

**Response to Preliminary Requests to HSE for Information**

**A** The HSE is requested to identify the steps which it took between 1969 and 2008 to alert the following categories of person to their responsibilities in relation to the installation, supplying, maintenance and use of LPG in industrial premises:

- a. The landowner;
- b. The tenant ;
- c. The occupier of premises;
- d. The installer of LPG pipework;
- e. The installer of LPG tanks;
- f. The supplier of LPG;
- g. The industrial user of LPG;
- h. The employees of an LPG user.

**HSE has always used a variety of material and means for disseminating advice, information and guidance to dutyholders of all kinds. For example, HSE has always engaged with industry and technical press to raise awareness of changes in law by sending out general press notices. Further, HSE staff, including inspectors, frequently speak at events and seminars. HSE also undertakes targeted mail shots to particular groups within industry. It also liaises regularly with various trade associations. It publishes guidance and leaflets for use by the industry, and gives advice to duty holders at inspection, or when asked to advise. HSE highlights various incidents via press releases and by posting information on the HSE website. HSE recognises that publicity about large scale LPG storage accidents may not cause smaller scale users to consider their premises to be at risk. It is not possible for HSE to identify separately all steps taken over the last quarter of a century to alert varying classes of persons to their responsibilities. A further search of HSE's archives is ongoing and any relevant documents which were publicly available in the period in question will be disclosed.**

**B** The evidence in Phase One of the Inquiry revealed that on occasions follow-up visits to premises which were noted as being required within Reports on Visits forms (forms FI.42) and on other records kept by officers of the HSE were not acted upon, either at all or within the time-scale specified. The HSE is requested to explain:

- a. How this could have occurred

**Inspectors have given such as explanations as they can, having regard to the lapse of time, in their Phase 1 evidence. There are several reasons why follow up visits did not take place e.g. administrative error or deferment or cancellation. Check visits may have been cancelled or postponed to reflect other work demands and changing priorities. Fulfilling reactive work obligations may also have had an impact on follow up work. HSE cannot determine which of these reasons was the case and does not wish to speculate on why certain actions were not taken at ICL during the period under scrutiny. The ongoing inspection programme, based upon the rating system, meant that a factory can be (and in this case was) visited regularly for follow up. (e.g. January 1992 and April 1993)**

- b. What systems have been in place during the period 1969 to 2008 to minimise the risk of this happening

Since 1970 HSE has had instructions relating to the conduct of check visits. These have developed over time together with the means for monitoring to ensure that they were and are adhered to. Initially this was a paper based system which has now been computerised. Current instructions and management oversight are supported by the COIN computer system, which is designed to ensure that check visits are brought forward by the computer.

In summary, HSE policy regarding check and follow-up visits as contained in the Inspection Codes of the period 1970-1996 required check visits to be undertaken where a matter was of sufficient concern that it was essential to ensure that it had been rectified.

HSE had administrative arrangements, subsequently supplemented by IT systems, in place to provide inspectors and managers with the support necessary to ensure that check visits were properly managed. Initially this was a 'hard copy system, operated by administrative staff. Later with the SHIELD computer system, the dates of check visits were included in file entries input onto the computer by administrative staff, and stamped to confirm this action had been taken. The computer system would then provide a list of required check visits on a monthly basis. Administrative support staff would then provide the files to the appropriate inspector/principal inspector to undertake the work.

Between 1996 and 2005 the FOCUS system replaced SHIELD and included modules to alert inspectors and line managers to any outstanding work, including enforcement notices, and provided a bring forward system. Inspectors largely operated this system, but FOCUS had the facility to allow Principal Inspectors and more senior managers to confirm that the necessary action had been taken. It was in this period that inspectors, principal inspectors and regional line managers were provided with personal computers, making interrogation of the recording system much quicker and easier.

- c. What steps have been taken to address the shortcomings which have been identified by the evidence in Phase One?

Since 2005 operational procedures and the COIN computer system have provided the current standards and support systems to manage follow-up visits to premises. Whilst deciding to undertake any follow up visit is a matter of professional judgement by inspectors, the procedures set out some of the reasons for follow up visits including:

- revisiting the duty holder at some point to verify that important controls remain in place over time
- revisiting if proposed future changes to plant, processes or working arrangements are likely to have a significant impact on the overall health and safety assessment
- checking that particular deficiencies, not the subject of notice procedures, have received attention

- obtaining health and safety information on certain chemicals or substances found in use during the visit
- arranging for HSE specialist staff to visit to give detailed advice on specific health and safety issues, including in support of potential enforcement action
- raising with other agencies issues on the boundary of, or even outside, HSE's jurisdiction, such as certain aspects of fire safety or environmental risk

Where a notice has not been served, but follow up is needed, inspectors are required to make a note to that effect on the COIN system, and a reminder can be set on the system, which will automatically alert inspectors to any outstanding work by the appointed date. Where a notice has been served, a new 'notice record' is created on the COIN system, which will remain 'live' until the notice has been formally cleared by the inspector. COIN has the facility to allow Principal Inspectors and more senior managers to confirm that the necessary action had been taken, and quality data checks assist in these functions. Divisions undertake checks each month on 50% of enforcement notices per inspection group, within the preceding month, and every month administrative staff run the 'outstanding notice list' report to check that inspectors are keeping their COIN (HSE's modern I.T. recording system) improvement notice records updated. Any issues are referred to the relevant supervising Band 2 inspector for action. In addition, FOD HQ will send out an annual list, for action, of prohibition notices, which have a status of 'as served'. This list will also detail improvement notices that have passed the compliance / extension dates that are still marked 'as served'.

In 2004 (as a consequence of auditing and procedure improvement) follow up of inspection visits were identified as an area that required improvement. As a result instructions were added to the Inspection Procedure to strengthen the guidance for inspectors when deciding whether to follow up an inspection visit that did not involve formal enforcement action. The key now (and previously) is that inspectors must use their judgement when deciding whether to check that particular deficiencies (not the subject of a notice) have received attention. An independent audit of the procedures takes place.

**C** The HSE is requested to identify as at 1988/1989 and as at 2004:

- a. The knowledge which it had as to the risks associated with buried LPG pipework;

Knowledge of these risks within HSE over the period in question is made up of internal guidance, reports and instructions, externally available publications and the individual knowledge and experience of inspectors. It is not possible to reproduce the precise state of knowledge other than by reference to the said reports and guidance etc. Documents already disclosed to the inquiry supplemented by the attached documents (Appendix A.1-A.3) [ICL/004053, 003879, 003878] represent the best attempt at capturing that knowledge to the extent it

was reduced to writing. A further search of HSE's archives is ongoing and any relevant documents discovered will be disclosed.

- b. The steps which were taken to bring such knowledge to the attention of:
- i. HSE officers;

Information was communicated to inspectors by means of Factory Inspectorate Circulars (FICs) and Factory Inspectorate Minutes (FIMs). These were issued personally to each inspector as hardcopies. The FICs provided information on standards and technical matters relating to specific industry and sector issues. The FICs were indexed in a standardised numbered catalogue system (Alphabetical Subject Index), grouping information relating to the same or similar topics together to make identification and retrieval easier. Each FIC was uniquely numbered by means of the relevant subject file category number and its number in that particular series. They would also have an issue and review date. With specific reference to LPG inspectors were in 1981 and 1983 sent copies of FIC286/43 and FIC286/43(REV) [ICL/01040-01043] although these internal instructions were cancelled by HSG34 [ICL01272-01312]. These internal instructions referred, as appropriate, to industry codes of practice. Guidance documents such as CS5 [ICL/01168 – 01187] and HSG34 were distributed to all HSE offices. Training courses on this guidance and on general fire and explosion risk were conducted. Please see the Report from Phil Papard [ICL/09214-09327], in particular at ICL/09226- 09235.

FIMs provided information to inspectors about specific work they were to undertake relating to identified inspection priorities. These instructions would provide details of the particular issues to be addressed and how the work should be recorded. FIMs were numbered in sequence by the year of issue.

In the mid 1990s to reflect organisational changes which brought a number of inspectorates together, FICs and FIMs were renamed to Operational Circulars (OCs) and Operational Minutes (OMs). In addition, guidance was also produced for inspectors by the National Interest Groups, teams which specialised in particular industry sectors, these were called NIG minutes. These teams have subsequently been renamed are now known simply as Sectors and produce guidance under the title of Sector Information Minutes (SIMs).

The Alphabetical Subject Index (ASI) was introduced in the 1980s and was a listing of the content of the HSE library system, including instructions issued to inspectors. The ASI was updated on a 6 monthly basis and was issued to all inspectors. Each office had a local library, which held much of the material listed in the ASI, items not available locally could be obtained from the HSE central library.

In 1998, HSE introduced its intranet, which has developed since then as the principal source of information for HSE staff. All current instructions and procedures for inspectors are available on the intranet. The intranet also provides access to an e-library which is a

database of all the documents held in HSE's and HSL's (Health and Safety Laboratory) libraries. In addition, HSE's Information Management Unit subscribes to a range of national and international databases. The unit also provides a range of services to HSE staff to assist them in searching for and accessing information both internally and externally.

Information and guidance published on the Intranet is brought to staff's attention in a number of ways; for significant changes, e.g. the introduction of the OG procedures by briefing and training sessions, through line management cascade, e-mail and in FOD a monthly tray-dropped newsletter. The Intranet also has a 'What's New' section, which lists all recently added material. The Operational Procedures page also has a 'Latest Changes' link to highlight new instructions to inspectors and staff.

ii. Users of LPG;

Via inspectors at inspection e.g. A Gunn/ S Johnston referencing CS5 in letter to ICL in 1982 [ICL/11458-11459] and [ICL/11460 – 11461]. Guidance has been available from HSE offices throughout the period. See also the answers to section A re other main routes of communication. Additionally, LPG users can also contact HSE's Infoline (HSE funded free advisory service) as a first point of contact for health and safety information. Where Infoline are unable to assist the caller they will refer them to published guidance and/or to the local HSE office for more detailed advice.

iii. Suppliers of LPG;

Via inspectors and via industry liaison including input into COPs and guidance.

iv. Installers of LPG pipework; No information about this is available. However guidance and other standards had been produced by other bodies such as CORGI and UKLPG and predecessors.

**D** The HSE is requested to explain what training and support were given to officers as at 1988/1989, as at 2004, and as at 2008 in connection with the identification and potential hazards associated with buried LPG pipework and how the condition of such pipework ought to be ascertained.

The training record of LPG is incomplete as most historical files in FOD have been disposed of in accord with HSE's document retention and disposal policy. It was, as a topic, covered extensively in the Aston Diploma (Aston University Diploma Course Fundamentals of Fire and Explosion) between c1980 and 1998. There was little reference to pipework. It appears not to have been as extensively covered in Aston's successor, the Heriot Watt Diploma. The HSE's corporate training section CS5 designed and delivered a number of flammable gases and liquids courses (process safety) for FI/FOD in the 1980s. However, there was little concentration on LPG as it was then thought the topic was adequately covered by the copious guidance from both HSE and LPG ITA. The type of training given in 1990 specifically on LPG was wide ranging from the properties of LPG through the design of equipment and

setting standards for aerosol filling, agriculture and transport. There was a significant major hazard component and courses dealt with vessel and pipework failure. Training at this time suggested that possible causes of pipework failure should be dealt with by design, construction, operation, maintenance and inspection and highlighted that corrosion problems are most prevalent for underground steel pipework- ( See Appendix A.4 ) [ICL/ 14245-14290] It is not clear when these LPG courses ceased, but there have been none in recent years. A distance learning package entitled HSE Open Learning Course Liquefied Petroleum Gas prepared by FOD training was published in 1993 [ICL/01660-01807]. It does not appear that any dedicated LPG courses were run after this date. The Open Learning Course does refer to design and maintenance of pipework and highlights the mechanical integrity of the installation (including piping) as a matter to be considered by inspectors during inspection. It provides looking for properly protected pipework, evidence of corrosion to fittings and adequate maintenance records as examples of matters to be considered - ( See Appendix A.5 ) [ICL/001660-001807]

The introduction of HSG34 [01272-01312] was supported by internal training courses for inspectors. Precise details of that training cannot now be obtained.

Inspectors working in HID have technical training on LPG

It is unlikely that the hazard from buried LPG lines would have been covered in Class 2/Band 4 tutorials. This leaves the post probationary standing courses on fire and explosion, flammable liquids and gases and particularly those dedicated to LPG. The latter ran from the late 80s to probably 1993: it is difficult to be precise because the files have now been destroyed. The amount of time on courses dedicated to LPG would be limited on fire and explosion, flammable liquids and gases or process safety courses. Even on dedicated LPG courses, which covered everything from major hazards through LPG transport to agricultural purposes, detailed discussion on buried pipe work, was likely to have been limited.

For post probationary training it would seem that the last LPG course for FOD inspectors was in 1993, the year that the LPG distance learning course was published. The only course in FOD (but not in HID) which covers flammable substances is the Fire Precautions course and this has not run since 2001. The two day course covered general fire precautions and process fire matters including up to only two hours on LPG therefore it is unlikely that dangers from buried LPG lines were covered. To a large extent the Fire Precautions course could be considered refresher training.

HSE ensures that the training provided to new inspectors during their induction and initial training, as well as that provided to experienced inspectors as part of their continuing professional development, meets the needs of both the organisation and the individuals. Most new HSE inspectors are graduates; where a degree is not held then a degree equivalent qualification is required. Inspectors undertake four years initial training via an innovative work-based Post Graduate Diploma programme, developed and delivered in Partnership with Warwick University. This training combines: in-house tutorials, academic study, work based application of learning supported by coaching from experienced colleagues; and, a rigorous assessment process combining NVQ level 5 at the 2 year point, continuous assessment from managers and trainers, and formal assessment from Warwick University.

This programme covers the full range of occupational hazards found in the workplace - from methods of identification, to their causes, impact, and hierarchy of available controls - as well as risk assessment, management interventions, enforcement, inspection, investigation, business, influencing skills, and delivers a broad range of occupational health and safety topic and industry based knowledge. The programme aims to equip inspectors with the ability to: work from first principles - that is to be able to identify hazards and risks and deal with these appropriately, regardless of the nature of the work activity or environment; be able to assess a duty holders' capacity to manage its risks adequately using a sample topic approach; and, be clear about the boundaries of their own competence - when and how to bring in specialist help. Specialist help is a key component of the support available to frontline inspectors. Process Safety Specialist Inspectors (such as Mr Gunn and Mr Tyldseley) were trained in, and familiar with the potential hazards associated with buried LPG pipework and how the condition of such pipework ought to be ascertained.

#### Specific Training on bulk LPG storage tanks

##### Early years programme

This is covered in Process Safety and Fire tutorials in years 1 and 3. and is consolidated via work based coaching, experience of application and assessment throughout the programme.

##### Maintenance and development of skills and knowledge

Refresher and specialist courses are available to those who need them, as assessed on an annual basis. Work is underway to improve this planning process to help ensure demand for such courses is effectively identified and met in line with business need. As part of HSE's and LAs' competence based approach to maintenance and development of skills and knowledge in line with business need (being delivered as part of the Competence Project, referred to above), a competence benchmark for identifying and dealing with matters of evident concern, and matters of major potential concern has been developed for use by all HSE and LA front line regulators in identifying development needs. This includes LPG, fire and explosion hazards. All FOD inspectors have recently completed an exercise to benchmark their skills, knowledge and confidence against each of these critical areas, following a series of briefing sessions, and the feedback is being collated and assessed at time of writing.

Constant review of training needs is carried out. A Practical Process Safety Hazards Course dealing internal alia with LPG is in the final stages of approval.

Please see the Report from Phil Papard [ICL 09214-09326], in particular at 9235-9237.

- E The HSE is requested to identify any steps taken to alter procedures in respect of premises and enterprises using LPG as a result of the following events:
- a. The explosion at Daventry in 1987 [ICL/11510-11522];

**No steps taken to alter procedures in respect of premises and enterprises using LPG as a result of Daventry**

- b. The explosion at Grovepark Mills in 2004;

**Instructions were issued to inspectors by DIN CD5/059 [ICL/03558-03566] in November 2004 subsequently superseded by OC/286/105 (see Appendix A.6) [ICL/04236-04245].**

- c. Any other explosion or significant incident involving LPG during the period 1987 to 2008.

**No steps taken to alter procedures in respect of smaller sized premises and enterprises using LPG as a result of any other explosion or significant incident involving LPG during the period 1987 to 2008.**

**Dealing with non-priority topic H&S issues, including LPG pipework, under the risk based approach**

Under the risk based topic inspection approach, health and safety issues that are not related to the strategic priorities are proactively inspected as Matters of Evident Concern (MECs) or Matters of Potential Major Concern (MPMCs) which were introduced in 2008 to assist inspectors deal with matters outside of the strategic priorities). Under these arrangements inspectors now consider the risks from LPG storage and associated pipework at every site visit. (see OC18/12 - Appendix-A.7) [ICL/04232-04235].

MECs are hazards (outside of the strategic priority topics) that create a risk of serious personal injury or ill health and which are either observed (i.e. self evident) or are brought to the attention of the visiting staff during the course of a visit. Inspectors deal immediately with any MEC that they encounter during a visit but are not expected to seek out MECs.

MPMCs are hazards (outside of the strategic priority topics) which have a realistic potential to cause either multiple fatalities or multiple cases of acute or chronic ill-health. In MPMC instructions to inspectors LPG storage and associated pipework is designated as an MPMC. At all visits inspectors consider if there are MPMC present and, if any such hazards are identified, the inspector is instructed to make sufficient enquiries to form a professional judgement as to whether the associated risks are adequately controlled. Where risks are not adequately controlled, inspectors are instructed to take enforcement action as appropriate.

The approach to be taken over MECs and MPMC is set out to inspectors in operational instructions along with an indicative list of hazards (including LPG) to consider during visits. Operational guidance and specialist assistance is available to help inspectors address any hazards identified. Inspectors have been provided with specific MPMC guidance for addressing the risks from underground LPG pipework, namely OC 18/12 [ICL/04232-04235] referred to above.

- F The HSE is requested to identify:

- a) What statutory or other formal approvals ought to be obtained for the installation of an LPG system?
- b) To what extent should the nature of the structure of a building into which an LPG installation is to be introduced be taken into account in the approvals process:
  - i. By the building control authority;
  - ii. By the fire authority;
  - iii. By the HSE;
  - iv. By any other authority;
  - v. By the installer/s of LPG pipework and tanks;
  - vi. By the supplier of LPG.

**HSE can only comment on this question from its perspective as the health and safety regulator. For small and medium sized non-domestic premises no approval from HSE is currently required. This is in contrast to HSE approved safety case regime which applies to larger sites under The Control of Major Accident Regulations 1999 (COMAH) [ICL/05701-05747].**

**APPENDIX A**

1. Extract from Manufacturing and Services Industry NIG Report 1978  
**[ICL 004053-004056]**
2. Guidance Note CS6 ;The storage and use of LPG on construction sites  
**[ICL 003879-003888]**
3. FIM 1981/90 **[ICL/003878]**
4. HSE September 1990 LPG course training materials **[ICL/14245-14290]**
5. HSE 1993 LPG Storage and Use Open Learning course materials  
**[ICL/001660-001807]**
6. O/C 286/105 **[ICL 4236-4245]**
7. O/C18/12 **[ICL 4232-4235]**