

LPG Storage Installations

A Guide to Owners' Duties: Gas Safety (Gas Supply) Regulations

This leaflet aims to provide owner of LPG storage installation a basic understanding on his/her duties under the Gas Safety (Gas Supply) Regulations and provides a basic guidance on how to fulfill these duties.

What are LPG storage installations?

An LPG storage installation is an installation storing LPG with an aggregated nominal water capacity of more than 130 litres. LPG is normally supplied to the downstream consumption points by ways of outlet pipework through vaporizers and pressure-regulating installations. There are three typical types of LPG storage installations:

- (a) LPG storage compound where LPG is stored in bulk storage tank(s);
- (b) Piped LPG cylinder store where LPG is stored using typical LPG cylinders; and
- (c) LPG cylinder dead store where reserve LPG cylinders are stored.

Hazards

LPG is a mixture of propane and butane. It is a colourless liquid which readily evaporates into a vapour. It has no smell but normally has an odour added to enable easier detection during gas leakage. With improper handling, liquid LPG can cause cold burns to the skin.

When mixed with air, the vapour can burn or explode at certain concentration when it meets a source of ignition. It is heavier than air. In the event of gas leakage, LPG can travel for long distances along the ground or congregate in drain channels, gullies or basement areas. Due to its highly flammable characteristics, the control on source of ignition and good house keeping at or near the LPG storage installation are essential to ensure safe storage.

LPG is stored in pressurized cylinders or bulk storage tanks. The containers are designed for the purpose and would not easily be damaged under normal application, but leakage can occur from valves and pipe connections.

What are my duties as an owner?

Regulation 6B of the Gas Safety (Gas Supply) Regulations specifies that the owner of a notifiable gas installation (e.g. an LPG storage installation) shall maintain and operate the installation in a safe condition for the prevention of fire, explosion or other danger arising from the installation.

Regulation 6C of the Gas Safety (Gas Supply) Regulations requires the owner to ensure that the LPG storage installation is inspected by a competent person at intervals not less than once every year to ascertain that the installation has been maintained and operated in accordance with Regulation 6B. For each inspection, an inspection report (Form 109) shall be compiled and the owner shall submit a copy of the report to the Gas Authority within four weeks after the inspection. ***Failure to carry out the above inspection before the due date and/or failure to timely submit a copy of the inspection report is an offense and the owner may be prosecuted.***

In order to fulfill these duties, the owner is required to:

- Arrange a competent person to conduct statutory inspections at intervals not less than once every year. During the statutory inspection, the owner should have rectified all irregularities found during routine inspections or otherwise contravention to Regulation 6B may be concluded;
- Forthwith rectify any irregularities or near misses found in the installation and its surrounding;
- Keep all records of all construction and use approvals granted by the Gas Authority;
- Maintain records of all inspection, maintenance and alteration works carried out on the installation;
- Ensure LPG cylinders, where applicable, are kept secured in position;
- Ensure only persons with suitable training and competency to work on the installation;
- Keep the installation clear from weeds and debris, maintain a good standard of house keeping;
- Keep proper security control to the installation, entrance gates shall be securely locked;

- Keep vehicles at suitable safety distance away from the installation, except for road tanker or cylinder wagon during gas delivery;
- Train all operators on operating instructions and the emergency procedures;
- Conduct routine inspections of the LPG storage installation. Common faults identified during inspections of LPG installations are listed in the table below for reference:

Common faults found during routine inspection of LPG storage Installation
Over storage - The quantity of LPG stored exceeds the storage capacity as listed in the approval of use of the installation.
Equipment overdue for Testi and Examination – Test and examination of major equipment such as storage vessel, vaporiser or pressure testing of gas mains are overdue.
Corrosion of underground mains – Underground mains are corroded and/or water accumulated in the valve pit.
Tank chamber water slippage - Water slippage into the tank chamber and affect the corrosion protection of the storage vessel.
Potential source of ignition – New installation surrounding the LPG installation induced new potential source of ignition.
Improper fire services installation – Missing fire extinguisher (FE) or FE with invalid Fire Services Certificate (FS251) etc.
Expired flexible gas tubing - The validity of flexible gas tubing is overdue.
Poor House keeping - The installation is untidy with debris, weeds, over grown trees or irrelevant materials etc.
Improper Signage - Warning signs such as “LPG Store”, “No Smoking”, “Highly Flammable LPG” are of incorrect letter-size or “Emergency Contacts Numbers” sign with outdated contact number etc.
Poor Maintenance - The yellow lines marking the sterile area is faded. Rust is found at ventilation mesh or at LPG pipework.
Obstruction of Ventilation - The ventilation opening is obstructed by debris.
Outdated records & plans – Layout of underground mains is inaccurate or maintenance records not available.

How could the owner know if a person is competent to conduct the statutory inspections?

The EMSD web site (www.emsd.gov.hk) maintains a list of Class 2 competent persons who may conduct statutory inspections of LPG storage installations.

Can the owner arrange a contractor to maintain the installation and conduct routine inspections?

The owner may approach the gas supply company for a list of contractors to maintain the installation and conduct routine inspections. The maintenance contract should clearly identify the arrangement on the keeping of maintenance records. Such records shall be handed over to the owner upon termination of the contract.

Can the owner delegate duties to a contractor?

No, the owner retains overall responsibility for ensuring compliance with requirements. The owner shall take full responsibilities to monitor the workmanship and performance of the contractor.

What if a downstream facility fails the soundness test or suspect of gas leakage?

The owner shall take necessary action to isolate the gas supply by closing the isolation valve upstream of the facility in question. The owner is required to contact the gas supply company to inspect the installation and to ensure the integrity of the installation prior to gas resumption.

The gas supply company may not supply gas to the LPG storage installation unless both the installation and all its downstream facilities are maintained and operated in a safe condition.

Further information

For more technical advice, owners may contact the gas supply company. For general advice on LPG safety, owners may contact the 1823 Citizen’s Easy Link or visit the EMSD web site (www.emsd.gov.hk).