



PETROLEUM AND GAS INSPECTORATE

SAFETY ALERT

No: 23

Date: 06 December 2005

SUBJECT: TWO-STAGE GAS REGULATOR FAILURE

What Happened:

There have been a number of failures of 2-stage gas pressure regulators on LPG installations throughout Queensland. Laboratory experiments have shown that under certain circumstances liquid LPG can enter regulators and may damage non-metallic components including the regulator diaphragm. Most regulator failures have led to the regulator ceasing to pass gas, but in a few cases a diaphragm has ruptured leading to serious leakage of gas. This problem has occurred in many types of regulator and on most brands of gas.

Key Issues:

- Under some conditions LPG liquid can condense in the high-pressure flexible hose or copper pigtail joining the cylinder to the regulator.
- If the regulator is placed below the level of the cylinder outlet or a significant portion of the pigtail is above the regulator inlet, this liquid can drain into the regulator and may affect non-metallic components.
- Continual exposure of non-metallic components to liquid LPG can result in deterioration and failure.
- Excessive use of thread sealant can lead to contamination of LPG liquid.

Recommendations:

1. Mount regulators above the level of the cylinder valve.
2. Fit an elbow to the inlet to keep pigtails below the regulator as far as possible.
3. Use Teflon[®] tape rather than thread sealant on high-pressure joints.

Contact for Further Information:

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Note: This information represents the best available at the moment. Experiments are continuing and further advice will be provided as new results come to hand.