Upper Tier Major Hazard Facilities: Safety Case Summary for Liquigas Ltd
www.liquigas.co.nz

Liquigas Safety Cases:

– Auckland

– New Plymouth

– Christchurch

– Dunedin

Storing LPG Safely

LPG (Liquefied Petroleum Gas) is the generic name for mixtures of propane and butane, usually around 60% propane and 40% butane. When lightly compressed the gases change to a liquid. LPG is heavier than air, colourless and odourless – although a chemical is added to give it an unpleasant smell to ensure that even a small leak can be detected.

To safely manage the bulk storage and distribution of LPG, our people are highly trained and work in an environment that puts safety first.

Our sites have been designed and constructed to the highest standards of safety, and we were the first company in the world to fully mound our steel storage tanks by encasing them in sand. Mounding our storage tanks provides a significant barrier against fire and external impacts and allows the tanks sufficient movement in the event of an earthquake.

We have many controls in place to ensure that our people and the communities we operate in are always safe. These controls are reviewed regularly to ensure we retain the highest levels of safety technology.

Health and Safety at Work (Major Hazard Facilities) Regulations 2016

Due to the quantities of LPG that we store at our sites, Liquigas is known as an upper tier Major Hazard Facility under the Health and Safety at Work Act 2015. We have a responsibility under the MHF Regulations of the Act to prove to WorkSafe New Zealand that our safety, operating, and maintenance systems keep our risks as low as possible, and our people and communities safe.

We meet this responsibility by developing Safety Cases that are a comprehensive investigation and analysis of all aspects of risks to health and safety associated with major incidents on our sites. Our major risk is from an uncontrolled release of LPG because it could catch fire if it was to reach an ignition source. Potential uncontrolled releases may come from piping, during shipping operations or during road tanker operations. These systems contain significantly less LPG than our storage tanks.

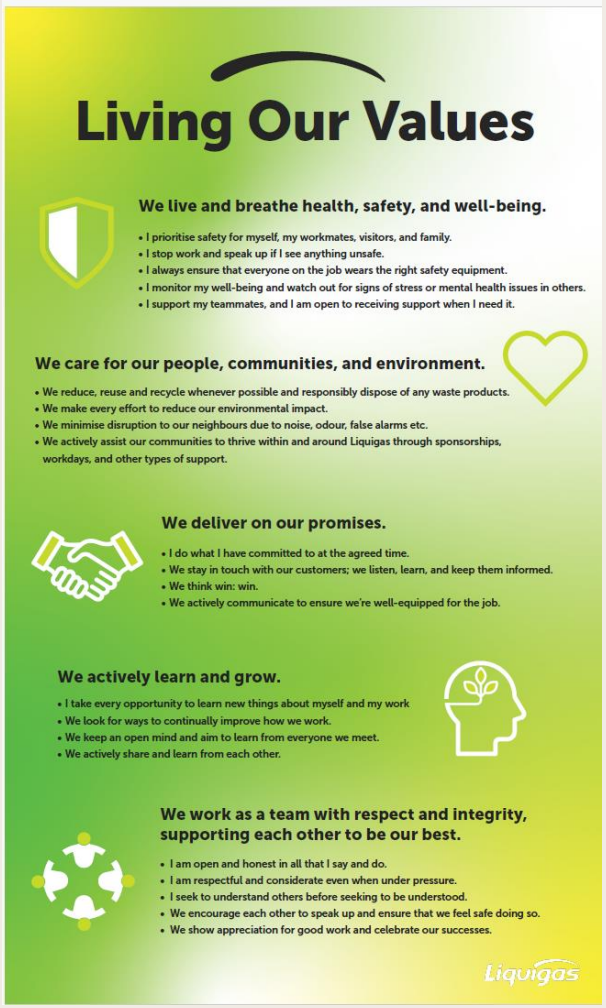
Safety Cases include three main sections:

1. **Safety Management System (SMS)** that documents all the policies and procedures that we use to safely operate our depots.
2. **Safety Assessments** that are used to identify and control the risk of a major incident.
3. **Emergency Response Planning** that ensures we are trained to react quickly and safely to an emergency if one was to ever happen.

Our Safety Cases

Our Safety Cases are prepared in collaboration with workers, safety specialists, emergency services, and contractors, and they must be resubmitted and accepted by WorkSafe every 5-years.

- **Safety Management System (SMS)**



The contents of our SMS flow from our Mission Statement. Our policies and procedures cover the subjects of:

1. Policy, Planning & Objectives.
2. Engaging with Workers.
3. Organisation & Personnel.
4. Risk Management.
5. Operational Controls.
6. Human Factors.
7. Management of Change.
8. Incident Management.
9. Performance Monitoring.
10. Occupational Health and Wellbeing.
11. Environment.
12. Emergency Response.
13. Audit & Review.

- **Safety Assessments**

We engaged with workers, safety specialists, emergency services, and contractors to identify the major Incident risks on our depots. These are:

MI-01: Loss of containment during ship operations

MI-02: Loss of containment from underground piping

MI-03: Loss of containment from pressure vessel or piping

MI-04: Loss of containment during road tanker operations

MI-05: Loss of containment of mercaptan

We conducted multiple studies to ensure that we fully understood our risks:

- *Risk and Assurance Statements*
- *Quantitative Risk Assessments*
- *Process Safety Audits*
- *Layers of Protection Analysis*
- *Human Factors Review of Safety Critical Procedures*
- *Control Building Vulnerability Assessments*

We ensure that our controls for those risks mean that we can operate safely. We understand the objective of each of our controls, we ensure that the controls are certified and regularly reviewed, and we monitor their performance.

- **Emergency Planning**

We regularly practice our emergency response in collaboration with workers, the emergency services, and the local authorities. We have controls to ensure that we will detect any issues very quickly, and others that help us to safely manage an emergency. These include comprehensive gas detection, fire detection, automatic shutdown systems, and water deluge systems.

In the rare event of an uncontrolled release, a fire siren will sound, the plant will shut down, water sprays may activate, and the Fire Service will automatically be alerted. These actions will occur even if it is a false alarm.

Neighbours will receive an eTXT to notify them of an uncontrolled LPG release. The text will say whether self-evacuation away from the depot is required. Do not approach the depot with ignition sources such as cell phones. Although LPG is not toxic and readily evaporates, in cold conditions with low wind speeds, a visible vapour cloud may travel a distance on our depot.

Self-evacuate away from the direction of a visible vapour cloud.

Liquigas Summary and Further Information

LPG (Liquefied Petroleum Gas) is widely used in over 90,000 New Zealand homes and businesses as an efficient and economical source of heating, cooking and as a fuel for some vehicles. About 50% of the LPG used each year is managed by Liquigas, New Zealand's leading company for storage and distribution of bulk LPG.

Liquigas is based in New Plymouth and has a comprehensive infrastructure network, with staff and depots in New Plymouth and at Port Taranaki, Auckland, Christchurch and Dunedin. The Port Taranaki facility is predominantly used for the gathering, storage, and transfer of LPG to ships. The other depots receive LPG from ships or road tankers and provide a safe, bulk supply for our customers.

What is LPG?

LPG is the generic name for a mix of 40% butane and 60% propane gasses that when lightly compressed, change to a liquid. It is a cleaner burning fuel compared to petrol, diesel, wood, coal or fuel oil, and it is not a greenhouse gas, making it one of the most environmentally friendly carbon-based fuels available.

LPG is also easy to store and transport because it is 270 times denser in liquid form than in gas form. Although it is neither toxic nor poisonous, LPG is highly flammable. A chemical is added to odorless LPG to ensure that leaks (even small ones) can be detected.

Storing LPG Safely

To safely manage the bulk storage and distribution of LPG, our people are highly trained and work in an environment that puts safety first.

Our sites have been designed and constructed to the highest standards of safety, and we were the first company in the world to fully mound our steel storage tanks by encasing them in sand. Mounding our storage tanks provides a significant barrier against fire and external impacts and allows the tanks sufficient movement in the event of an earthquake.

Our steel tanks are also relatively small, with a capacity of 100 tonnes each, to provide maximum safety and flexibility.

We have various gas, fire and earthquake detection systems that will automatically shut down and isolate the entire LPG storage system, ensuring that our people and the communities we operate in are always safe. These safety systems are reviewed regularly to ensure we retain the highest levels of safety technology.

Emergencies – what you should do

In the rare event of an uncontrolled release, a fire siren will sound, the plant will shut down, water sprays may activate, and the Fire Service will automatically be alerted. These actions will occur even if it is a false alarm.

Neighbours will receive an eTXT to notify them of an uncontrolled LPG release. The text will say whether self-evacuation away from the depot is required. Do not approach the depot with ignition sources such as cell phones. Although LPG is not toxic and readily evaporates, in cold conditions with low wind speeds, a visible vapour cloud may travel a distance on our depot. Self-evacuate away from the direction of a visible vapour cloud.

Major Hazard Facility

Due to the quantities of LPG that we store at our sites, Liquigas is known as an upper tier Major Hazard Facility under the Health and Safety at Work Act 2015. We have a responsibility to prove to WorkSafe New Zealand that our safety, operating and maintenance systems keep our risks as low as possible, and our people and communities safe. More information about Major Hazard Facilities can be found at www.worksafe.govt.nz

Contact Us

For further information on Liquigas or our safety systems, including our Safety Cases, please visit our website at www.liquigas.co.nz or call Gary Heaven (Operations & Safety Manager) on 06-759 0560.

Liquigas Head Office

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Auckland Depot

This 2,300 metric tonne (MT) installation is sited at Wiri, adjacent to the Wiri Oil Services installation. The depot is supplied by road tankers from Taranaki production fields.

40 McLaughlins Road
Wiri, Manukau City
Auckland 2104

Taranaki Depot

Liquigas has storage at Oaonui and a further 1,000 MT at Port Taranaki. A fifty-kilometre Liquigas-owned pipeline links the two. They have been in operation since February 1984 when the first bulk supplies of LPG were shipped to Dunedin.

Hutchen Place
New Plymouth 4310

Christchurch Depot

This 2,000 MT depot at Woolston is supplied by a ten-kilometre pipeline over the Port Hills from Lyttelton. It was commissioned in August 1985. The Lyttelton pipeline is supplied by ships from Port Taranaki and Australia.

50 Chapmans Road
Woolston
Christchurch 8022

Dunedin Depot

This 1,300 MT depot became operational in February 1984. It is supplied by ships from Port Taranaki and Australia.

254 Fryatt Street
Dunedin 9016

File No: LQ3501-Community Engagement Information

April 2024

At Liquigas, we are guided by values that shape how we work. We believe that health and safety comes first.

We care for the environment we operate in and never stop learning or improving. At the foundation of all these values, respect and integrity take pride of place.