing Container Installations in Bulk Plants and Industrial Plants," which was added to the section in the 2004 edition.

**Critical But Not Complicated**

Depending on whom one asks, complying with the code isn't as complicated as some contractors have suggested, says one state inspector. And for smaller plants, there may be as few as two valves to be changed per container, explained Ray Kazakewich of RegO (Elon, N.C.). However, there is some concern that a large number of storage facilities won't be ready because management thinks there is plenty of time and will find out within months of the deadline there is a long waiting list for equipment and contractors' time. "We are currently ramping up production of those valves that we feel will be most affected by this, and our distributors are building inventory to accommodate demand," he added.

Currently only two companies—Fisher Controls (McKinney, Texas) and RegO Products—sell the valves.

Both companies have information on their websites and are distributing printed material on the code and compliance. Many distributors are offering inspection and installation services. Some states require those doing the work to be licensed. Also now providing information and reminding industry members are NPGA staff and state propane associations, which have been offering seminars at meetings, as have a number of state offices with jurisdiction over propane.

According to Fisher's compliance bulletin LP-29, since there is no such thing as a typical bulk plant, valve needs more than likely will differ from one installation to another. The company urges marketers and bulk plant managers to work with those, including their distributors, who can identify what must be changed.

Distributors, such as Gas Equipment Co. (GEC; Dallas) and Bergquist Inc. (Toledo), have brochures with compliance details they are providing customers. Brochures from both firms have code information, product details, and a checklist to help determine what equipment will be needed at a plant.

**Background**

With such a long time frame from the original recommendation to modify the code to the 2011 deadline, one might think the change isn't that critical. According to Ted Lemoff, NFPA's principal gases engineer, a couple of incidents in the 1990s prompted members of the Technical Committee on LPG to review the code covering the valves. They recognized that the code was good, but in light of the findings

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from these incidents, it could be improved. The committee specifically cited a hose failure incident in Sanford, N.C. in which a substantial amount of gas was released but not ignited, and an accident at a poultry farm in Albert City, Iowa that did result in an explosion. Lemoff was one of the speakers providing information on the code at NPGA's Southeastern Convention & International Exposition earlier this year.

In the committee's substantiation of the recommendation, members noted that "this proposal would utilize the technological improvements that are now available to augment the protection required in earlier editions of the standard. This proposed revision does not differ from the concepts of product control found in the earlier versions of NFPA 58, but it does significantly enhance the effectiveness of the originally contemplated product control measures." It also notes that the proposed changes rank in importance with the emergency shutoff valves mandated in 1980 and the overfill-protection devices mandated in the 1988 edition.

While the vote by committee members was nearly unanimous, there was much debate over what tank openings and sizes should be covered. The decision was made to primarily target containers that are in service in bulk plants or industrial plants because those containers are involved more frequently than others in liquid transfer operations.

In debating the details of the proposal, members of the committee believed the addition of internal valves was a reasonable alternative in that they were readily available. The 10-year period was given to provide enough time to retrofit the large number of vessels affected.

—Ann Rey

## STATE ADOPTIONS OF NFPA 58

Edition Adopted by State, Effective 8-09-07

Unofficial information—check with enforcement authority in each state

State	Edition	State	Edition
Alabama	1998	Montana	1989
Alaska	1989	Nebraska	2001
Arizona	1989	Nevada	2004
Arkansas	State Code	New Hampshire	1995
California	1998	New Jersey	2004
Colorado	2001	New Mexico	2001
Connecticut	1995	New York	2004
Delaware	1998	North Carolina	2004
Florida	2004	North Dakota	1998
Georgia	2004	Ohio	2001
Hawaii	1989	Oklahoma	2004
Idaho	1998	Oregon	2004
Illinois	2004	Pennsylvania	1992
Indiana	2001	Rhode Island	1995
Iowa	2004	South Carolina	2004
Kansas	2004	South Dakota	1998
Kentucky	2004	Tennessee	2001
Louisiana	1995	Texas	2001
Maine	1998	Utah	2004
Maryland	1998	Vermont	2001
Massachusetts	2001	Virginia	2001
Michigan	1998	Washington	2001
Minnesota	2004	West Virginia	1998
Mississippi	2004	Wisconsin	2004
Missouri	2001	Wyoming	1998

Source: National Propane Gas Association Survey



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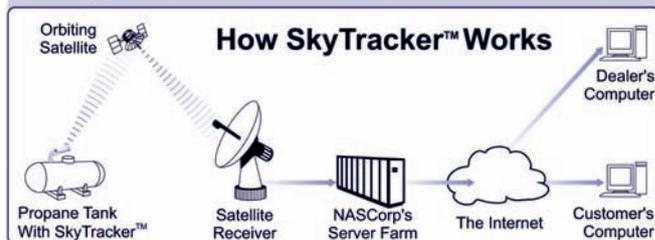
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