

Liquefied Petroleum Gas (LPG) Dispensing Stations



Rules and Regulations

- Liquefied Petroleum Gas Rules, 2000 AACRS R 29.4001 et. Seq., with State Amendments.
- These adopt by reference NFPA 58, 1998 edition.

Plan Reviews

- Required for all LPG Service Stations, as well as any site distributing from a larger container into a smaller cylinder, and for sites with individual tanks over 2000 gallons capacity or 4000 gallons aggregate capacity.

Plan Review-Continued

- Requires the submittal of an Application For Installation Of Liquefied Petroleum Gas Facilities, EQP Form 3861, along with a site sketch, and an application fee of \$203.00 per tank.

Definition-LP Service Station

- An LP Service Station is a facility that distributes or dispenses LPG into the tank of a motor vehicle as a fuel that is used to power that vehicle.

Requirements-All

- Containers, Section 2-2 and Table 2-2.2.2
Typical commercial LPG tanks are designed for use at 200 psi with a safety factor of 5:1 or at 250 psi with a safety factor of 4:1, but others may be acceptable, as they pertain to this section and the listed table.

Requirements-Continued

- Tank Supports, Section 3-2.4, Will vary from tank to tank, but the most common are either steel legs or skids, or concrete/masonry blocks or saddles.

Requirements-Continued

- Tank Location-Section and table 3-2.2.2
Varies with size of tank, with 125 to 500 gallon tanks required to be 10 feet from buildings and property lines, 501 to 2000 gallon tanks required to be 25 feet from buildings and property lines, and 2000 gallons or larger needing to be 50 feet from buildings and property lines.

Requirements-Continued

- Exception-A container 1200 gallons or smaller and more than 25 feet away from a container of more than 125 gallons, can be placed 10 feet from a building or property line.
- No combustible materials are allowed within 10 feet of the tank.

Requirements-Continued

- Tank has to be at least 10 feet from a FLCL dike wall.
- At least 20 feet to an FLCL container
- No closer than 6 feet from a horizontal line drawn underneath a power line of 600 volts or more.

Requirements-Continued

- Exception-Tank can be closer than 6 feet to a horizontal line beneath a power line if it is a service entrance, but not in a position where the line would drape over the tank in the event that it would fall.
- No solid barriers allowed around tanks, except industrial chain link fence.

Requirements-Continued

- Valves-All Liquid and Vapor lines, whether for withdrawing, filling, or vapor equalization, shall be provided with an appropriate combination of valves to provide adequate protection from uncontrolled or accidental releases.

Requirements-Continued

- These would include but are not limited to positive manual shutoffs (ball, gate, angle valves), excess flow valves, multi purpose valves, quick closing internal and external valves, and double back flow check valves.

Requirements-Continued

- In addition, any section of piping that has the potential to have liquid trapped between shutoff valves, check valves, or bypass valves, shall have a hydrostatic relief valve in it, with a discharge pressure set at a minimum of 400 psi.

Requirements-Continued

- Pipe-Section 3-2.10. Can use Schedule 40 welded, Schedule 80 threaded, and certain types of copper above ground. In underground applications, all of the above can be used, in correlation with a proper corrosion protection system and approved listed non-metallic can also be used.

Requirements-Continued

- Aboveground pipe shall be adequately supported to prevent undue stress or strain on the pipe.
- A strainer should be installed for clean out purposes.
- Flex connectors or equivalents should be used to prevent damage to the pipe,

Requirements-Continued

- due to vibration and movement of the pump.
- Pumps should be of an approved design and have a vapor bypass feature.
- Hose must be approved for LP use and labeled as such.

Requirements-Continued

- Point of Transfer-Section 3-2.3 and table 3-2.3.3, minimum of 25 feet from a building, property line, or the centerline of a railroad track. At least 50 feet from a place of public assemblage, 10 feet from public ways, FLCL dispensers, and 20 feet from an FLCL tank.

Requirements-Continued

- All distribution tanks made after December 0f 1965 are required to have a fixed liquid level gauge, a pressure gauge, and a magnetic float gauge.
- All liquid and vapor lines shall be labeled accordingly.

Requirements-All, End

- All containers and dispensers shall be provided with appropriate crash protection, and have at least one 20 lb. dry chemical with a B:C rating.

LP Service Station Requirements-Additional

- These additional requirements specific to LPG Service Stations can be found under section 3-9 of the NFPA 58, 1998 edition.

LP Service Station Requirements-Additional

- In addition to the requirements for tank location listed on slide number 8, the LP Service Station Tank also need to be at least 15 feet away from any pits, sewer openings, utility openings, or other openings below the level of the top of the tank.

LP Service Station Requirements-Additional

- The tank and dispenser should be installed to manufacturers recommendations, especially if the unit is a complete skid package.

LP Service Station Requirements-Additional

- Service stations are not allowed inside buildings, but they may be placed under canopies made of noncombustible materials, as long as the system is not more than 50 percent enclosed, and it is properly ventilated per the requirements of these rules.

LP Service Station Requirements-Additional

- Containers are allowed to be placed under the canopy as well, as long as the lowest part of the canopy roof is at least 8 feet higher than the highest portion of the tank.
- Controls shall be located at the pump, which is normally part of the dispenser.

LP Service Station Requirements-Additional

- An excess flow valve or emergency shutoff valve is required at the point where the piping connects to the hose at the dispenser.
- As indicated in slide number 14, all pipe or hose that has the potential for trapped liquid in it needs a hydrostatic relief valve

LP Service Station Requirements-Additional

- As required in section 3-3.6, industrial type chain link fence or locks on the valves and dispenser are required to prevent the possibility of trespass or tampering.
- A quick closing shut off valve is required on the end of the dispensing hose

LP Service Station Requirements-Additional

- If the dispenser unit is not part of a skid mounted system and is remote from the tank and pump, then the liquid line needs to have a positive manual shutoff valve and an excess flow valve between the pump and the dispenser. Also, the dispenser would need to be mounted on a concrete pad.

LP Service Station Requirements-Additional

- An emergency shutoff device needs to be located, in clear view of the dispensing area, at least 20 feet, but not more than 100 feet, from the transfer point.
- The dispensing hose shall be an approved listed type, not longer than 18 feet.

LP Service Station Requirements-Additional

- The dispensing hose shall also have an approved breakaway device that will contain the liquid on both sides of the break.
- The LPG dispenser shall be located no closer than 10 feet from an FLCL dispenser.

LP Service Station Requirements-Additional

- All vehicles being fueled at an LP service station are required to be turned off during the actually fueling process.

Additional Training Requirements

- Two years after the promulgation of these rules (July 26, 2000) or one year after the the hiring of an employee, people filling containers from delivery trucks, need to be certified in a training program by the national propane gas association's employee training certification program that includes

Additional Training Requirements

- handling, operating, and certified testing of liquefied petroleum gas, as adopted in section 12-1.13 of the State's LPG code.

Additional Training Requirements

- Anyone transferring LPG from a dispenser to a motor vehicle, within one year of these rules, shall receive training in accordance with the national propane gas association's dispenser operator training manual. Documentation of this training needs to be kept on file. *

Additional Training Requirements

- * Exception-if the facility is a self serve attended facility, the person transferring the fuel from the dispenser to the tank of the motor vehicle is not required to be trained in this operation. However, there must be an attendant on duty at the facility who has been trained and whose training is documented.

Information

- Information concerning this presentation and questions relating to it should be addressed to:
- R. Jeff Tanner TRU Eng..
- MDEQ-STD-TRU
- 517-335-2137 or tannerj@state.mi.us