

## ICL INQUIRY STATEMENT

### DR TERENCE JOHN RITTER

1. I have a First Class Honours Degree and a Ph.D. from Brunel University in Applied Chemistry and I am a Chartered Chemist and a member of the Royal Society of Chemistry.
2. I originally worked for 11 years at British Gas, London Research Centre in the Chemical Plant and Process Group. I was involved in the research and examination of the processes for the removal of acid gases from substitute natural gas. I joined Calor in November 1988 as Chief Chemist and after 12 months was promoted to Chief Chemist and Appliance Laboratory Manager in the company's Technical Services Department. In 1997 the laboratories closed and Calor moved to Warwick. I moved into the Technical & Engineering department. I studied for and achieved a NEBOSH (National Examination Board of Occupational Safety and Health) Diploma in Occupational Health and Safety Management. In 1998 I took on responsibility for the health and safety department at Calor. This relates principally to work place safety and occupational health and safety of our employees and contractors. Calor has 9 top tier COMAH sites and 24 lower tier COMAH sites. "COMAH" stands for Control of Major Accident Hazards Regulations **[ICL/03896-04032]**. Top tier sites are sites where more than 200 tons of LPG is stored. Lower tier sites are where more than 50 tons of LPG is stored. Two of the 9 top tier sites are terminals importing LPG from overseas. The remaining 7 top tier sites are filling plants. The lower tier sites are comprised of "break bulk" sites for regional distribution and smaller filling plants. They also include larger cylinder storage depots. In total Calor has approximately 70 sites. The focus is on storage, handling and distribution. I am involved in: the development of general health and safety training programmes; major hazards compliance; manual handling; compliance with the Control of Substances Hazardous to Health Regulations

(COSHH); risk assessments and other aspects of fulfilling employer responsibilities and duties in this area [ICL/02693-02698]. The specific training of, for example, tanker delivery drivers and maintenance engineers is carried out within the specific business units or departments in which they are employed. There are separate functions within Calor dealing with customer engineering, operational engineering and transport issues. I later added environment to my role when my title changed to Safety, Health & Environment Manager.

3. From 1997 I represented Calor on the Technical Management Committee of the Liquefied Petroleum Gas Association (LPGA). The LPGA was the representative body of the industry and sets industry standards. At the start of 2008, the LPGA merged with ALGED (Association of Liquefied Gas Equipment Distributors) to form UKLPG.
4. This Technical Management Committee met four times a year and had representation on it from the LPG supplying companies and equipment manufacturers as well as the LPGA technical manager. It routinely reviewed a number of matters. One review was a "Serious Incident Review". This involved verbal reports from members around the table of any serious incident which may have occurred. A "serious incident" is an incident involving the handling, distribution or storage of LPG which results in a serious injury. Discussion about a serious incident may lead to a proposed change in a LPGA Code of Practice or to the issue of a Technical Memorandum. Other issues reviewed were: that of progress on LPGA Codes of Practice and their development; any developments in legislation and meetings which had taken place with HSE or other Government Departments or Bodies, such as the Department of Transport. A review was also made of the European scene in relation to matters brought up at or by the European LPG Association (AEGPL - Association Européenne Gaz de Petrole Liquéfiés). These were the main focuses of the Technical Management Committee of the LPGA, which has now been superseded by the

UKLPG Technical and Safety Management Team (the Committee) of which I am currently the Chairperson. The above issues are still reviewed within this new Committee.

5. I am currently Calor's representative on the new UKLPG Board which also has, as Board Members, representatives from other LPG supply companies, equipment manufacturers and Autogas companies who are also members of UKLPG.
  
6. I am also Calor's lead contact with the HSE and the Environment Agencies and have a team of 3 Health and Safety Advisors and one senior Safety, Health & Environment (SHE) advisor who carry out the auditing of Calor's operational and sales locations. I used to chair the Company's Safety Health and Environment Management Steering Committee. Two years ago, this was replaced by the Safety, Health and Environment Business Management Team Meeting (SHEBMT) chaired by the Managing Director. This meets quarterly and carries out, amongst other issues, a review of "Lost Time Accidents". These are accidents involving an employee or contractor resulting in a major injury or the loss of more than three consecutive days from work due to injury as defined in the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) [ICL/05638-05691]. Information on "dangerous occurrences" e.g. a major accident involving an LPG delivery tanker, near misses and "consumer incidents" are also presented. A consumer incident is, for example, an accident involving a customer on their premises. A number of these types of incidents would be reported to the HSE under RIDDOR. If it is a serious accident, then investigation will follow and a report will be made to the SHEBMT. Progress on major SHE projects and initiatives are also reported, a current initiative being in relation to pipework nationally. This is one of the national priority projects which is brought to the SHEBMT every quarter to review the progress being made. Mr TOMLIN was responsible for this but, since he left Calor, this responsibility has fallen to his previous manager, Graeme LOCKWOOD. Graeme is Calor's

National Engineering Manager. The SHEBMT is the main company forum for feeding back to Director and Senior Management levels and deciding strategy and policy on safety, health and environmental issues affecting the company.

7. I report to the Operations Director, Jim KEARNEY, who is a board director of Calor reporting to the Managing Director, currently Alex DAVIS.

### **Calor's Interface with customers**

8. The principal ongoing interface with a customer after a contract has been agreed is with the tanker delivery driver. In addition customers have an assigned regional Customer Operation Centre to deal with any enquiries. Tanker delivery drivers are required by law to have an "ADR" licence which relates to the European Agreement concerning the International Carriage of Dangerous Goods by Road and are also specifically trained to comply with Calor's Driver's Manual. This includes a requirement to carry out a Bulk Installation Defect Report (BIDR) prior to delivery of the LPG.
9. A BIDR is essentially a checklist carried out by the driver before delivering LPG into the vessel. An example has been provided to the ICL Inquiry team [ICL/13818]. The BIDR checklist includes a visual examination of the adjacent area for flammable materials and overgrown vegetation, whether the vessel, vessel fittings and immediate pipework is severely corroded or damaged, the presence of hoods, locks, warning notices and earthing tags, as well as whether the tank requires painting. The BIDR checklist used to be printed on the back of the delivery note; it is now incorporated on the driver's onboard truck computer and is electronically transmitted to Calor's computer system. Instructions for the use of the BIDR system is contained within the Calor Driver's Manual [ICL/requested] and forms part of the specific training given to the driver referred to above.

10. The BIDR does not include any inspection of the overall installation, underground pipework, the riser at entry to a building or the appliances being operated by LPG. Calor tanker delivery drivers are not LPG qualified (CORGI) gas engineers and these items are the responsibility of the customer (who owns or controls them) under the relevant legislation.
11. If the driver can fix the defect on-site (e.g. fitting a hood or padlock) then he does so; if not, then the defect is reported to the company's Customer Engineering team, or to the Emergency team if immediate action is required. There are standard letters available at area level to send to customers for any issue identified on the BIDR which is the customer's responsibility (i.e. matters under the Customer's control, for example, overgrown vegetation).
12. BIDR forms part of Calor's Written Scheme of Examination of vessels under the Pressure Systems Safety Regulations (PSSR) **[ICL/04546-04568]** requirements, which includes the examination of bulk vessels every ten years by a competent engineer
13. Transfer operations are particularly hazardous and have the potential to lead to a major incident. There are specific requirements that have to be met and procedures in place to manage this risk. Occurrences of major incidents in the LPG industry are consequently very rare
14. Our Emergency Service operates 24 hours, 7 days a week. We receive approximately 8,000 callout requests each year. A CORGI registered gas fitter, either a subcontractor or from our subsidiary company CalorForce Limited would attend, make safe and rectify the problem, if possible. If the callout involves an incident of a serious nature, this would be flagged higher up and, depending on the nature of the incident, would determine who we would send to the incident's location to undertake an investigation. The first response engineer as well as

making an installation safe would, for example, also repair any minor gas leak or reset the under or overpressure protection device. The type of repair depends on the nature of the leak, its location and nature of the pipework involved. Replacement of the whole pipework may be necessary. The Central Engineering Manager who was, until very recently in charge of the emergency team, Gary TOMLIN, would be informed of serious incidents and I would automatically get an email from the emergency callout team which would be generated by the script responses e.g. fire, explosion or uncontrolled major gas escape. The Emergency Team work from pre-scripted responses and questions to try and ensure no important information is missed. The customer's responses are fully noted and recorded. These pre-scripted responses cover different situations such as indicated above. For a relatively minor incident a customer service engineer would attend. For a more serious incident, Dr Tony NEALE, Technical Standards Manager, or until recently, Gary TOMLIN would attend and carry out an investigation. A "serious" incident would be one, for example, involving fire, explosion, property damage, injury, carbon monoxide escape or poisoning. If there is an issue which needs to be addressed immediately then we would issue a 'safetygram' throughout the company. A safetygram is a Calor internal mechanism to raise a matter for immediate attention by managers e.g. if a faulty valve were found on a particular type of cylinder an instruction would be given to cease filling all cylinders of that type without first checking the valve. If it was something that would involve a contractor issue this would be communicated in the form of a Technical Bulletin. A Technical Bulletin will go to internal engineers and subcontractors managed by CalorForce.

15. We produce a monthly internal Safety, Health & Environment bulletin which contains all incidents reported during the month and has a wide circulation at management level within the company. We also produce an annual Safety, Health & Environment report.

16. As mentioned previously, if there was a serious incident of the nature referred to above, this would be discussed at the quarterly SHEBMT.
17. The person who investigated the serious incident would give a presentation to the SHEBMT. Where there were lessons to be learned or a change in procedure was required, this would be assigned to someone to action and the changes would be put in place. At the UKLPG quarterly Technical and Safety Management Team meetings information is shared between members with regard to incidents and lessons learned, as explained above. UKLPG may take this forward, by way of a Technical Memorandum, a User Information Sheet or a change to an LPG Code of Practice.
18. All our incident reports are passed to our insurance department. We may pass information on to our customers if it is relevant to their use/handling of LPG, or if the information is requested by the insurance company of the customer directly affected.
19. In relation to the case at Daventry in 1987 **[ICL/11510-11522]**, I was not at Calor at the time. I have looked at our archive records and all that is available is a short internal Calor incident report **[ICL/14529-14556]** identifying that the customer had installed unprotected pipework and a boiler in a basement, which was contrary to the LPGA Codes of Practice at that time and is now not permitted under the Gas Safety (Installation and Use) Regulations **[ICL/04473-04500]**. This information is likely at that time to have been sufficient for Calor's purposes, although it is clear that we were interested in hearing further from the HSE. There is a note on our incident report **[ICL/14531]** that we were waiting on a response from the HSE who had taken the pipework away to Buxton for testing. There is no further record. I understand the site to have been testing lightweight body armour for the Ministry of Defence and the incident to have occurred in a concrete bunker being used as a firing range to test the body armour. As such it is likely to have been a sensitive site for the MOD and at that point in

time it is quite possible that little to no information would have been released about the site, or about any investigations, findings or conclusions reached in consequence of those investigations.

20. Of the approximate 8,000 call outs per year, only a few relate to serious incidents with the bulk tank itself. Most call outs relate to reports of a smell of LPG. Smell indicates leakage. LPG in its natural state is almost odourless, therefore, as a key safety measure an odorant is added, either at source or at the point of distribution to ensure that the gas is detectable by humans at 20% of its lower flammability limit, in accordance with BS4250 [ICL/05106-05121] . Calor uses ethyl mercaptan as an odorant which is very pungent and has a distinctive smell.

21. I have been asked as to the usefulness of gas detection alarms. These can be of value in unoccupied areas and in areas where LPG can accumulate undetected e.g. cellars and basements. They need to be audible and correctly sited. Unlike natural gas, for LPG they need to be placed close to the ground. They need to be maintained and protected from damage. Ideally they should be combined with an automatic shut-off device, preferably fitted outside the building which would automatically isolate the gas supply in the event that gas was detected within the building.

22. Up to the date of the ICL Stockline explosion, I am only aware from our archive records (as I only became involved with health and safety in Calor from 1998) of 3 Calor Incident Reports during the previous 20 years where underground pipework was identified as being the attributable cause of the incident. One related to the Daventry incident above; another to a small fire and explosion at Calor's Ellesmere Port site which led to such pipework being formally included in Calor's pipework registration and inspection system; and the third occurred in South Wales where two people were injured and led to changes in Calor's Emergency Response script and subsequent first response

action by incorporating information learnt from the natural gas industry relating to internal and external suspected gas leaks. Gas related incidents are reported to the HSE under RIDDOR [ICL/ 05638-05691] as it has been a requirement since the introduction of RIDDOR in 1985 for employers, gas suppliers and CORGI registered engineers to report events relating to the supply and use of flammable gas (i.e. natural gas and LPG) under Regulations 6(1) and 6(2), as appropriate. The reporting of such gas incidents and dangerous gas fittings was retained in RIDDOR 1995. The HSE are therefore best placed to have an overview of the LPG industry and had the opportunity to make changes to the Gas Safety (Installation & Use) Regulations when LPG was introduced into these Regulations in 1994, in the 1996 amendment or the latest, 1998 revision, if there was any cause for concern.

23. The disastrous nature of the ICL Stockline incident focussed the industry on the potential issues relating to ageing pipework. Gary TOMLIN, as central customer engineering manager for Calor commenced carrying out surveys in 2006 to identify the various types of pipework used against age of installation and to subsequently develop a model for assessing risk and the prioritising of the replacement of ageing metallic pipework. In Calor's opinion, replacement of metallic pipework is better than its ongoing inspection. In the case of buried metallic pipework, HSE's current guidance is that inspection has to be by way of excavation but in Calor's opinion this presents a potential danger. Calor's view is that the best approach is a prioritised replacement programme and the use of polyethylene (PE) pipework. The work has to be prioritised as there are insufficient numbers of suitably LPG qualified gas engineers available who are trained and assessed for this type of work.

**The UKLPG Technical and Safety Management Team (formerly the LPGA Technical Management Committee)**

24. There were/are working groups under the Technical Management Committee, now the Technical and Safety Management Team, who work on a specific area or a LPG Code of Practice and report back to the Technical and Safety Management Team after reaching agreement. Once agreed, a draft Code of Practice would be sent to the HSE. Ceri PETRIE is the current HSE contact; previously it was Penny TAYLOR (nee BRADLEY). This is then circulated within the HSE for comment and then sent back to UKLPG with the HSE's comments. If these can be accommodated, the Code of Practice will be amended and proceed to publication. If however, there are points of discussion, a meeting is held with the HSE. Once agreement is reached, the Code of Practice will then go for publication and, where appropriate, with an endorsement by the HSE.
25. The process of consultation with the HSE regarding LPG Codes of Practice was reviewed in 2004 and there was a change of wording to the endorsement in the Foreword.

#### **Interaction of UKLPG with other bodies**

26. The LPGA (now UKLPG) has representation which I have shown on the attached chart.
27. The purpose of the chart was to show how the LPG suppliers interface with the Trade Associations, Regulatory Bodies and Standards making committees.
28. Starting at the top left of the chart Calor, together with other UK suppliers such as Shell, Flogas, BP Gas, Countrywide etc., are members of UKLPG.
29. The LPGA (now UKLPG) has produced and maintains over thirty Codes of Practice (CoP), with many being produced in consultation with the relevant Government bodies such as the HSE and the

Department for Transport (DfT). Indeed a number of the CoPs carry a foreword signed by Nick STARLING Chair, Health and Safety Commission Advisory Committee which states " *...This Code should not be regarded as an authoritative interpretation of the law but if you follow the advice set out in it you will normally be doing enough to comply with Health and Safety law in respect of those specific issues on which the Code gives advice*".

30. UKLPG is also a consultee in respect of the proposed introduction of new UK legislation such as the Carriage of Dangerous Goods by Road Regulations, Gas Safety (Installation and Use) Regulations etc. and would seek its members' opinions before responding as part of the consultation process.

31. In relation to the development of standards, UKLPG nominates representatives from its membership to sit on British Standards Institute (BSI) Committees which, in the past, would have drafted British Standards (BS). It is now more common for British Standards Technical Committees to shadow and send representatives to Committee European Normalisation (CEN) committees for the preparation of European (EN) Standards and also for the work being done in relation to the development of International Standards by the International Standards Organisation (ISO). An example here would be the BSI Committee PVE/19 which shadows the work of European Standards Technical Committee number 286 (CEN TC 286). CEN TC 286 deals with the development of EN standards specific for the LPG Industry on pressure vessels and equipment. Another committee, BSI Committee PVE/1, shadows the work of the International Standards Technical Committee ISO TC 54 on pressure vessels. A British Standards Committee can also nominate a representative from its membership to attend the relevant ISO Technical Standards Committee.

32. UKLPG, together with similar associations in other European Countries, funds the European Liquefied Petroleum Gas Association (AEGPL) and sits on its various committees. In addition, UK LPG suppliers who are part of a larger pan European group, such as Calor as part of the SHV group, as well as BP and Shell, are also represented on AEGPL.
33. AEGPL also plays a role in monitoring the development of legislation and standards at the European level and can also nominate representatives to sit as observers on CEN or ISO Technical Standards Committees. Whilst European and International standards are voluntary some of them take on a more quasi-legal status as they are directly referenced in European Directives which then are adopted as national law by EU Member States. Ageing pipework has been raised as an issue with AEGPL but I do not know what the implications are for other European countries
34. AEGPL monitors the development of European legislation and, where relevant, makes contact with the appropriate civil servant in the European Commission. AEGPL is also a member of some Technical Experts Working Groups in Europe as observers with no voting rights. For example, AEGPL is involved in the development of a European Agreement relating to the International Carriage of Dangerous Goods by Road (ADR) which will eventually be adopted as national legislation by EU Member States. In the UK, this would be as the Carriage of Dangerous Goods by Road Regulations.
35. I would emphasise that the attached chart is very much a simplified document and explanation. There are a number of additional levels of activities and associated interfaces.

**Calor's actions regarding underground metallic pipework.**

36. In February 2005 Calor attended a stakeholders meeting, as part of a LPGA delegation, with the HSE to discuss the preparation of a leaflet

on pipework for commercial customers. Calor noticed errors in the first version which was sent to the LPGA in November, 2005 and subsequently met with the HSE in January, 2006 to discuss its amendment. The final version of the HSE's "Checking LPG pipework" **[ICL/ 03573- 03574]** was received by the LPGA in March, 2006. Calor sent this leaflet to its commercial and industrial customers between May and August, 2006 under cover of a letter from me. Two different types of letter were sent by Calor; to those customers with installations pre-1992 who could potentially have underground metallic pipework; and to those customers with installations post 1992, which would most probably be non-corroding PE. The letters made it clear that they owned and were responsible for the pipework. They also offered the services of CalorForce for inspection and replacement of the pipework, if necessary. At the same time Calor established a dedicated website and customer helpline. A second reminder letter was sent in early 2007 and we recommended that any underground metallic pipework should be replaced with PE in order to reduce the risk of corrosion and possibly reduce the frequency of subsequent inspections. Calor was also involved with the development of the LPGA Technical Memorandum No. 84 **[ICL/ 04218-04231]** on the inspection of LPG pipework (which is now available as a free download from the UKLPG Website as UKLPG User Information Sheet No.15 **[ICL/14294-14310 ]**).

37. During 2006/2007, Calor undertook a survey of 500 installations in order to estimate the potential number of installations against age of installation, whether medium or low pressure and the material of the pipework used (i.e. unprotected metallic, denso wrapped metallic, plastic coated copper or PE). As indicated previously, this project was led by Mr Gary TOMLIN who also worked on the research and development of a risk-based model to assess the risk of various types of installation against such factors as age, pressure, soil type etc.

38. Calor has shared its research and risk-based model with UKLPG and the HSE at joint and separate meetings. Calor is currently awaiting validation of the model by the HSE following the current research they are undertaking. Once endorsed, the industry and the HSE will use the model to identify customers on a priority risk basis. Calor has agreed, together with the other UKLPG suppliers, to provide the HSE with lists of commercial and industrial customers in these high risk areas so that the HSE can contact them and examine the state of pipework, as well as the inspection and maintenance regime in place at these premises.

39. Most recently, Calor has issued a Gas Safety Information card **[ICL/13932]** to all its bulk customers to remind them of the importance of closing the isolation valve at the tank as well as next to the property in the event of an LPG leak. This card was laminated to aid its retention. It also raised awareness about potential carbon monoxide poisoning if appliances are not properly installed and maintained.

40. I have had no involvement with the premises at Grovepark Mills, Maryhill, Glasgow or any companies based there. I have no first hand knowledge of the incident on 11<sup>th</sup> May 2004 at Maryhill or history of the site. I only became aware of the incident through press reports and internal contact with my colleagues in Scotland including Bill DELANEY.

I confirm that the contents of this statement are true

Witness signature \_\_\_\_\_

Date \_\_\_\_\_