



Prospect's submission to Phase II of Lord Gill's inquiry into the circumstances leading up to the incident on 11 May 2004 at the premises occupied by the ICL group of companies, Grovepark Mills, Maryhill, Glasgow

1. This submission responds to Lord Gill's 22 July 2008 document on next steps following the conclusion of Phase 1. It answers the call at paragraph 1d of that document for findings of fact with supporting evidence from interested parties.
2. We invite five findings of fact:
 - a. We invite Lord Gill to find that the HSE guidance to inspectors on the risk of explosion from a leak of underground pipelines conveying LPG was ambiguous. HSE internal guidance emphasised the risk from liquid lines. As a result, operational inspectors believed the greater risk came from a leak of liquid LPG. In particular, the guidance advised inspectors that formal enforcement could only be taken against a risk from liquid lines. As a result, operational inspectors believed it was not an HSE priority for them to enforce against vapour risks. Thus Inspectors acted reasonably in line with their operational instructions;
 - b. We invite Lord Gill to find that HSE Chemical Series 5 and Guidance Document HSG 34 to inspectors and industry did not suggest that underground vapour pipelines posed a high risk or required a specific enforceable maintenance regime. Further, that HSE operational training and guidance rightly focused on what was perceived as the major off site risk from a BLEVE. The HSC's Advisory Committee on Dangerous Substances did not identify leaks from underground LPG vapour pipelines as a priority topic. THE HSE National Interest Group on Chemicals did not identify a vapour leak from underground vapour LPG pipelines as a priority topic and did not believe that the HSE had sufficient resources to second-guess the judgment of the LPG industry;
 - c. We invite Lord Gill to find that neither Alistair Gunn's nor Alan Tyldelsey reports on LPG considered a leak of LPG would result in a catastrophic explosion resulting in a complete collapse of the premises; therefore inspectors' actions should be construed in this light of this judgment;

- d. We invite Lord Gill to find that if the causes of the Daventry incident had been circulated to field inspectors then they would have responded with clearer understanding of the potential for disaster from an underground vapour leak of LPG. Information regarding the underground structure was lost to inspectors as was the fact that the contractor had installed unprotected pipe not to LPGITA Codes/standards; and
- e. We invite Lord Gill to find that financial pressures on resources on HSE from 1984-1992 were a major influence on how inspectors carried out their work and that the techniques of inspection used were based upon HSE guidance and not merely left to inspectors' discretion. In particular, inspectors were expected to use sampling and diagnostic management inspections so the HSE could continue to provide an acceptable public service with limited resources.

Section 1: We invite Lord Gill to find that the HSE guidance to inspectors on the risk of explosion from a leak of underground pipelines conveying LPG was ambiguous. HSE internal guidance emphasised the risk from liquid lines. As a result, operational inspectors believed the greater risk came from a leak of liquid LPG. In particular, the guidance advised inspectors that formal enforcement could only be taken against a risk from liquid lines. As a result, operational inspectors believed it was not an HSE priority for them to enforce against vapour risks. Thus Inspectors acted reasonably in line with their operational instructions.

3. Counsel to the Inquiry lodged FIC 286/43 of 1980 as a production. Paragraph 1 refers to standards for pipes carrying **liquid**. It mentions that "similar standards "... "could be applied with advantage "to pipes carrying vapour. The phrase "applied with advantage" suggests that it is in the nature of advice rather than an enforceable standard. If enforceable standards for both vapour and liquid were being set, there would be no need to make this distinction to inspectors. It is clear that the author does not require enforcement on vapour so tries to suggest application of the standard as an example of good practice. The phrase 'applied with advantage' appears to be unique to this instruction. It was not found in other FICs.
4. The inquiry should be aware of the FI 8 internal memorandum of 4/8/1981 (not lodged at Phase 1 but available) Further corroboration is also found in this important internal HSE memorandum .We understand that HSE gave a copy to Elaine Taylor, Principal Depute COPFS, during the initial investigation. This document recorded a discussion between the then Fire and Explosion principal inspectors at their headquarters meeting. This was a memo discussing concerns over FIC286/43 as well as the response from industry and field inspectors to its contents. It is important since it reveals concern over enforcement standards and interpretation.
5. Paragraph 1 of the memorandum notes that FIC 286/43 had originally been intended for lines containing **liquid** LPG. This again reinforced the belief among inspectors that the standard was aimed at then risks associated with liquid LPG not vapour. It sets the scene regarding the LPG industry's concerns and the variations in inspectors' response.

6. Paragraph 1 continues: "There were variations in standards being used throughout the country as people had various opinions on how far Inspectors could go in asking for:
 - (a) masonry or concrete line trenches; and
 - (b) physical examination of buried pipe work
7. The memorandum notes, "It should be remembered that until recently we had not been asking for either of those precautions and industry were reluctant to see any changes introduced and wished to continue using the advice given in LPGITA Code of Practice no1."
8. The important conclusion for the current Inquiry to note particularly is the enforcement line for LPG lines containing gas at less than 2 bar pressure (as was the case at ICL) where

"Pipelines should ideally be in a concrete or masonry lined trench etc and examined after ten years, but **this standard could only be suggested and not enforced**. It was agreed that this standard would not normally be asked for low pressure gas lines, particularly for lines made of plastic piping"
9. This shows the HQ section dealing with Fire & explosion made a clear distinction between standards that could be legally enforceable and those that can be suggested or 'applied with advantage.' This distinction was again raised in the revised FIC.
10. FIC 286/43 of 27/9/83 (lodged as a production by Counsel to the inquiry) Paragraph 1 identifies underground steel pipes conveying liquid LPG as the topic.
11. Again this FIC reflects ambiguity over the difference between liquid and vapour LPG when it notes in the same paragraph that:

'Underground pipes conveying LPG vapours are specifically excluded by this FIC but the standards recommended are "good practice"
12. This phrase was a portmanteau expression used to tell inspectors that the guidance was not enforceable.
13. Clear evidence of the HQ concern over the enforcement side is demonstrated again in Paragraph 19. It suggests an awareness of potential enforcement problems even for liquid pipes It requires that "FI 8 should be consulted via FCG where enforcement action is being considered" It is clear that the HQ section for Fire and Explosion expected to be involved in such operational decisions.

Section 2: We invite Lord Gill to find that HSE Chemical Series 5 and Guidance Document HSG 34 to inspectors and industry did not suggest that underground vapour pipelines posed a high risk or required a specific enforceable maintenance regime. Further, that HSE operational training and guidance rightly focused on what was perceived as the major off site risk from a BLEVE. The HSC's Advisory Committee on Dangerous Substances did not identify leaks from underground LPG vapour pipelines as a priority topic. THE HSE National Interest Group on Chemicals did not identify a vapour leak from underground vapour LPG pipelines as a priority topic and did not believe that the HSE had sufficient resources to second-guess the judgment of the LPG industry

14. HSE CS (5) of 1981 requires alterations to site conditions only when reasonable or when public safety is involved. This shows the emphasis was placed on offsite risk. The introduction notes that recommendations would, not be applied if was not practicable to apply them. There is nothing in this document on underground pipelines.
15. HSG 34 dated 1987 (lodged at Phase 1) provided guidance for people storing LPG and those enforcing safety requirements. The only reference in this document to maintenance of underground LPG pipe work is at paragraph 188. This requires a ten-year test of underground pipe work containing **liquid** LPG. Testing vapour pipelines is not suggested to operational inspectors. Its opening page records that it should not be regarded as an authoritative interpretation of the law. It also confirms that the Health & Safety Commission's Advisory Committee on Dangerous Substances has endorsed its contents
16. The Advisory Committee on Dangerous Substances (ACDS) was an expert committee, which reported to the Health & Safety Commission on substances including LPG. There is no record demonstrating their concern or interest in underground pipelines. By contrast, for example, the ACDS in 1991 published advice on the transport of dangerous substances. It assessed six accident scenarios, which would require mass evacuation of people nearby. This included; a vapour explosion and fireball from an LPG tanker leading to several hundred deaths;
17. The HSE Chemical National Interest Group report for 1984, published in 1985, observes that it was entirely appropriate that a high proportion of the NIG's resources were devoted to major hazard work given the potentially high casualties of a major explosion as demonstrated by the Mexico City LPG explosion that killed approximately 500 people in 1984 and Bhopal.
18. The report discusses the resources available for to the Control of Industrial Major Accident Hazard Regulations 1985; It concluded that "There is no way for HSE to duplicate the expertise of industry nor to second guess industry's designers and operators. The resources and detailed expertise are simply not available" This was recognition of the limits of HSE technical expertise.

Section 3: We invite Lord Gill to find that neither Alistair Gunn's nor Alan Tyldelsey reports on LPG considered a leak of LPG would result in a catastrophic explosion resulting in a complete collapse of the premises and that inspectors' actions should be considered in this light.

19. Despite the considerable expertise of Messrs Gunn and Tyldelsey, neither report envisaged a catastrophic explosion as a reasonable hazard against which to take precautions. Neither did the insurance surveyors consider this as a likely incident during their visit, which reflects the reasonableness of the decision not to consider catastrophic explosion further.

Section 4: We invite Lord Gill to find that if the causes of the Daventry incident had been circulated to field inspectors then they would have responded with clearer understanding of the potential for disaster from an underground vapour leak of LPG. Information regarding the underground structure was lost to inspectors as was the fact that the contractor had installed unprotected pipe not to LPGITA Codes/standards

20. The 1987 Daventry explosion was not brought to the attention of field inspectors. The significance of an undetected (by smell) underground vapour pipe leak into an underground structure was lost to operational inspectors. Evidence led at the inquiry from inspectors confirmed that their actions would have been different if they had been made aware of this incident. The lessons from Daventry are significant as it was the only recorded investigation into near fatal injury from an underground vapour pipe leak in Great Britain prior to ICL.

21. The Crown narrative at the prosecution hearing drew attention to Daventry as identifying the state of knowledge of the risk from an underground vapour leak. A revised FIC 286/43 could have used this incident as a potential ground for unambiguous enforcement grounds on dealing with underground vapour pipelines but it did not.

22. The HSE Specialist inspector's report into Daventry could have been added to that FIC. It recognised that pipelines could corrode and fail suddenly in a short space of time. This information was not included in the FIC.

Section 5: We invite Lord Gill to find that financial pressures on resources on HSE from 1984-1992 were a major influence on how inspectors carried out their work and that the techniques of inspection used were based upon HSE guidance and not merely left to inspectors' discretion. In particular, inspectors were expected to use sampling and diagnostic management inspections so the HSE could continue to provide an acceptable public service with limited resources.

23. The HSE completed an internal review of its operational impact in November 1991, known as the Impact report. All HSE staff received a copy of this report but it was not published outside the HSE. It is an important document since it reflects critically on the problems affecting the HSE in 1991 and responses then current. It describes an organisation where the resources were overwhelmed by the workload demand.

24. Page 16 paragraph 3.6 deals with Resources and Workload and the backlog of work throughout the division. It notes that in 1991:

"In practice pressure on resources over the past 7/8 years has meant that FI (Factory Inspectorate) has been unable to clear all the premises that have been brought forward each year. This has resulted in the production of a backlog of unvisited premises. The effect of the accumulating backlog has resulted in approximately 35% of premises not receiving a preventive inspection during the period and being visited only reactively."

25. The Impact Report recognises, at page 41 paragraph 6.5, that there has been little attempt at a formal description of inspection techniques and suggests that the Division define key inspection competencies. This is a more subtle argument than one merely based on the number of inspectors as it addresses the quality of inspections as well as their frequency.

26. The experience and defined competence of individual inspectors is relevant to the type of inspection carried out. For example in FOD Scotland at 2008, there are 35 regulatory specialists. About 12 have less than 5 years experience. These 12 are currently engaged on a heavy training commitment

27. At page 42, paragraph 6.7; the Impact Report notes that the style of inspection has changed to an assessment of safety management systems. There is also reference of a move away from premises inspection to management systems inspection.

28. The HSE also published a follow up document called The Practice of Inspection in 1995. Paragraph 75 of this document outlines the inspection objective of assessing the management health and safety. In bold emphasis it concludes:

"The emphasis of inspection is on assessing management ability and understanding to secure the effective control of risk, rather than on checking compliance with the legal standards."

29. This recognises the inspectors move away from a traditional walk about looking at individual items of plant and supports an approach based on assessing management systems to ensure that the HSE can effectively regulate safety with limited resources. The inspectors who inspected ICL acted in line with this approach as required by their employer, the HSE.

14th August 2008

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