



Coffee Break Training - Fire Protection Series

Hazardous Materials: Bulk Petroleum Storage and Liquefied Petroleum Gases

No. FP-2009-2 January 13, 2009

Learning Objective: The student shall be able to identify the minimum tank spacing requirements between above ground liquefied petroleum gas and flammable/combustible liquid tanks.

The photograph illustrates two potential hazards at petroleum production or storage sites: bulk flammable/combustible liquid tanks and liquefied petroleum gas (LPG) pressure vessels in proximity to one another.

The model fire codes establish minimum separation requirements between the two fuel hazards to minimize the risk of exposure problems in the event of a fire, but the requirements require close scrutiny and thoughtful consideration.

The model fire codes establish the generic requirement that the minimum horizontal separation between an LPG container and a Class I, Class II, or Class IIIA liquid storage tank must be **20 ft (6 m)***. However, the codes add the following statements when LPG containers are near diked areas around flammable or combustible liquid storage tanks:

- According to the National Fire Protection Association (NFPA)[®] 30, *Flammable and Combustible Liquids Code*, LPG containers must be outside the diked area and at least **3 ft (0.9 m)** away from the centerline of the wall of the diked area.
- According to the model fire codes and NFPA[®] 58, *Liquefied Petroleum Gas Code*, LPG containers must be located at least **10 ft (3 m)** from the centerline of the wall of diked areas containing flammable or combustible liquids.



Photo courtesy Eastern Propane & Oil of Hudson, New Hampshire.

Note that the reference point for the dimensions changes. The minimum **20-ft (6 m)** distance is the shell-to-shell separation between the liquid storage tank and the LPG vessel. The other dimensions are from the LPG vessel shell to the centerline of the dike wall.

The distance anomaly occurs whether one uses the flammable/combustible liquid code for enforcement, or if one enforces the model fire codes. The codes do not require the “most restrictive” distance, but say when there is a conflict the “specific requirements” apply. Since both dimensions are specific, the code official should discuss this irregularity with the organization’s legal counsel to determine which distance value should be enforced.

For additional information, refer to NFPA[®] 30, *Flammable and Combustible Liquids Code*, Chapter 22, *International Fire Code*[®], Chapter 34, NFPA[®] 1, *Uniform Fire Code*[®], Chapter 66 or NFPA[®] 58, *Liquefied Petroleum Gas Code*, Chapter 6.

* An exception exists when LPG containers 125 gal (475 L) or less are installed next to Class II or III fuel oil supply tanks storing 660 gal (2,500 L) or less.

