

UNDER PRESSURE



Trade association Liquid Gas UK and the Department for Transport (DfT) are collaborating in an ongoing programme

of tests on pressure relief valves fitted to tankers transporting liquefied petroleum gas (LPG).

The association's hope is that the industry-funded programme's findings will permit valves to be physically tested and replaced if necessary every six years, with an intermediate three-year visual inspection, as opposed to a requirement to conduct a full physical test every three years. Such a change would require either an amendment to section 6.8.2.4.3 of the ADR (International Carriage of Dangerous Goods by Road) regulations, says the association, or an authorisation from the competent authority: here, the DfT.

"An amendment to ADR would be the preferred route, but regardless of the route that is chosen, a robust evidence base will be needed for such a change to take place," Liquid Gas UK states.

The existing three-year requirement is putting considerable pressure on LPG tanker operators. Around 800 to 900 relief valves are fitted to LPG tankers in service in the UK, some of which have two or more. The valve or valves have to be removed from the tanker, which has

Onerous testing requirements for LPG tanker safety valves may be in line to be reduced based on an operational trial currently under way, reports Steve Banner

to be de-gassed, then bench tested and calibrated by a competent person. This invariably involves the valve being sent off to an independent test house and the tanker being off the road for a week, leading to lost earnings. The cost of removing the valves and refitting them has to be factored into the equation, too; any additional costs incurred by LPG transport fleets are likely to be passed on to customers at a time when energy prices are rising steeply.

"Taking tankers off the road, especially in the run-up to winter, could affect deliveries of LPG, which is of course used to heat homes and commercial premises," observes one industry insider. "Bear in mind, too, that de-gassing a tank always has safety implications, and should not be done more frequently than is strictly necessary."

The test work mandated by the DfT programme is being carried out for Liquid Gas UK by KC Pro Supply UK. It involves three checks of the pressure at which the valve opens and reseals, which are then compared to the set pressure and the hydraulic test pressure for the tanks to which they are fitted.

Given that there is no requirement to test valves on tankers that are about to be scrapped, or that are newly constructed and have not long entered service, the programme is likely to involve at least 300 valves. They are all made by USA-owned manufacturers under either the Fisher or the Rego brand, and are of a full- or semi-internal design, says the association. There is no suggestion of a problem with either of these makes of valve; such valves have a long track record of reliability, says the association.

KC ProSupply UK, owned by Denmark-based Makeen Energy, sells LPG components and equipment, services and reconditions them, and manufactures a number of products itself. They include compressors and hand-pumps.

THE RULES

The ADR rules do not in fact require relief valves to be fitted to LPG tankers, says Liquid Gas UK, and they are not usually installed on tankers operated in certain major European markets, including France, Germany and Spain.

“Valves should not have temporary nor permanent modifications in order to bypass the need for special tools to carry out work”

Health and Safety Executive

If they are in place however, then they must be periodically tested.

A complicating factor is that LPG tanker barrels and their related equipment must undergo a statutory inspection once they are three years old. DfT wants valves being tested under the programme to be left alone at this stage, however, and not touched until at least year four, by which time they should have done enough work to ensure any problems are revealed.

To allow this to happen, DfT issued a notice under Regulation 12 of the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (as amended). Dated 9 March 2021, it disapplies the three-year ADR requirement so far as valves encompassed by the programme are concerned. That notice will remain in force until 30 April 2025. The valves still have to undergo a visual external examination for corrosion and damage, and a visual check of the set pressure from checking the documentation or the marking on the valve.

The disapplication applies solely to a roster of trucks, trailers, tanks and relief valves listed in a series of schedules attached to the notice. The trucks are identified by their registration numbers, the rest of the equipment by various identification numbers. The operators affected are listed, too: Avanti Gas,

Calor Gas, Flogas, J Gas (Regional), and Carvers. In total, 153 trucks are affected, along with 52 trailers.

An LPG tanker pressure relief valve test programme was originally rolled out by the UK government back in 2017, with preliminary results disclosed to an ECE (Economic Commission for Europe) Inland Transport Committee working party on the transport of dangerous goods in 2019. At that stage, 145 valves representing approximately 16% of the valves fitted to LPG road tankers in the UK had been tested, with no significant problems detected.

“Significantly, from a safety perspective, the results indicate that all pressure relief valves evaluated under this programme would have provided overpressure protection, and that there is reason to be optimistic that their performance is not likely to deteriorate between periodic inspections,” the UK government told the working party.

However, it also added: “The test programme will continue until such time that there is sufficient data on which to base a decision as to whether pressure relief valves should continue to be physically tested at intermediate inspections, or checks allowed on the basis of marking on the valve (that is, marking of pressure relief valve set pressures) or of the associated documentation.”

Two years later, DfT was unable to say when a decision was likely to be reached. A spokesperson stated: “We continue to ensure that worker safety is paramount in the haulage sector and will announce the findings of the review soon.”

INCIDENT

Something which may have prompted an increased focus on pressure relief valves by the DfT in recent times is an incident that occurred in April 2020 involving a tanker transporting nitric acid, rather than LPG. The driver noticed vapour coming from the tanker pressure relief valve, so he stopped at the roadside and rang the emergency services. The police closed the road, and it remained closed until the tanker barrel had been fitted with a replacement valve. Once that had been done, the truck continued the short journey to its destination where it was safely discharged. No one was injured during the event, and no damage was done to the vehicle.

The problem arose because the vacuum relief element of the valve had become stuck in the open position, allowing hazardous vapour to escape, says the Health and Safety Executive. It jammed because the valve had been modified in a way that made it unsafe, adds the HSE. The flanged bolt on the end of the valve stem had been removed, and a nut welded to the valve cap. The end of the valve stem was able to catch on the thread inside the nut, preventing the vacuum relief element of the valve from closing.

“It is likely that this modification was made when the valve was removed for routine servicing,” the HSE says. “The addition of the nut allowed the valve cap to be unscrewed without using a special tool. Valves should not have temporary nor permanent modifications in order to bypass the need for special tools to carry out work.” Its full safety bulletin is available via www.is.gd/mohicu. 

