Coffee Break Training - Fire Protection Series

Hazardous Materials: Bulk Liquefied Petroleum Gas Container Separation Distances

No. FP-2009-7 February 17, 2009

Learning Objective: *The student shall be able to identify the minimum separation requirements for bulk liquefied petroleum gas (LPG) container storage.*

Liquefied petroleum gases (LPGs) include propane, butane, and other LPG mixtures that are popular fuel sources for heating, cooking, illumination, and industrial processes. LPG has an ignition temperature in air of 900 °F to 1,020 °F (482 °C to 549 °C) and a maximum flame temperature in air from 3,595 °F to 3,615 °F (1,979 °C to 1,991 °C). These hazards require that storage facilities be arranged to minimize catastrophic events.

These bulk liquefied petroleum gas containers must meet minimum shell-to-shell spacing requirements.

National Fire Protection Association (NFPA)® 58, *Liquefied Petroleum Gas Code*, includes the following distance requirements for separating LPG containers from adjacent containers, important buildings, groups of buildings, or the property line of adjacent parcels where structures can be erected.

		Minimum Distances					
Water Capacity Per Container		**Mounded or Undergound Containers**		**Above Ground Containers**		**Between Containers**	
gal	**m^3**	**ft**	**m**	**ft**	**m**	**ft**	**m**
2,001 – 30,000	7.6 – 114	50*	15	50	15	5	1.5
30,001 – 70,000	114 – 265	50	15	75	23	1/4 sum of diameters of adjacent containers	
70,001 – 90,000	265 – 341	50	15	100	30		
90,001 – 120,000	341 – 454	50	15	125	38		
120,001 – 200,000	454 – 757	50	15	200	61		
200,001 – 1,000,000	757 – 3,785	50	15	300	91		
More than – 1,000,000	>3,785	50	15	400	122		

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.

* This dimension may be reduced to 10 ft (3 m) when containers incorporate redundant fail-safe product control measures and low-emission transfer procedures as specifically described in NFPA® 58.