

ICL Plastics disaster

With the publication last month of Lord Gill's inquiry report into the ICL Plastics Glasgow disaster, Brian Tingham reviews the lessons to be learned for plant engineers everywhere

The ICL Plastics' Maryhill explosion in 2004, in which nine died and 33 were injured, was entirely avoidable, according to Lord Gill's inquiry report, published on 16 July.

A quantity of LPG had leaked from a crack in unprotected and corroded underground pipework. The gas, which had migrated into the four-storey Victorian factory, ignited, and it collapsed.

Lord Brian Gill, Scotland's second most senior judge, finds primary causes including: the old LPG pipe was "out of sight and out of mind"; and it was inadequately protected when buried, then corroded and failed. ICL's management, he says, "lacked knowledge and understanding that LPG is heavier than air and, when escaping, will track to accumulate at the lowest point in drains, ducts and voids, presenting the danger of an explosion."

Widespread problem

Lord Gill also refers to opportunities missed when the factory's yard was raised in 1973 and later, "when the chequer plate floor was laid over the open pit area, the LPG safety implications were overlooked". Most worryingly, he asserts that the inquiry's findings are "not atypical of users of bulk storage LPG more widely". And he adds: "As matters now stand, there is every possibility that a similar disaster could occur again."

Why? Because the inquiry also identifies "serious weaknesses in the existing health and safety regime, arising from the complexity of the legislation

and a lack of effective communication between HSE, UKLPG, suppliers and users on safety".

Lord Gill specifically cites deficiencies in the HSE's oversight of ICL "in failing to appreciate the significance of buried pipework [and] failing to pursue follow-up visits promptly". He also criticises HSE's lack of caution in agreeing a compromise, instead of excavating the pipework for inspection.

Fast forward to today, though, and he cautions: "Nearly five years after the explosion, HSE has not produced a coherent action plan. While the probability of another explosion may be low, the consequences of a similar event, should it occur, may be catastrophic. A sense of urgency would be an appropriate response."

In his response, HSE chief executive Geoffrey Podger says: "HSE has already done a great deal since the accident, especially in preparing for a comprehensive programme by the UKLPG suppliers for buried metal pipework to be replaced with newer and more robust plastic pipes.

"UKLPG signed up to the replacement plan in June and work has already started, ramping up in October, following data collection, risk assessments and a promotional campaign to alert duty holders."

One point remains. As Lord Gill puts it: "The primary responsibility for LPG safety continues to lie with the person who creates the risk – the site user... No amount of responsibility ... on the part of any third party can ever be said to absolve the user." And that doesn't only apply to LPG. **PE**



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Safety regime failures

- HSE and suppliers have only uncertain estimates of the scale and problem of metallic underground pipework.
- None of this pipework is subject to inspection, maintenance or data recording (drawings, plans and maintenance records).
- There is no uniformity of practice regarding responsibilities between user and supplier.
- There is no safeguard preventing dangerous plants from buying LPG.
- Pipework may be laid by those with no expertise in LPG safety.
- Physical surroundings may be changed without risk analysis.
- Compliance with statutory risk assessments gives limited assurance.
- There is a lack of clarity between HSE and local authorities around safety standards where there is an LPG supply.
- HSE has failed to institute a prioritised system of inspection of older LPG installations with buried pipework.
- There is insufficient training of inspectors in LPG hazards
- There has been a failure to ensure effective follow-up of inspections.

Key recommendations

- Lord Gill's action plan is aimed at all bulk LPG installations and he asks relevant parties to consider four phases.
- The priority, he says, is to identify those sites "where there is underground metallic pipework ... and, thereafter, to replace all such pipework ... with polyethylene".
- He also wants simultaneous inspection of all buildings having an LPG supply to identify existing hazards.
- Phase two, which he wants to run concurrently with the pipework replacement, is "to establish a permanent and uniform safety regime governing the installation, maintenance, monitoring and replacement of LPG systems". He talks of lifecycle integrity.
- Third, Lord Gill wants continuing and planned development of the safety regime around polyethylene pipes.
- Finally, he calls for a "permanent system by which safety questions will be reviewed and dealt with industry wide". The point: learning lessons, and sharing insights and experience.