

Tuesday, 21st October 2008.

(10.30 am)

MR MARTIN: My Lord, we are in a position this morning to resume the Inquiry and to begin what has been referred to as Phase 2. A list of witnesses who are expected to be called in Phase 2 was circulated to the core participants some weeks ago and it is generally intended to follow the order indicated in that note, my Lord, but because of availability of some witnesses, then it will be necessary to make a number of adjustments.

The general approach to Phase 2 is to call three witnesses who, in effect, are giving evidence for the benefit for the Inquiry. Thereafter, to call witnesses who are dealing with the regulatory background and then to proceed through the relevant core participants in the order Calor, J Gas, UKLPG, Health & Safety Executive. The witnesses for the Health & Safety Executive, with one potential exception who will be dealing with regulatory matters, will not be called until the second week of the proceedings, which is the week commencing on 4th November.

The first of the three witnesses for the Inquiry is Mr Rod Sylvester-Evans who I shall call in a moment. I should indicate that having regard to the nature of his evidence and the structure of the procedure to take

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us through Phase 2 I anticipate calling him or recalling him to return to give evidence as the last witness to the Inquiry after he has heard all of the evidence to be given by others in Phase 2.

The other two witnesses for the Inquiry: Dr King and Mr Neil. There are, I regret, availability difficulties with those witnesses but I will come to that later.

So far as the first witness, Mr Sylvester-Evans, is concerned, my Lord will be aware that he prepared a report initially at the behest of the Procurator Fiscal for the purposes of the criminal proceedings and that report was circulated before the Inquiry began.

Then following Phase 1 and the evidence which was led during that phase, he was invited by the Inquiry to prepare a second report containing his own deliberations and a series of recommendations which have been put forward for the benefit of all core participants with a view to informing the Inquiry in general and your Lordship in particular as to what ultimate recommendations might be made.

Having, in his report and in the evidence which I will seek to lead today, set out and explained his recommendations, the purpose of his being recalled after all other witnesses have given evidence is to

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give his final view of the recommendations as to their justification, modification or whatever.

So, my Lord, I have no particular preliminary matter to raise this morning and subject to the considerations raised by others, it would be my intention now to call Mr Sylvester-Evans.

THE CHAIRMAN: Unless there are any other points that anyone else wants to raise, we can go straight into Mr Sylvester-Evans' evidence.

ROD SYLVESTER-EVANS (Called)

Examined by MR MARTIN

Q. Mr Sylvester-Evans, I would like to begin if I may by summarising your qualifications and experience. These

are to be found in your original report and if I could have page 9380, which is the first of the pages, up on the screen and for your Lordship's notes the CV is contained in its entirety in page 9380 to 9385.

Mr Sylvester-Evans, we can see that your full name is Rod Sylvester-Evans?

A. That is correct.

Q. You are director of company RSE Consultants Limited which I assume you founded in 1995?

A. Correct.

Q. You were previously a director with a firm of consulting engineers Kramer & Warner and held positions in that

company for 21 years from 1974 until 1995.

You have a first class honours degree in chemical engineering from University College Swansea; you are BSC; a chartered engineer; a fellow of the Institute of Chemical Engineers; a member of the institution of engineers and I am afraid you will have to translate for me IChemE Register of Safety Professionals?

A. That is basically a register that the Institution of Chemical Engineers hold and requires basically experience to become accredited as part of that Register of Safety Professionals.

Q. By way of relevant professional experience, which I think is significant having regard to your position at this Inquiry, so far as technology is concerned you have experience of gas processing and transmission, onshore and offshore oil and gas processing and system design, spill and vapour control systems, firefighting protection systems, gas detection systems, emergency isolation and blow down systems, fire explosion mitigation evacuation systems off-shore, air separation plants, low temperature cryogenic storage and so on.

We can see from those that you have experienced both of these elements onshore as well as off-shore?

A. That is correct.

Q. So far as your functions are concerned you have been

involved in accident investigation, safety auditing, hazard identification techniques and hazard and operability studies, hazard analysis of fire explosion and toxic releases and quantified risk assessment, safety case preparation, plant layout, siting and so on and you have done so in various locations including the United Kingdom, others in Europe, South Africa, Kuwait, Australia and Brazil.

The next page, please. So far as process design and technical feasibility studies are concerned, I think we can take your qualifications and experience as read, likewise off-shore experience, although we should note that you had full-time involvement in the Piper Alpha Inquiry working directly for the Chairman of that Inquiry Lord Cullen and for the Crown, and you also provided technical advice to a represented party at the Ocean Odyssey Fatal Accident Inquiry which was another off-shore ill-platform accident?

A. That is correct.

Q. We can see you were responsible for various studies so far as the outcome of that was concerned. We can also see -- could I have the next page, please -- that you have been involved in investigation and follow-up in respect of the loss of two platforms, one in Brazil and one in India, and you have acted as an expert witness, a

technical adviser co-ordinator in many cases both small

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and large and been an expert witness?

- A. That is correct.
- Q. So far as accident investigation is concerned, you were involved in the Flixborough disaster which was in 1974, which again, I think was an explosion and fire.
- A. Yes, it was indeed.
- Q. The gas explosions in a block of flats in Dublin in 1986 and involved in the prosecution of Transco following the gas explosion at Larkhall in 1999. You have also been involved in the investigation of the King's Cross fire disaster in 1986, in the Ladbroke Grove Inquiry in 1999 following the rail accident outside Paddington Station. You have been a member of a Royal Commission team investigating an explosion in Victoria, Australia, and gave evidence to that.

We can also that you have given evidence on various specific occasions which I do not think I need to take time going through.

May we take it from your qualifications and experience, Mr Sylvester-Evans, that you have considerable qualifications and experience in matters related to gas in all its forms but in particular LPG and what we know of in this case, which was an explosion apparently caused by an accumulation of LPG

in a basement area which was ignited and led to the destruction of a building?

- A. I do.
- Q. I wonder if I could then ask you to go to the report which you prepared for the second phase of the Inquiry and this begins at page 9674, although, my Lord, I think, certainly for my benefit it would be more convenient to use the paper version of this document as I go through and I hope all parties have that. I am certainly very happy to give page numbers if it comes to be necessary.

What I would like to do, Mr Sylvester-Evans, because obviously all parties to the Inquiry have had an opportunity to consider this and indeed many of the core participants have provided specific responses to your various recommendations, to go through your report and pick up on various matters which I would like you to explain in a little more detail, having regard both to the approach which you are taking to the identification and making of recommendations in this case and to the detailed aspect of these recommendations when we come to them.

I wonder if you could go to paragraph 1.2.4, please, which is on page 4.

- A. Yes, I have that.

- Q. This is really simply a matter of terminology but you have explained that you used the terms "LPG supplier" and "LPG user" in a descriptive sense and not as defined strictly in the Gas Safety Installation and Use Regulations 1998.

"The term 'LPG supplier' is defined as the LPG company who fills and usually owns the tank at a customer's site. The term 'LPG user' is used to describe the party who actually uses the LPG in its process or gas appliances. For multiple user sites and metered estates there will also be the landlord or managing site operator to consider."

So far as these terms are concerned and having regard to the record of the evidence that has been made available to you following Phase 1 of this Inquiry, may

we take it that the particular LPG suppliers who might be identified would be in chronological order: Calor, who supplied from 1969 up until 1998; then J Gas, or Johnston Oils as they are technically known, who supplied from 1998 until the time of the explosion?

A. That is correct.

Q. You emphasise of course you are not talking about in any legal contractual sense, you are talking about the practicalities of the filling of the tank, of the supplying of the gas?

A. Precisely.

Q. So far as the LPG user is concerned, you will be aware that ICL Plastics Limited was the owner of the premises including the yard in which the tank was situated and the model which you may have seen previously is to your left.

ICL Technical Plastics Limited or ICL Tech as they later became were actually the operation carrying out the process within the factory building which used the LPG, but if we use the initials ICL for present purposes, that fulfils your concept of the LPG user in the circumstances which existed at Grovepark Mills; is that right?

A. Yes, indeed.

Q. Could you go, please, to page 6 and to paragraph 2.1.1. This is your review of the Phase 1 Inquiry findings.

You say:

"The tragic incident at ICL Plastics site occurred despite the existing current regulatory and oversight regime. Therefore, my starting point is to review briefly the current regime and then consider where there were weaknesses exposed by the ICL explosion and building collapse."

I would like to ask a little bit more about that, Mr Sylvester-Evans. Is it your evidence that when one

views specific statutory obligations, there were duties which should have been fulfilled by identifiable parties in the circumstances which occurred at Grovepark Mills?

A. Yes, indeed. ICL -- my first report covers a number of those aspects, in my belief that ICL had a number of duties that should have been fulfilled and unfortunately they were not fulfilled and, unfortunately, that's why we're here now.

Q. Is it also the case that there are duties which can be identified as having been the responsibility of the LPG supplier in the sense in which we have used that expression a few minutes ago?

A. Yes, there would be duties, statutory duties, of the Health and Safety at Work Act and then the regulations that flow from that that would apply to the LPG suppliers.

Q. But the fact is despite your being able to identify these duties and leaving aside at the moment any merits of what actually occurred, nevertheless and despite that, the circumstances leading up to the explosion took place and the explosion occurred causing death and injury.

A. That is correct, yes.

Q. So having regard to the fact that one can actually

identify a regime in certain respects but also acknowledge that it did not prevent the disaster which occurred, what is the underlying purpose of your

reviewing that and ultimately setting out the recommendations as you have done?

- A. Well, I looked at it in a number of lights and essentially the first point was to have a transparency in who was responsible for what, the various interfaces that one has between the supplier, the user and so forth, to have transparency in that area. Then, moving on from there, the next point is to encourage effectively ownership of the duties. Ownership in that sense, I term people recognising their responsibilities and enacting them. It is not owning something, it is the actual ownership, that is my definition I would use for the Inquiry if I use the word "ownership".

From there flows the fact that in order to enact and have ownership, one needs the knowledge and competency because without that things will fail, things will go wrong. Then from my experience of many major and smaller accidents, the next issue is implementation. I think we are all very good at saying this is what we will do, but sometimes unfortunately are not so good at actually implementing them. So it is actually a system that ensures the implementation.

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I say ensure, ensure as far as one can.

Then the importance of actually monitoring what we do and reviewing those aspects to make sure that the performance is what we expect, because if we haven't planned and set out what we expect we are not going to get, not going to achieve. So we want to monitor that and then we want to review because things change, improvements in technology, the law changes, commercial changes and we need to review where we are.

In essence, those steps are very much the principles that a company would run a safety management system and risk management. That was my approach at looking at how can we improve the actual weaknesses that, I believe, were exposed or I summarised from indeed the findings of fact that I have set out in a later section in this, chapter 2.

- Q. May we take it from that that notwithstanding the statutory regime that you mentioned a few moments ago, as far as you are concerned and following the circumstances which occurred at Grovepark Mills, the status quo is not an option because it failed?

- A. Well, indeed. One of the things that I looked at was is this just a sad example of an accident, an incident, that stands on its own and I look at then some of the issues that arise on the integrity of other metallic

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buried pipework systems and the message is there are problems there and likewise safety management issues associated with small companies, there's problems there.

So one does not feel this is a lone outstanding example. So there is an extent of concern. The question that I pose in the report is I don't necessarily have up-to-date knowledge or the in-depth knowledge of the depth of that concern. That is something which, I think perhaps, my Lord, parties might well be able to explain as part of the Inquiry of Phase 2.

But, in essence, to answer your point it is essential to look at: is this an isolated incident or, is it not? I looked at this and thought, no, there are other situations which need to be controlled and hence the recommendations I have put forward to help perhaps direct Phase 2 are put in that light as basically a

system to help the sector move forward.

Q. Therefore, is it your opinion that however it is done, further -- and I use the word in an informal sense -- further regulation is required in order that people recognise the various elements that you described a moment ago and I do not mean regulation necessarily in a technical sense but something needing to be done to regulate their conduct?

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A. The answer is yes, in an informal sense.

Q. You then set out the principal elements of current legislation and indeed the approved Code of Practice, all of which are before the Inquiry.

My Lord, the page numbers for all of these can be provided. They are not here but I do not intend simply to go through providing them, but where I do wish to look at a particular document I will give the page number.

Then in 2.1.3 you refer to the principles for preventative protective measures and the principles for health and safety management given in the Management of Health and Safety at Work Regulations, in regulations 4 and 5. Could I have page 4504 please?

From 4 and 5 which we can see for ourselves, Mr Sylvester-Evans, you have set out the tables of 2.1 on the following page and 2.2.

I do not need to go through these but I would like to ask you just one question about that and it is the very first arrow point in 2.1 where you say -- and this of course is distilled from the Regulations:

"It is always best if possible to avoid a risk altogether."

Does this depend upon identifying a risk thus being in a position to take steps as the first

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principle to avoid it altogether and thereafter to do what other things might be done?

A. Yes, it is rather chicken and egg actually. Undoubtedly it is vital to conduct an initial hazard assessment, risk assessment, to identify whether this is a risk that you wish to take on board or have to or whether you can in fact avoid it altogether. In fact, if you look, these are sort of my summaries of regulations, 4, which is the principles of prevention and protection measures and then, 5, the principles of health and safety management. That is in table 2.2 below. But those are preceded by regulation 3 which is all about risk assessment which is the identification of hazards, seeing what can happen, what can go wrong, who it can affect, looking at the controls that are there to prevent the incident or the accident happening, and then the reviewing and the recording and review of those controls, whether they are adequate or not.

So unfortunately I have investigated many accidents where people just did not identify, did not know the nature of the material, the risk, the situation that they were handling and so it is vital that is known to start with.

Q. I think we are aware from the circumstances in this case that so far as the underground, the buried metal

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pipework underneath the yard at Grovepark Mills, it appears that nobody even knows who were carrying out risk assessments more generally for the operations which were being carried out there, nobody paid any particular attention in the circumstances which existed to the

- presence of that pipe and what may be happening to it?
- A. That is correct. That is my understanding. I would also extend that to the fact that there was pipework with fittings, insofar as it wasn't a fully welded pipe, there were fittings within the basement area which was unventilated. Equally, had there been a leak from a screw joint there there could be a release into the unventilated basement.
- Q. Whilst, Mr Sylvester-Evans, the purpose of your evidence is not to make detailed comments on the circumstances which actually took place and which were the subject of evidence in part 1, what we can see from the evidence of which you are aware is that this is an example of at the very beginning a risk not properly being identified and of course thereafter various consequences follow, such as inadequate or absence of measures to deal with that risk?
- A. Correct.
- Q. And that, as you have just said, is both in respect of the buried pipework in this case and the pipework in the

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- basement?
- A. Correct.
- Q. Thank you.
- You deal with various elements of the Regulations and the Code of Practice which support these. I wonder if you could go to 2.1.7 on page 8 of your report, please. The various acronyms we can see for ourselves, but at the end of 2.1.7 you refer to the Gas Safety Installation and Use Regulations 1998, GSIUR as we are calling it.

As you have described these Regulations did not apply to an industrial operation such as that of ICL at Grovepark Mills?

- A. They did not apply to factories which are as designated in the original Factories Act.
- Q. They do apply to domestic premises and what would appear to me at least to be analogous premises, like caravans and certain residential establishments and so on, not to commercial or industrial premises otherwise.
- A. They do relate to some commercial premises but not industrial.
- Q. However, we will hear a bit more about these Regulations later but at the end of 2.1.7 you acknowledge that:
- "The GSIUR requires the LPG supplier to provide a 24/7 [that is to say 24 hours a day 7 days a week]

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emergency service for reported escapes of LPG and emission of combustion products."

Does that apply to LPG installations beyond the domestic, that is to say including the industrial?

- A. It does, yes.
- Q. So is it fair that as a starting point first that the GSIU Regulations do apply in one respect at least to industrial premises such as Grovepark Mills?
- A. That is correct.
- Q. Is it reasonable to infer that the reason why they do that is because there is a critical safety issue there because it is not satisfactory if leaks of LPG from one type of premises were simply to be left unattended when there were regulations covering an emergency service for other types of premises?
- A. That's absolutely correct, so that if there was a leak of LPG, then the supplier would be the first person to come in to cure that leak in that sense, isolate that leak, and that is the provision of the GSIUR.

Q. Does that mean that without anticipating in detail what we are going to look at later, the extending of the GSIUR to industrial premises for additional purposes such as control of installation of LPG pipework would simply be an extension of its range over industrial premises? It would not be moving into new territory

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entirely.

A. Yes, it could be extended just as by way of extending the provisions to those elements obviously that are relevant.

Q. Could you turn on, please, to 2.1.9 of your report. This is a relevant to the Workplace (Health, Safety and Welfare Regulations) as amended in 2002 and in particular it is regulation 4 (a).

Could I have what I think is 4890, please?

If we could have just have the next page, please and the next. Page 4892. As you have quoted, there is a regulation which states:

"Where a workplace is in a building, the building shall have a stability and solidity appropriate to the nature of the use of the workplace."

In your evidence in paragraph 2.1.9 you have also given quotations from the Operational Minute which is OM 2003/101. For the benefit of the Inquiry, that is to be found at pages 4057 to 62. I do not need it at the moment, thank you.

The question I wanted to ask, Mr Sylvester-Evans, is do you regard the obligations, whatever they may be, under Regulation 4 (a) as forming part of the obligations imposed in the context of Health and Safety at Work?

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A. Oh, yes indeed and that is made clear in the Agency's Operational Minute. This was introduced, by the way, the amendment to the Workplace Health and Safety at Work Regulations was made in 2002 by an amendment and the Operational Minute covers, explains the background to that amendment, which includes a number of changes to regulations and this is just one of them.

Q. We can see from your quotations from that Operational Minute, paragraph 9:

"The intention is that duty holders should monitor the state of their buildings. This should include periodic inspections ..." and so on.

Then 10:

"Consideration of appropriate use will include risks from the normal running of the process (for example, vibration, floor loadings) and foreseeable risks (fire in a cylinder store)."

Is it reasonable to suggest that potential explosion of LPG storage otherwise might be said to be a foreseeable risk, albeit one that should not happen?

A. Correct.

Q. If that is right, Mr Sylvester-Evans, and duty holders in this context primarily means employers; is that right?

A. Indeed.

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Q. But does it also suggest that given that the obligation falls within the general Health and Safety at Work requirements and imposes duties on duty holders, in particular employers, there will be a degree of or rather there will be a potential role for the Health & Safety Executive in the normal way looking to see that its regulations are being fulfilled?

- A. That is correct. If they are -- these issues rather, fall into the industrial activities where they have the primacy in the oversight of the workplace.
- Q. Could you go, please, to page 11. Here you are turning to the current oversight regime and you refer to the Health and Safety (Enforcing Authority) Regulations. For the benefit of the Inquiry, these will be found at 4601 to 4617. We do not need to look at them at the moment.

In paragraph 2.1.15, you refer to the sequence of operational circulars OC404/21 which begins at 4246 and the circular 82/2 which you have referred to. At the bottom of the paragraph you refer to the earlier OC 404/21 as saying:

"HSE inspectors are more often concerned with safe systems of work than with structural safety of existing buildings, although Health and Safety at Work Act section 13 explains that the risks to health and

safety includes risks attributable to the condition of the work premises. Therefore, inspectors have a role to play, on which guidance is given below."

Does that, Mr Sylvester-Evans, confirm what you said a moment ago, which is that the Health & Safety Executive in general and its inspectors and officers will have a responsibility in relation to the condition of buildings?

- A. From my reading and from a technical standpoint, yes.
- Q. As you have already said, that is rather more specific than the later guidance but the later guidance does refer to enforcement officers should address the structural safety of existing buildings?
- A. That is correct.
- Q. Does that suggest that there is a regime recognised by the Health & Safety Executive in which the primary responsibility lies with the duty holder, principally the employer, as in any Health and Safety at Work situation but nevertheless it is also a role for inspectors in supervising the obligations of the duty holders, including in relation to stability of buildings?
- A. That is correct in particular for existing buildings where there is no change or modification which then falls more into the Building Control Department of the

Local Authority.

- Q. Then I think we can take as read what you say in 2.1.16 which is where a building is inaccessible to the general public. Again, it emphasises that inspectors of the Health & Safety Executive can enforce under Health and Safety at Work section 3 and of course the Local Authority should be informed.

But is it fair to say that otherwise as stated in the Health and Safety Authority regulations there are certain types of premises for which the HSE is formally responsible and certain types for which Local Authority so-called enforcement officers are responsible?

- A. Yes, it is divvied up according to, as I understand it, the main activities taking place in those buildings or premises.
- Q. At section 2.2 you deal with challenges and weaknesses in the current regime. I take it that that is in a sense in which we have already discussed it, that whatever statutory responsibilities can be identified, they appear not to have been sufficient in present circumstances?

A. Correct.

Q. In table 2.3 you set out really just a table quantifying, as it were, the every day risks which are experienced. This is self-explanatory, but I think we

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can note that those involved so far as all gas incidents are concerned (that is domestic incidents), gas incidents involving carbon monoxide poisoning and gas incidents involving fire and explosion, these are derived from statistics obtained from the Health & Safety Executive; is that right?

A. That is right. They publish it on their website entitled "Gas Safety Statistics" and I have averaged them over the whole UK population because obviously some of the others above, like homicide or fatalities to workers or fire and flame are done in the same sort of fashion. So you assume an average exposure for everyone in each year.

Q. I should say, my Lord, I think a copy of these statistics which is available on the Health & Safety Executive website has not actually formally been produced to the Inquiry at this stage. I do not imagine it would be controversial but it probably would be helpful if it became part of the record of the inquiry in due course.

I do not think you set this out, Mr Sylvester-Evans, other than for information as the background to what we are talking about but is it fair to say that particularly with regard to gas incidents concerning fire and explosion the annual risk of death

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is very much at the bottom of probability, if that is an adequate way of expressing what I am trying to say? You are very unlikely in the United Kingdom, based on these statistics, to suffer a death as a result of a gas incident involving fire and explosion?

A. These cover the domestic scene and the answer is yes. Really I think it is a point I thought was appropriate before the Inquiry just to say that the safety record, track record, of the LPG industry, as well as the natural gas industry, is good. There are obviously serious blips unfortunately in what happens. These are a means for people to get a measure of comparison, whatever they make of that comparison.

Q. Just to clarify, I think you said all of the gas incidents are domestic because the statistics do not deal with industrial?

A. That is correct. It is quite difficult to actually isolate particularly the commercial and industrial incident rates and that I deal with later on actually as an issue.

Q. Again, just with these qualifications, so far as gas is concerned -- and this covers of course presumably LPG as well as natural gas?

A. Correct.

Q. -- you are probably almost four times more likely or you

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are for times more at risk through carbon monoxide poisoning, presumably because of events that do not concern this Inquiry but we are aware of in other tragedies where people have died through carbon monoxide poisoning from gas appliance because of inadequate ventilation or whatever?

A. Inadequate ventilations, flues being blocked, yes, in faulty installations and that is very true.

Q. Could you go, please, to page 13. You begin towards the

bottom of the page with the heading "weaknesses exposed by ICL tragedy" and at 2.2.4 you set out the challenges. I do not need to take up time doing that. The first heading is "poor LPG pipework integrity and its ownership" and at the end of the arrow points you have said the final one under that heading is:

"Lack of clarity of responsibilities; although basically the pipework was out of sight and out of mind."

What in the context of the evidence in Phase 1, Mr Sylvester-Evans, do you mean by "out of sight and out of mind"?

A. Basically the transfer of LPG through buried pipework was subject to corrosion. It was buried and out of sight and unfortunately out of mind.

Q. Is this in the context of what you are going to say

later about ownership in the sense in which you have used it, that there ought to be somebody who has ownership; that is to say, who knows that he has the responsibility for that pipework and that it is there?

A. Absolutely. It is that clarity, that transparency of ownership with regard to each physical bit, part, component which is so important.

Q. Then under the heading of "poor communication, learning and sharing of knowledge", in what is the sixth arrow point you say:

"Lack of regulatory inspection priority given to older buried LPG pipework."

Are you identifying or implying any particular party as having lacked that inspection priority or are you pointing out that there would appear to be no regulation, either in the statutory sense or in the Code of Practice in the formal sense, which requires priority to be given to older LPG pipework?

A. In that sense, in this one, I was focusing on the regulatory system rather than the actual lack of inspection. But it goes hand-in-hand, I think. There was not the focus on an ageing and be it corroding infrastructure. So people were not literally being focused on this as an issue.

Q. So what you are saying is that having examined all of

the written material, all of the regulatory documents, the guidance documents and so on, you have not identified anything under current circumstances which gave any priority to an inspection regime for older buried LPG pipework?

A. Particularly where it is not known what you have basically. For metallic pipe systems and corrosion wrapped, there are obviously various codes that actually gave advice on the inspection, albeit a risk-based approach, but the starting point was to know what you actually have and then you can assess and risk-base the inspection frequency and requirements and that unfortunately seemed to have been missing from the aspects of the regulatory system.

Q. I think as we will see -- and I am not asking you to go into it in any detail, Mr Sylvester-Evans, but I know you are aware of it -- if one goes back to an earlier time (that is to say, round 1980) there is certain guidance about periodicity of inspection ten years in the document FIC 286/43 in its original form but, for whatever reason, that document was superseded and subsequently superseded again. That kind of slightly more specific obligation has disappeared.

A. Correct.

Q. You, I take it, can provide no explanation for why that would have happened?

A. I have no explanation whatsoever.

Q. We will deal with that with other witnesses. Thank you.

The following page, 15, we begin simply by explaining in 2.2.5 that you review these weaknesses under the three broad headings stated above and then at 2.3 you say, "LPG pipework integrity and its ownership", and this of course is the specific reference in your report to the ownership of LPG pipework or the ownership of LPG pipework integrity in the sense in which you have described it and, as you emphasise, you are not talking about legal ownership or contractual entitlement or whatever, you are talking about somebody having the awareness of the fact that they have a responsibility for LPG pipework integrity and obviously where that pipe is?

A. Correct.

Q. I wonder if you could then just explain what you mean a little bit more about the interfaces associated with the storage and use of bulk LPG at an industrial commercial premises.

Again, I take it we are not talking about legal interfaces or legal relationships such as between customer and supplier in the contractual sense, but we are talking about interfaces related to the physical

existence of whatever may exist in the ground. Is that right?

A. That is exactly right. It is interfaces between -- primarily, I have listed the companies here, the supplier, the user, the contractors they use, the issue of landlords who may be managing tenants. So you have potentially quite a disparate group of people handling a single product and the more interfaces you have, then the greater there is the potential for miscommunication and misunderstanding generally across each of these interfaces as to, for example, who is responsible for this piece of piping, it may be the pressure regulator, it may be the service pipe, it may be some other aspect, and it falls between two schools and interface issues regularly happen. Problems with interfaces regularly happen. Unfortunately, most of the major accidents I have looked at have all had interface problems between companies, between departments where information is lost, misunderstandings, false assumptions are made and it sows the seed of problems which can be recovered very quickly or of course it can be the first link in the barriers that fall and leads to a major accident. So this really is why I start with the premise one has to have complete clarity of who is responsible for what and that is the golden -- that is the starting block that I

come from.

Q. In the use of the expression which you used a moment ago "false assumptions" the danger is that even if somebody knows something is there, say a pipe in the ground which has the potential to corrode, and knows that something ought to be done about it, even if it is just a regular or a periodic inspection, the assumption may be it is somebody else's responsibility?

A. Absolutely right.

Q. That is the problem both the ignorance of what might exist and the ignorance of one's own responsibility for

it?

- A. Correct.
- Q. Subsequent to that of course, because it is another element in the false assumptions, ignorance of actually what other people's responsibilities are; thus, as you say in the report, one of the things to be identified to all concerned is who else actually has responsibility and for what?
- A. So each party acts as a peer against each other party. So there may be a change or a modification that actually creates a gap between them which hitherto there was nothing at the interface but some modification means that there is a change and someone can ask the question, "Well, I'm not responsible but are you?" and the problem

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is solved. But if the question is never asked, the problem is not solved.

- Q. Obviously in a situation such as existed at Grovepark Mills but not unusually, given the evidence that we have heard, and you identify five potential bodies or categories of party between whom interfaces may exist. It is almost always, in fact the evidence suggests always the case that there will be an LPG supplier who will not be directly involved otherwise in the enterprise on the site?
- A. Correct.
- Q. So to some extent that supplier will have a responsibility?
- A. That is right.
- Q. Whether it is for the first stage regulator or beyond or whatever does not matter for the moment.
- A. Indeed.
- Q. You will then inevitably have the user at the other end of the system?
- A. Correct.
- Q. In this case ICL Technical Plastics Limited or ICL Tech as they became, who are not necessarily the owner of the premises or legally the owner of the pipework which links the tank to the appliance.
- A. That is correct.

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- Q. Then you may have presumably -- and your reference here to multiple users is an element of that -- you may have a potentially larger number of people who have different responsibilities on the face of it between the tank and the ultimate appliance?
- A. That is correct.
- Q. What would be your view in principle about that, Mr Sylvester-Evans? Would it be desirable to try to minimise the number of those parties and thus minimise the interfaces between each of them as far as possible?
- A. That is correct. I mean, absolutely, in a simple situation there may just be the supplier and the user because the user owns the full premises, owns all the ground, controls all the rights and it is simple. But if there's multiple parties involved, there is a chance for multiple misunderstandings arising.

One misunderstanding can be enough to cause the problem. So, therefore, as a principle and obviously it is a case by case situation but you want to try and minimise the number of interfaces, the number of parties involved, between those who have the responsibility of looking after the tank and those who are actually using the LPG.

- Q. I think when you come to suggest various regimes which might be put in place that is an element of it, to say

minimising the possibility.

A. Yes.

THE CHAIRMAN: Mr Martin, Stop there and give the LiveNote operators a break for 15 minutes.

(11.28 am)

(A short break)

(11.47 am)

MR MARTIN: Mr Sylvester-Evans, we were on page 15 of your report and I think we should simply note before passing on that in paragraph 2.3.3, you refer to the presence of interfaces as:

"... creating the potential for confused responsibilities, miscommunication, false assumptions and the mismatch of expectation benefits and incentives between the parties."

That really summarises, as I understand it, exactly the point you are making about the desirability of creating a regime in which everybody knows where they are.

A. That is correct.

Q. Likewise, towards the end you say:

"Wherever possible the number of interfaces for bulk LPG use at industrial and commercial sites should be reduced to the minimum so they can be managed actively. Essentially, this would be the interface

between the LPG supplier and the LPG user."

We will come back to that in a few moments.

Could you go on to page 16, please. In paragraph 2.3.5 you refer to the HSL report "Industry Practice Regarding the Integrity of Buried Metal LPG Pipework". That begins at page 9622 and the passage which you quote on the page is at page 9626.

We can read that for ourselves but does it confirm that the circumstances which existed at Grovepark Mills leading up to the disaster in May 2004 and the fact that apparently nobody took particular responsibility or even notice of the buried pipework and the pipework through the basement, does this passage suggest that the HSL have identified that that is by no means unique?

A. That is correct. They found that in many situations the levels of maintenance were very poor, documentation and records was poor, risk assessment had either not been considered or was perhaps suspect. So absolutely I found it, as I have described it, very illuminating in that sense.

Q. Not inconsistent with the evidence in Phase 1 of this inquiry?

A. Correct.

Q. If we go on to the following page, 2.3.6 you say:

"Accordingly, based on this evidence, the current methods and practices to ensure the life cycle integrity of buried metallic LPG pipework by LPG users are very poor."

You note the operational circular 286/105:

"... which is to alert inspectors to a matter of potential major concern, namely the ongoing integrity of buried metallic pipework used for conveying LPG as vapour or a liquid."

That document begins at 4236 if we could have that up, please.

Is it possible to identify the date when this document was first published, Mr Sylvester-Evans?

- A. Not readily but I think I went into the properties of the document and found that it was certainly published around May of this year. It may be that that is not an accurate reflection but it certainly I think wasn't around sort of earlier. So I think it was April or May this year.
- Q. Unfortunately we have one of these versions which has been printed from the Internet and has all sorts of dates at the bottom that are probably quite misleading and referring to the --
- MRS STACEY: I wonder if I can be of assistance given it is an HSE document. It is April this year.

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THE CHAIRMAN: Thank you, Mrs Stacey.

MR MARTIN: In any event, Mr Sylvester-Evans, I was going to suggest that that could be clarified later but it seems to be a fairly recent documents after events at Grovepark Mills in May 2004.

- A. Indeed.
- Q. In 2.4 you deal with life-cycle awareness of LPG hazards and risks. Again can we just see to emphasise what you have been saying in the second sentence of 2.4.1 you say:

"There needs to be a lifetime appreciation at the site premises irrespective of the change of managers and workforce."

That again is to do with the responsibility issue and identification of responsibility. Just because somebody changes or an occupier changes or even a process changes, there ought to be a continuous identification of those through responsible and where are the interfaces; is that right?

- A. That is right. Perhaps it is stating the obvious but I think it is important sometimes to state the obvious because the system -- it leads to the requirement that the system must be robust and resilient to change.
- Q. On the following page you deal with the HSL study and I do not think we need to look at that, but at 2.4.4 you

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say:

"In my experience, the immediate cause of many serious accidents is either a lack of appreciation of the hazards or the failing to risk assess part of an operation or system."

Just having regard to what we are aware of as having occurred following Phase 1 of the Inquiry, which of those, or perhaps both of those, applies to the circumstances of which you are aware?

- A. I think it is both actually because from my reading of the material there was a lack of an appreciation of the hazard (ie there could be an accumulation of LPG in a basement unventilated leading to the potential for a fire or indeed an explosion) and there was obviously a failure to risk assess and this was the actual buried pipeline itself.

I have to say that one of the most important aspects of a risk assessment is to first define the system that you are looking at. It may again sound very obvious, but in doing this work and/or critiquing the work of others, one often finds that they have drawn an envelope around a very small area and really they have not considered it in the holistic picture or in total and, therefore, they miss some very important elements or events or unwanted events that can occur

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from outside the envelope.

So it is so important to define the system that you are looking at and make sure that you include each and every part of it.

Q. In 2.5.4 you say:

"The competent LPG supplier will have the knowledge and experience as to how best to manage LPG hazard and risks. They provide the LPG user, who may be inexperienced in handling LPG and under-resourced, the immediate gateway to first-hand practical advice on the subject. This communication channel and the sharing of knowledge should be actively encouraged."

Does that mean not only in the industrial context, Mr Sylvester-Evans, which I think is what you are effectively describing there, but perhaps even more so in the domestic context. The person who most obviously has the knowledge about LPG all its characteristics and the pipework and tanks and indeed the dangers is the supplier. The occupier may in fact, particularly a domestic but even an industrial, have little interest other than having a supply of something to bring about heat or whatever it is.

A. That is correct. It is even more poignant and important in the domestic scene.

Q. You then return to the basic principles underpinning

suggested improvements. At 2.6.2 you set out that you concur with the HSE submission and the various principles which should underpin improvement are the first of the arrow points in 2.6.2. We can discuss that with the witnesses from the HSE in due course.

Then in 2.6.3 you say:

"Similarly, the basic principles for the LPG oversight regime by the regulatory authorities should achieve whatever are the appropriate levels stated."

Without in a sense diminishing the importance of what is said there, do these principles to any extent give direction of how the actual hazards which have been exposed by the evidence of this inquiry should be regulated in a way to prevent them, try and prevent them from happening again?

A. It comes back to what I said to start with really, which was the need for transparency, the knowledge and competence and the implementation of that and reviewing and monitoring. Therefore these are maxims, these are principles that one ought to have in mind but the key one is to ensure that you are encouraging parties to abide by or meet their current duties and to see how we can strengthen that implementation.

Q. You then in chapter 3 deal with the clarity of responsibilities and you provide two basic options for

ownership in of course the context already discussed.

Again, may we take it that this is with a view to the aspiration which you have suggested which is to minimise the interfaces and maximise the extent of knowledge of those who have responsibility?

A. Yes. It's basically to make sure there is absolute clarity with respect to the responsibilities maintaining the integrity of the system and I have done so because I think -- and I have divided it up into two possible options just really to test possible directions, perhaps aid the Inquiry as to some of the issues that would be involved and have chosen the point to be the first stage regulator on the tank, that point being used by some suppliers as a point of the end of their ownership, some of the suppliers will not use that but just use the

vapour or liquid outlet, ie the tank, the prime fittings and the vapour or liquid outlet before one gets to the first stage regulator. So you can have a break point anywhere.

Of course the point is historically there are sites in existence where, in the extreme, the customer owns the tank and the service piping and the installation piping or indeed situations where the supplier owns the tank and the service piping. They are not common but they will be out there. So there

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will be a mixture and I was really looking to see whether there was any chance standardisation or optimisation perhaps is a better word. But the main thing is for everyone to know precisely who owns what and whose responsibility it is to ensure the integrity of those parts.

Q. You have provided two basic options and in line with what you just said to some extent influenced by the historical realities and the first is that the LPG tank is the responsibility of the supplier up to the first stage regulator or alternatively that the LPG tank beyond the first stage regulator and including the service pipework downstream of the first stage regulator to the emergency control valve outside the building.

In this option all of these would be the responsibility of the supplier or the supplier would have the ownership of them, to use the special that is in your report?

A. That is right. Those are the two basic options I have looked at.

Q. If we look at the two tables that you have provided of advantages and disadvantages of each of the options, as you have just said a moment ago, the supplier being responsible up to the first stage regulator is probably in the vast majority of cases a maintenance of the

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status quo so that it would not be an innovation.

A. That is correct, whether it includes the first stage regulator or whether it doesn't, or whether it is just up to the vapour offtake, it is the status quo, depending on which is the party.

Q. Clearly that influences the advantages and of course to some extent the disadvantages are a consequence of that.

The second being the LPG user or landowner may believe wrongly that the service pipework is maintained by the LPG supplier, as is the case with natural gas, and that in a sense is the obvious problem with that particular system and, indeed, it in effect happened at Grovepark Mills?

A. Correct.

Q. But of course another disadvantage that, if you go on to page 22, the last of the bullet points is if the LPG user or landowner changed entity then responsibilities for the service pipework can be overlooked. I am assuming that whilst we are talking about ownership here in the sense you have described (that is to say, responsibility for the integrity of the pipework), if the legal ownership of the land changes then that potentially could change who might have responsibility for the pipe. So that is a disadvantage of leaving the pipe situation, in effect, as in most locations at

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present?

A. Yes. It depends on who actually has -- sorry, if the landowner/managing operator has the responsibility for

the integrity of the pipe as well, then the answer is yes.

- Q. The alternative is that the LPG supplier is responsible for service pipework up to the emergency control valve. As we know at Grovepark Mills there was not actually exposed pipework where it entered the building because of the earlier raising of the yard and there was not an emergency control valve there on the outside, although there was a valve just inside. I think elsewhere in your report you describe steps which ought to bring about a situation in which there is always exposed pipework where the pipe enters the building and an emergency control valve?

A. That is correct.

- Q. Perhaps not to prejudge the matter too quickly, but the advantage of the pipework being exposed where it enters the building is that if you know where that is and you know where the tank is, you have some idea of where the interconnecting pipework is likely to be under the ground?

A. That is certainly one aspect. Obviously there needs to be a reasonably accurate map showing the routing of the

pipework as well.

- Q. Of course, one of the, if not the primary advantage of this option is that ownership of the pipe up to the ECV (that is to say where it enters the building), ownership by the person who supplies the gas is the equivalent of the natural gas situation?

A. I'm sorry, is this for -- I've just lost the --

- Q. It is option 2. It is where the pipework up to the emergency control valve is the responsibility of the LPG supplier.

A. Yes, that is correct.

- Q. So natural gas, as we will hear from other evidence (and of course there is a substantial statutory regime governing that and also there are historical reasons behind it), the pipework from the natural gas supplier is the responsibility in one form or another of the person who supplies the gas to the premises up to an equivalent point?

A. That is correct.

- Q. So the potential misunderstanding of an occupier that the supplier was responsible for the pipework, influenced perhaps by the natural gas situation, would be much less likely to happen if the suppliers had responsibility for the pipe up to the entrance to the building?

A. For comparison on that point, correct.

- Q. The disadvantage of course, on the face of it, is that unlike the natural gas system where there are certain statutory entitlements, the supplier may have no right to go on to land between the tank and the building in the event of that being necessary for whatever reason?

A. That is correct and of course the supplier has no day-to-day control. That is the LPG user, the operator of the premises, has the management control of the use of the environment and that of course can be one of the most important points to help distinguish the two options.

- Q. We do know of course as we discussed earlier, Mr Sylvester-Evans, for obvious reasons that under the Gas Safety Installation and Use Regulations a gas supplier must provide 24 hours a day 7 days a week emergency cover, even at industrial premises and

obviously at domestic premises. That must exist in a situation where, in some situations, the pipe does not belong to either the supplier or to the user.

Do you know how that would actually work in legal terms if somebody was called out, an LPG supplier, and wanted physical access to get to a pipe to deal with an emergency but, unlike the Transco or the old Gas Board employee, has no statutory powers to do that? Do you

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know how that works?

A. I am not sure from a specific -- from a legal position. The reason for having the emergency cover is that at least with having a name on the tank or the cylinder you have a name and a contact number in the event of a release or an incident. But effectively the police would get the keyholder and force entry. I think that is the practical solution. But, for example, if the LPG supplier turned up and there was no-one around and there was a huge release, then I would hope that the user would be sensible and say, "Come and help me, I have a problem". But for the legal niceties, I'm not sure exactly --

Q. It is not in any sense to put you in a difficult position, Mr Sylvester-Evans, because clearly these are ultimately legal matters. But is it fair to say that from a practical point of view, as you look at it and from a legal point of view as perhaps others in this room might look at it, there is a curiosity there because there is no statutory entitlement, as far as we are aware, to interfere with somebody's LPG supply pipe, say in an emergency, in contrast to the natural gas situation?

A. That is correct, absolutely.

Q. It may be others can explain and help on that matter

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later.

THE CHAIRMAN: I think there is also another aspect to this that you have not been called on to consider, Mr Sylvester-Evans, and that is you are looking at this in the context of health and safety statutory regime but there are other common law duties of owners of land who bring dangerous substances on to the land and there are duties of occupiers of land in relation to third parties. So that would be way beyond your expertise, but it is something that would have to be considered among the advantages and disadvantages; would you agree?

A. I agree, sir, and I think perhaps industry representatives or perhaps the HSE will say -- suppliers rather -- how often that sort of situation arises and, you know, whether it is 95 per cent, it is what I would call a bog standard installation with very clear or possibly somewhat blurred responsibilities but it is between two parties and I appreciate common law aspects and land and so forth could well confuse the issues.

MR MARTIN: Then if you turn to page 23, please, of your report, you simply summarise in the first paragraph on that page that there are a number of variants possible, including what would be the extreme which is the entire LPG system, including the installation pipework, was the responsibility of the supplier. By installation

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pipework I take it you mean pipework right up to the appliance inside the building?

A. That's correct.

Q. I think we know that the common situation in a domestic environment is that the LPG supplier owns the tank and

the pipework up to the second stage regulator.

Is that a regulator which would normally be placed on the outside of the building just as the pipework enters?

A. Typically, yes.

Q. You then deal with suggested improvements. The first of your recommendations is that for bulk LPG at industrial and commercial sites you recommend that wherever possible the number of interfaces between responsible parties should be reduced to the minimum so that they can be managed actively. We have talked about that earlier.

If I can just put to you the substance of comments that have been made by other parties, the Health & Safety Executive has said that they are not entirely clear what suggestion you are making, although they support the position that all interfaces between parties must be managed actively and that each party must be fully aware of their respective duties.

It is for them ultimately to explain why they are

not clear about what you have said, Mr Sylvester-Evans.

Having regard to what you have said earlier in your report and the terms of this particular recommendation, is there anything further you want to say in order to explain why it is beneficial that there be the minimum number of parties involved and thus the minimum number of interfaces between these parties?

A. It really boils down to the issue of miscommunication and false assumptions so that one seeks a clarity of responsibility.

Q. So far as Calor is concerned, and they accept that attempts are made to reduce the number of interfaces between Calor and its customers, they nevertheless suggest cognisance has to be taken of the requirement for technical support and competent advice and obviously technical support specialists and others who may have, as they put it, an "interface with the customer".

Is that to misunderstand what you are saying or appear to misunderstand what you are saying about interfaces because you are talking about interfaces purely in the sense of who has responsibility for which part of the system and who that party has a relationship with who has responsibility for the next part of the system?

A. That is correct. All I would say is that they do raise

an issue which does create another aspect of interfaces and that is intercompany interfaces between sales and technical and their respective counterparts perhaps in the user, with the LPG user. Obviously those are issues that the organisation and management of each of the companies must handle, but it is very true that you do not want a salesperson saying something and making assumptions about their technical staff that is false. So there are again interfaces there which need to be managed but that is very much for the individual companies to manage those positions.

Q. You are talking about the company as an entity knowing it has responsibility to whatever extent that is and it is then for the company to ensure that everybody within the company is aware of that responsibility and acts in accordance with it?

A. Precisely.

Q. Perhaps in that context the final comment on this aspect of the report which I wish to put to you is that

Mrs Ferguson and Mrs Smith have suggested that the duty holder, which of course is an expression that you have used, should be a person formally identified within the company in question as being responsible for health and safety and liaising with the HSE and gas suppliers. Of course that is presumably within the context of the

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customer, if you like, the owner of whatever pipework there is and the person who takes the supply.

A. Yes.

Q. Do you have any comment on whether there should be a duty holder in that sense formally identified as being responsible for HSE liaising with the gas suppliers?

A. It is an interesting point. It has to be within the organisation, within the LPG user's organisation, a structure that -- in an organisation rather than effectively has clarity as to who is responsible for what and, therefore, one would always expect to see a board assign health and safety responsibilities, that is not abdicating the board's responsibility but making sure that someone manages those issues. I think when we come to the issue of the safety dossier, I do actually sort of suggest that there should be a mechanism whereby a senior manager signs off the fact that, "Yes, this is why the LPG that we use in these premises -- it is a safe place of work and this is the reason why", and there's a summary and it is signed off by a senior manager.

To make it a formal point then I suppose it is debatable -- technically, from a managerial point of view, you shouldn't need to do it. Whether it's felt it's a necessity to force somebody to do it, then

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that's perhaps a matter that you might wish to seek other views on. As I say, structure should be there normally within a system, within a competently well-managed, well-led small company, medium sized or large company.

Q. But as you rightly said you are going to discuss later the concept of a safety dossier for a system of LPG and certain consequences that follow from that. You would see potential attractions in somebody, whether they are called a duty holder or whatever, being identifiable as having the responsibility for that dossier and thus being the person who is immediately responsible, if you like, for the interface?

A. That is correct and in that sense it needs to be someone who is senior enough and not just put, if I may put it, to a clerk or someone who is just a function. It needs to have senior management oversight.

Q. But also somebody who is knowledgeable of the physicalities of the situation?

A. Absolutely.

Q. Paragraph 3.3.3 on page 24, your recommendation there is the Inquiry should confirm or otherwise the relative advantage and disadvantages of the two options with LPG suppliers.

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I think at this stage, Mr Sylvester-Evans, you

set out your view of the advantages and disadvantages and I think it would be helpful to have the views of others on that. Perhaps when you return in due course we might ask a little more about your ultimate views on that.

A. Indeed.

Q. In 3.3.7 you recommend the regime in the sense as you

have set it out thus far and the Health & Safety Executive in response to this recommendation has queried whether it would be proportionate if placed on all commercial users. Clearly that is a matter they will be able to assist us with in greater detail in due course but is there any obvious reason why, in a sense, in having regard to the circumstances which took place at Grovepark Mills such a regime would not be proportionate?

- A. In essence, what is being suggested here is it should already be there in place. So there is no principal change, it is just making sure that it is in place and it is accessible. So we do have a clear understanding of the legal title and, if I may put it nicely, it is not lost in a legal department's filing system or disk. There is a clear account of the legal responsibilities which should be known anyway but just reinforces that point. There is a diagram which is

created and maintained that shows exactly the break points of areas of responsibilities and the physical location. That will be part of many a contract but again is it the right place to be lost in with the contract elsewhere. It should be known as part of the maintenance and inspection procedures as well and a clear account of the responsibilities and accountabilities that flow from those. I have to say this is what one expects a company to have in anyway. It is just to formalise, shall we say, that this is perhaps pulled into one place, which of course really comes to the safety dossier later.

- Q. So would you dispute the suggestion that this might somehow be a disproportionate response to these circumstances of which you are aware?

A. I would dispute that thinking.

- Q. ICL Group of companies have suggested in this context the creation of a register of LPG gas installations at commercial premises to be held by the Health & Safety Executive or another nominated body and the register would include the sort of details that we are going to talk about later.

Have you given any thought to that possibility?

- A. This would be an equivalent of a sort of national register --

- Q. Yes, I understand it, that is what is being suggested, yes.

I suppose if I may say, just drawing from that, so that the sort of information that you might have discussed in the context of being held on the premises was held at some central database and accessible from that.

- A. I suppose there's an innate feeling that I don't like centralisation, that one wouldn't want to detract from the owner's -- sorry, LPG users' responsibilities but on the other hand I can see that there may be some good logic to have a national database of installations from an inspection point of view, which is high risk sites and we come on to that as a separate issue. But I'm not sure whether I am cutting across two issues here. As a norm of expecting this to be a register of all such sites, I would like to hear the arguments that support that a little further.

My first inclination is what will that achieve in reality, but I would like to hear the counter-thoughts, if I may put it that way.

Q. If we can then go on to the next section which is dealing with life-cycle LPG system integrity and I think we can take much of that as read.

At the end of page 27 you deal again, with the

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Operational Circular 286/105 which we looked at a few moments ago. At the top of page 28 in the part of the document which is inspection, examination and maintenance strategy for users, you quote, and this is on page 4238, paragraph 19 I think it is:

"Where reasonably practicable existing buried metallic pipework of poor or unknown condition is rerouted above ground and protected against mechanical damage."

May we take it, without in any sense demeaning what is done, that is a statement of the obvious having regard to the evidence that we are aware of regarding the condition of buried metallic LPG pipework?

A. Yes. I think the key is in the words "poor" and "unknown" there to distinguish it from situations where there is a metallic pipework which is reasonably well-protected and the integrity is in that sense being managed.

Q. Then it talks about:

"Where that is not possible, then either the pipework should be replaced with buried polyethylene pipes or a suitable propriety pipework system or where they remain below ground, that they are subject to an inspection, examination and maintenance strategy as outlined in appendix C."

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Again, all that is perfectly sensible, Mr Sylvester-Evans, but to what extent does the guidance (that is to say, OC 286/105) actually provide any mechanism for enforcing the aspirations which are stated in that paragraph?

A. It is, I suppose, by the usual HSE route of improvement and enforcement. But it is first of all recognising that there is a problem, that appropriate action is not being taken by the LPG user and therefore that mechanism needs to be considered quite carefully because it has been reported by the LPG supplier, because there is a report by someone else or is it because of an HSE inspection? But enforcement essentially, I imagine, is through the normal mechanisms.

Q. You say improvement or enforcement notice?

A. That is right and enforcement would mean you shut down the facilities, you can't supply any LPG to it.

Q. But, as I understand it, that would be in a context where the HSE have not provided any, as it were, step-by-step guidance to get to the point where the ultimate sanction might be deployed in the form of an improvement or enforcement notice. Perhaps I am not putting the question well. At the moment, if an HSE inspector turns up, notices that there is an LPG installation, there is nothing actually to say what the

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occupier (using the general sense) should have available to demonstrate to the inspector that the system has been looked at, has been satisfactorily inspected or whatever it may be. There is no regime set out in guidance to that extent?

A. Apart from the Code of Practice.

Q. From the UK LPG?

A. Precisely. There is nothing else that basically gives what is expected of the user.

Q. Thank you. At 4.4 on page 30 you are here beginning to describe the verification scheme and you refer to various documents. I do not think I need to take you through that.

But at 4.5 on page 31 you set out your suggested improvements, and having regard to what you said earlier, and you say:

"With respect to the LPG user recording and knowing its LPG system for which it is responsible, I recommend a regime in which the individual LPG user (and, if relevant, the landowner/managing operator) is required to retain relevant up-to-date information on its LPG system. It should include, but not be limited to the following: design and installation details ... details of safe operating envelope ... a summary of the engineer safeguards design to prevent

unwanted events, inspection results and reports" which you deal with later.

You then say:

"For an individual LPG user, this information is required to be held on site in an LPG safety dossier" and you talk about it later in a bit more detail.

What, Mr Sylvester-Evans, would be the clear benefits of a safety dossier being held on site for any individual LPG system?

A. It is twofold basically. First of all, for the actual user it is a repository of the information, the assumptions and detailed engineering -- sorry, not the detailed engineering, but the key risk control measures that are being adopted on that site to guard against a release, perhaps a mitigating control against a fire, an emergency response. It just pulls together effectively what companies already should have by way of their plan to ensure a safe LPG system being used in the workplace. That is the first point but it basically pulls this lot together and condenses it. It is not a great deal of information but it needs to be concise in that sense.

But the second point is that it provides anyone who is auditing or verifying or indeed inspecting, an outside inspector (HSE, for example, or Local Authority) to have the system identified or a system of

mini safety cases, "This Is how we safely operate with LPG here. There we are, that's our system, have a look at it. We would be very happy for comments but that's what we do. You can go outside and you can see that we are doing it".

That is effectively its use. It makes it transparent and what is more, putting it on paper in the first place helps because, for example, one of the key safeguards often is ventilation systems and we all know that a ventilation system can stop, you can decide it is very cold in here, block it up, make sure it is nice and warm and, by doing a very simple act like that, where you just blocked up or turned off the ventilation fans, comfort might be better but you have actually taken away a principle safeguard which is associated with providing adequate dilution which may be a safeguard for preventing the accumulation of natural gas, or indeed LPG, whatever you are considering, and it is just really quite basic to establish what your safeguards are, your procedures, this is what we have in place, this is why we make it safe and it is, therefore, transparent for both user and external auditor/inspector.

Q. The Health & Safety Executive's response to this is that the suggestion implies further regulation and by that I

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assume it means some form of statutory regulation, secondary legislation, and that this would need to be justified by an impact assessment.

I will be asking witnesses from HSE about impact assessments so I do not want to trouble you with that, but do you think this is a regime which inevitably would have to be imposed by some form of statutory imposition through regulation?

A. My starting point is "not necessarily" because these are existing duties. It is basically how to encourage the user to do this. I suppose it is that encouragement and the teeth to that is something that is, I think, useful because what I have suggested is the "what". The "how" I think on this aspect is maybe a little more difficult. But essentially, this is what should be being done anyway. I think that is the starting point and that is a basic premise for good safety management.

Q. Is one of the reasons why it ought to be being done is under the management of Health and Safety at Work Regulations, regulation 3, there is a duty to carry out a risk assessment and this -- well, you will tell me -- on the face of it does not seem too far away from a form of risk assessment.

A. It is basically supplying information that underpins this risk assessment, absolutely, on which you are then

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judging whether your safeguards are adequate or not; that is quite correct.

Q. Paragraphs 4.5.3 and 4.5.4 are suggesting evidence which I think we can leave to this stage of the Inquiry.

Insofar as 4.5.4 is concerned, Calor have certain submissions but perhaps I can leave those to them at this point.

Then 4.5.5 is:

"Depending on the findings on the current initiatives, I recommend a certification or verification scheme be introduced that requires an independent competent person to verify the integrity of the LPG system at each LPG user site prior to an LPG supplier being permitted to supply, or continue to supply, LPG to that site. Site verification by the ICP would have to be renewed periodically, at a prescribed frequency to be determined."

Is it the case, Mr Sylvester-Evans, that that in a sense is critical to the sort of arrangements which you are proposing to this Inquiry because, at the end of the day, if someone is prevented from supplying to a system which has not been adequately verified, then the potential hazard is cured because, unlike natural gas (which continues to flow through the pipes), when the tank is empty then by and large the hazard disappears

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until it is filled up again?

A. That is correct. By and large, that is absolutely correct. So not quite "no gas, no explosion" because obviously there is a potential for explosion within the tank from a technical point of view. But, yes: no gas supply, then the risk is removed from the installation piping, the appliances and so forth. So that is the ultimate sanction, as you say.

Q. Therefore, it is in a sense critical that what you say in 5.5 is achieved to bring about the entirety of the regime which ultimately prevents gas being supplied in

this situation which is not adequately verified.

A. Yes, that is correct.

Q. Is it fair to say also, because of course we know that at the moment there is the concern with buried metallic pipework, but since the early 1990s predominantly, if not exclusively, LPG pipework which has been installed has been polyethylene or similar pipework which raises completely different considerations, is it quite possible to devise a certification regime and in particular periodical inspection regime which is perhaps less rigorous for polyethylene pipes than for buried metallic pipes, because the polyethylene is inherently safer and does not need to be checked so often?

A. That is correct, but I think the key thing here is it is

not only just the pipework, it is the whole system and also the environment in which it is being used. So, as I say, someone thoughtfully building an extension of the building that takes away the ventilation is another modification that would be just as crucial as impending corrosion on the pipe because there could well be a small leak from the side of the building that creates a problem with no ventilation.

So in that sense there is -- the high risk issue is obviously metallic pipework at the moment, but there is also the wider picture of ensuring the installation as a whole -- sorry, that is a bad word actually -- it is the "system", because we have the installation pipework and the service pipework and the appliances are basically subject to a verification, an independent check by a competent person -- and I will come back perhaps to the word "competent" because there are regulatory meanings to the competent -- but it is really to make sure there is this check of the system, its integrity, its use and the environment in which it is being used.

Just on the competent point is what I am suggesting is it is competent for the task in hand, which may sound very obvious but I am not suggesting there needs to be competency per the pressure safety

system regulations, which is defined. So that is an issue actually that needs to be perhaps considered by this phase of the Inquiry, my Lord, that what sort of level of competency would one be looking for generally as an issue because there may be parties' views on that.

THE CHAIRMAN: Mr Martin, excuse me if I interrupt at this point. I was going to ask you this later on, Mr Sylvester-Evans, but we may as well get it out of the way now. Do you accept as a general proposition that polyethylene piping, underground piping, is safer per se than metallic pipework no matter how well protected?

A. I think from my understanding of the incidents and the materials involved, it is inherently a safer alternative because it is not subject to corrosion. It however still has potentially the same problems if its installation is not correct or it is subject to mechanical damage because it has been installed above ground and has been exposed and there are also other issues. So therefore you are not removing the hazard altogether. The material is still there. The LPG is still there. There is always the potential for a leak if somebody decides to get a JCB and dig a trench for another utility, nicks the pipe, doesn't tell anyone and puts the other utility in, covers it all up, no-one

knows about it, and then there is a leak. So there is that potential. But the potential for corrosion has been reduced. That is the high risk issue at the moment.

THE CHAIRMAN: I suppose the extent to which there is metallic pipework underground on industrial sites in the UK is just something that is unknowable.

A. I think the question is it should be known is my position on this; that is, it is important to know where it is and what the condition is. That is the fundamental point.

THE CHAIRMAN: So forgive me, Mr Martin, just to follow this line of thought for the moment, the logic of your argument about the dossier and the verification scheme would be that this would actually bring to light the extent to which there is underground metallic piping and one would hope also the extent to which such piping is properly protected. Would you agree with that?

A. Yes, indeed.

THE CHAIRMAN: So in a sense the regime that you are recommending is not merely a protective safety regime, it actually would in effect amount to a national survey?

A. Yes, a survey being done by those who are actually responsible for its use because, I have to say, I did sit back and say should there be a national survey and I

thought there is a problem; how do you know where these sites are? The suppliers know so they must be in the equation and the user knows but, on the other hand, the user may not know what it has and how it actually should be protected.

So that is the reason why I think the onus has to come through the user with help from the supplier and HSE as the oil to the engine of making sure that the systems are in place and knowledge is flowing between various groups and encouraging compliance. So that is where I have arrived at, the "what" if I may put it so crudely. One of the issues of undoubtedly having a safety dossier is to help understand what they have. How that is done and the degree of regulation or hopefully a very light hand of regulation is required. That is perhaps to be explored.

MR MARTIN: Returning to the verification scheme recommended in paragraph 4.5.5, Mr Sylvester-Evans, Calor, Mrs Russell and ICL all in practical terms suggest enhancement of the regime to ensure that pipework, and indeed other elements, of an LPG system are properly installed and, in particular, ICL suggest the extension of the Gas Safety Installation and Use Regulations to industrial premises and it may be that Calor in effect imply the same thing.

Could I ask you two questions. The first is: would the extension of the GSIUR have a benefit in relation to industrial LPG installations because they would then be installed to an appropriate standard with verification by people who are properly qualified?

A. The answer is yes, but I would need to -- I think you will need just some insight, if I may put it that way, as to the degree of competence and number of competent engineers and fitters who would be able to undertake this work in an industrial scene. So it is not just a domestic gas fitter, it is the ability to work in an industrial scene and the competencies of working on service piping rather than installation and appliances.

But the answer is, yes, it does seem to offer some advantage of widening the competency. But with that reservation of perhaps hearing evidence on the pros and cons of the two views of competency and resourcing, I think it would be worthwhile certainly hearing evidence.

Q. We will hear, I think, that the Health & Safety Executive are against the extension of the GSIUR; so there will be evidence from both sides on that.

But let us assume that there was thought to be justification for the extension of that regime into the industrial LPG context and thus that installations would be installed and certified to a greater standard

than at present. Would that still leave the other element of the verification scheme, which is the inspection regime thereafter, both for new and for existing installations, with the ultimate sanction of gas not being supplied --

A. That is true --

Q. -- it would still leave that to be dealt with separately?

A. That would have to be in the case of an existing installation or the new one once it has been commissioned there is the need to ensure that that is a safe place, a safe system and that has to be dealt with.

Q. And the point about the safety dossier approach with the verification periodically is that there is an ongoing supervisory regime over the installation at whatever frequency, not simply that it has been installed correctly but that it continues after use to be satisfactory?

A. Correct.

THE CHAIRMAN: You are talking here about the whole installation, are you?

A. Yes, the whole system -- not just the installation piping, it is the whole system.

THE CHAIRMAN: All the way to the appliance?

A. And the appliance.

MR MARTIN: At 4.5.6 you recommend evidence regarding the verification scheme and we shall certainly hear that. At 4.5.7:

"The Inquiry may wish to recommend that it be developed jointly by UKLPG with its members and the HSE."

I think it is fair to say that UKLPG, as well as both the gas companies who are core participants in this Inquiry, are reasonably sympathetic to that approach. HSE perhaps remains to be seen.

Why would you regard developing the guidance jointly between the industry and the HSE as desirable? Is that based on previous experience of similar situations or what?

A. Yes, because I think it is both an aspect of ensuring suitable standards are being adopted and that they can be enforced and I think that therefore a collaborative approach is undoubtedly the best.

Q. The HSE suggest that in such a situation they should lead on the devising of the verification scheme. Do you have any view on that?

A. Not particularly. I can see why they may say that. I have no particular view as long as it is done in that sense, if that is the recommendation. Obviously from an HSE point of view it is an element -- it is the

compliance aspect which is the important thing and it is

also the competence issues that need to be thought through.

Q. As you say, as long as it is done.

A. Indeed.

Q. If we move on to control and mitigation of potential consequences, and I think we can take the table 5.14 itself, you then go on to make a number of specific comments about aspects of ... the acronym is DSEAR that is the Dangerous Substances and Explosive Atmospheres Regulations 2002. My Lord, these are to be found beginning at page 4445 to 72.

THE CHAIRMAN: This is a new chapter, is it?

MR MARTIN: It is in a sense a new chapter, my Lord, yes.

THE CHAIRMAN: I think we will stop now until 2.00, please. (12.52 am)

(Luncheon Adjournment)

(2.02 pm)

MR MARTIN: Mr Sylvester-Evans, we were beginning section 5 of your report at page 33. I would like to ask you some questions about the Dangerous Substances and Explosive Atmosphere Regulations, DSEAR, based on what you have said. I wonder if I could have up please, page 4449, please.

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In 5.1.3 of your report you say that:

"As outlined earlier the LPG user, as an employer, will have responsibilities under DSEAR to undertake a suitable and sufficient assessment of the risks to his employees which arise from dangerous substances at the workplace."

Of course that is additional to the obligation under Regulation 3 of the management of Health and Safety at Work Regulations?

A. That is correct.

Q. And indeed in addition to the general obligations under the Health and Safety at Work Act itself?

A. Yes.

Q. On page 34, you set out the aspects of the risk assessment which should be included and I think these come from regulation 5 (2) (c).

I would like just to ask you about one or two of these -- forgive me --

A. I think they are from 5 (2) --

Q. From (d) onwards, My fault.

"Activities such as maintenance where there is the potential for high level of risk;

"(f) the likelihood that an explosive atmosphere will occur and its persistence."

Would that take into account the possibility of a leak which was otherwise unforeseen and unexpected?

A. Yes and a good example would be, for example, the likelihood of a leak arising in an unventilated basement.

Q. "(g) the likelihood that ignition sources, including electrostatic discharges will be present and become active and effective."

Does that have potential with regard to both sources of naked flame like lighters or matches or whatever but also sparks from electrical equipment?

A. Absolutely.

Q. "(H) the scale of the anticipated effects of a fire or an explosion."

To what extent would that require to take into account the nature of the structure within which the

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explosion was anticipated and the ability of the structure to resist the effects of that explosion?

A. It would have to take full account of those features because an explosion will be heavily influenced by the nature of the structure which is attempting to contain it.

Q. "(i) any places which are or can be connected via openings to places in which explosive atmospheres may occur."

Would that include potential pathways for gas to

track, particularly if it is heavier than air?

A. That is correct.

Q. If these particular duties had been fulfilled in the circumstances which you have understood arose in respect of the evidence in Phase 1, once again, in theory should that have resulted in the circumstances of the disaster not having come into existence?

A. It should not have occurred, correct.

Q. But if you devise a practical step such as you have described thus far, the safety dossier approach and other matters which you talk about later, to what extent do these appear to be a fulfilment of the requirements of regulation 5(2) as well as fulfilment, for example, of the general risk assessment obligation we have looked at?

A. The extra features I am suggesting the Inquiry considers are very much part and parcel of the assessment. You will need to have the knowledge of the equipment and the design of the building, together with the potential hazards, in order to undertake the assessment. So this is not new. This is material, for example, in the dossier that underpins the assessment which has to be made, as you have said, either in accordance with DSEAR or under the Management of Health and Safety at Work Regulations.

Q. In regulation 5.1.5 you say:

"The risk assessment must be site-specific, generic assessments can be a useful starting point but it is essential to consider site-specific risks."

Again, Mr Sylvester-Evans, without labouring the point, that could be part and parcel of what would be in the safety dossier?

A. Indeed. One would expect the findings of the risk assessment to be in the safety dossier. That is where I think it should reside if one moves forward on this basis.

Q. Correct me if I am wrong but, as I understand it, the only practical difference would be that at the moment the employer can fulfil his obligation by creating a risk assessment which he keeps to himself, but obviously takes into account, under the regime you suggest, it would be available to others?

A. It has to be communicated to the workforce anyway, a risk assessment. That is a requirement. But here it just puts it into one location which makes the whole aspect more transparent; so it is more convenient to audit, to inspect, to check.

Q. At 5.1.6 you say:

"A generic risk assessment by the LPG supplier for its tank and filling area may be quite sufficient for

many industrial/commercial bulk tank facilities, which are designed and located in accordance with the LPG Code of Practice. However, a formal assessment of

site-specific issues should be done by the LPG supplier in connection with its equipment and any specific findings discussed with the LPG user."

That means that, for example, if you have a tank, no doubt of which the model in front of us is an example, there will be a number of generic features of that which could be in any risk assessment for such a tank but you must also take into account site-specific issues of the remainder of the installation?

A. Precisely; that's right.

Q. In regulation 6 in DSEAR you refer to that.

I think I need 4450, please.

You refer to control and mitigation measures under regulation 6 and you have referred in the second arrow point avoiding or minimising the release of a dangerous substance, that is Regulation 6 (4) (b), which we can see just at the bottom of the page, and the control of a release at source which is regulation 6 (4) (c).

Once again, could these provide the basis of a practical mechanism for actually achieving these things; that to say if you have a duty to avoid or

minimise release of a dangerous substance then something which in practical terms focuses on pipework to make sure it is not going to leak would have that ultimate practical achievement, would it?

A. Indeed, yes.

Q. Page 37, please.

If I could have 4454, this is the beginning Regulation 7. We may need the next page also.

In the context of Regulation 7 you say:

"It requires employers to identify places where explosive atmospheres may occur as a result of a release of a dangerous substance. Such places are clarified as hazardous places ..." and so on.

"The classification is an integral part of the risk assessment process. Its purpose is to define the extent, frequency and duration of any occurrence of an explosive atmosphere (the zone). The zone in turn defines the requirements for the selection and installation of equipment and protective systems so as to prevent sources of ignition."

I think that comes from Regulation 7.

A. That is probably from the ECOG actually.

Q. Either that or schedule 2, 4458 to 446 to Schedule 3.

In any event, I ask the same question,

Mr Sylvester-Evans: could that again provide an existing

regulatory foundation for a practical procedure to identify what could be the consequence of an occurrence of an explosive atmosphere?

A. Indeed, yes. I think it is fair to say that Regulation 7 does apply -- it certainly applies to the industrial facilities but for some commercial, quite a large number of commercial burners and heaters and so forth it would not apply. So there is an application issue for Regulation 7. But the principle is undoubtedly applicable.

Q. We note from 5.1.17 that:

"In accordance with the Regulation 7 (4) [at the bottom of the page on the screen] the employer shall ensure that its overall explosions safety is verified by a person who is competent", and that is before a workplace is used for the first time?

A. That's correct.

Q. Clearly what you are talking about is an ongoing regime but nevertheless the principle is exactly the same, presumably?

A. Yes, because obviously you need to verify it to start and then the importance is to make sure that existing sites and sites continue to be, shall we say, under the umbrella of an independent check.

Q. A category of a competent person as you have indicated

is something that is described as being competent in the field of explosion protection as a result of his experience or professional training or both and you give a reference to the DSEAR Code of Practice.

Again, does this indicate that the concept of someone who is an approved or competent person is again not something that you are suggesting?

A. No, no, that's right.

Q. If we then look at the approved Code of Practice which I think begins at 3191, and you have it quoted on page 38 so we do not particularly need the document, you refer to the verification which is provided in the guidance and:

"The verification should include reference to the dangerous substances that will be present, including properties and quantities, suitability of the plant, work processes, effectiveness of measures to prevent explosive atmospheres forming, control risk from explosive atmospheres and the effectiveness of emergency arrangements."

Again, I say, Mr Sylvester-Evans, does that again provide an existing statutory regime which in effect you are simply extending by practical steps to be taken?

A. That is my intent.

Q. Sorry, I used the word extending. I did not mean that. I meant implementing by practical steps to be taken?

A. That's right. I mean, when I was laying out and shall we say putting these thoughts together and trying to identify what could be done, I found that a lot of the issues actually flowed out of the existing requirements, although those requirements didn't extend across all aspects of the industry or the systems, but they are not new.

Q. At 5.1.21 you deal with pipework entries and unventilated spaces and you refer to the current LPG guidance which recommends:

"Service pipe entries to buildings should wherever possible be above ground and that an emergency control valve be extended."

We have talked about that earlier and we know as a matter of fact it did not exist at Grovemark Mills but it is again an aspiration which is stated in existing guidance and no doubt would apply to properly installed modern installations and is an aspiration for all installations for the future?

A. That is correct.

Q. I mentioned earlier of course the advantage of apparent pipework immediately outside the building gives some idea of where the underground pipework is likely to be.

What other advantages are there of pipework which is open to the atmosphere as it enters the building and has on it an emergency control valve?

A. There's two aspects. First of all, if there is a leak within the building then, as part of the emergency

procedures and isolation, you can in fact anyone, not only an LPG specialist but any operator can actually isolate the fuel source because, my Lord, the issue with a fire or with an explosion, the key is to isolate the fuel. That sounds obvious but that's number 1.

The other thing is that with the riser, the pipe stand coming outside the building, effectively from a buried pipeline means that if there is a leak associated with the pipeline or the pipework rather underground, then there is a much reduced likelihood that gas will penetrate into the building, tracking the pipe into the building, into the foundations of the building or the basement.

Obviously, the fact that the pipe is above ground does not completely eliminate that possibility because it may track along other utilities into the building as well, but at least it reduces the most likely route into the building; that is gas will track along its own the pipe, the pipe in which there is a leak.

Q. In 5.1.22 you say:

"All pipework passing through external walls require to be sleeved. The sleeves around the pipework should be sealed to the structure. The intent is to ensure that gas cannot pass between the pipe and sleeve and between the pipe and the wall/floor but should allow normal movement of the pipe."

As a matter of fact, based on the evidence of Phase 1 of this Inquiry, it would appear that the pipe was not sleeved where it entered the building and of course an obvious consequence of that might have been that the gas which leaked just on the outside of the wall of the building, albeit underground, tracked through the space around the pipe. But may we take it that it could have tracked in other ways, either in that particular situation or in general?

A. That is true. It depends on how porous the wall is and if there was, in fact, other gaps where the gas could track into the basement.

Q. So sleeving the pipe as described is good practice which no doubt minimises risk but it does not avoid the risk altogether because if there is a leak external, then the gas might still track by means of drains or other pipeways or whatever?

A. That is correct but at least it is, what generally -- and this is a generality -- but it would need to be a

bigger leak going on for a longer period of time in order to find other paths to the building. By sleeving the pipe through the structure, then at least it is minimising or reducing the likelihood of the easiest path into the substructure or the basement.

Q. At 5.1.26 on page 40 you say:

"By reference to the LPGA guidance, pipework shall not be installed in an unventilated space."

Presumably that would have applied as a matter of fact to the basement at Grovepark Mills?

A. That is correct.

Q. Albeit that perhaps when the pipework itself was installed, as a matter of chronology, it was not unventilated then, it was the space came to be unventilated with the creation of the floor. That is no doubt an example of what you said earlier about people not appreciating the consequences of their actions.

A. That is absolutely right and the environment in which the system is operating.

Q. You deal with regulatory oversight then you go on to mini-safety case for LPG safety dossier and you have referred there and elsewhere to the COMAH Regulations, the Control of Major Accident Hazard Regulations and there are thresholds of, I think, 50 tonnes of LPG and for other purposes 25 tonnes of LPG. Is it right to say

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that there may be helpful indicators in the COMAH Regulations about what might be in an appropriate safety dossier but they are dealing with very much larger quantities of LPG essentially for manufacturing purposes of LPG or similar?

A. Yes, that's right. I think I would not wish to see the safety dossier being thought of as a safety case, which is an extensive exercise in looking at the consequences, sorry, the likelihood of failures and the consequences arising both on-site and offsite, but the basic principles of the identification of what can happen and how you control it, how you review it should be within that dossier. So it is a consolidation of existing material which should exist for a well-run, adequately run, site.

Q. Then you say other aspects of the safety dossier at the bottom of page 41 you say it should include ... then you set out a series of arrow points which the Inquiry can read.

If I just take the last one, which is, "The arrangements, results and reports of the verification scheme that certifies the LPG system is of a suitable standard to be filled with LPG", is it fair to say that other than the earlier matters which dealt with identifying who had particular responsibility for the

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particular thing which stands by itself, all the other elements of the history of the installation are ultimately for the purpose of contributing to showing that it suitable to be supplied at any point in time?

A. Yes, that is the prime purpose but it also provides, if I may call it a sump of knowledge of data which provides a continuity in the event of changing of managers, organisations and so forth. So it does provide historical memory shall we say, if you like, a corporate memory on this particular system.

Q. At 5.3.1 you begin setting out your suggested improvements for consideration.

At 5.3.1 you recommend that:

"All existing industrial and commercial LPG facilities are inspected and upgraded to ensure LPG pipe entries into buildings are above ground and fitted with an ECV. LPG pipework is not routed through unventilated spaces. Where this is not feasible then acceptable alternatives are provided which must be verified by an ICP."

Do you see that as requiring new regulation, whether statutory or otherwise, or do you see that as a fulfilment of obligations which already exist, not least because of what you said about requirements of DSEAR?

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A. I think the obligations already exist. The codes are there, DSEAR's objectives, the principles are there, the issues, and it is a question really of making sure that -- and particularly for existing installations -- that these are reviewed and assessed because that is the problem and people will say, "Well, you don't have to do anything about it and these codes aren't retrospective",

but in fact the issues arising are so important here it could be argued that they have to be done because of the safety issues. That's perhaps going down another route which we can debate later perhaps on retrospection.

Q. Calor's response to this is LPG suppliers have no statutory or regulatory right to enter customers' premises or to inspect customer service pipework, installation pipework or installation.

That may well be an accurate statement of the legal position, but are you relying upon the obligations that the employer has under the various regulations in whose own interest presumably it will be to give access to the supplier to the extent the supplier can provide the necessary information?

A. The answer is yes, but on the other hand these issues are to the LPG user, effectively, to secure, on the basis that it is an existing site and the LPG supplier will probably only have ownership of the tank and the

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vapour or liquid outlet line, perhaps including the first stage regulator and no more. So therefore it is user and the responsibilities and the current duties that are imposed on it.

Q. 5.3.2 is preparation of practical advice. I think we can leave that until later.

At 5.3.3 you recommend:

"... a process is put in place that defines for each LPG user site whether HSE inspectors or local authority enforcement officers are responsible for general inspection and enforcement and likewise who is responsible for oversight of the building structural safety to ensure the building is suitable to meet LPG risks."

The response of the Health & Safety Executive is that the first recommendation seems unnecessary, structural safety is first and foremost the responsibility of building control.

Whether that is right or not, having regard to certain of the regulations we looked at earlier, is this an example of where clarity should be set down on paper rather than it being argued about potentially because there is a statutory background that we know from experience has not been adequate?

A. Well, without a doubt it is again another interface and

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there needs to be clarity as to who is responsible for what and that is certainly with regard to the building issues and whether it is suitable to meet the LPG risks.

With regard to the former it is really to make sure that as much, not only the inspectors and enforcement officers know which sites they are responsible for, but also the LPG user because they will strike up or if they have problems in understanding they could obviously approach HSE but of course they may find it is more appropriate to approach the local authority enforcement officer. So it's a two-way information that the user should know who is in charge or rather responsible for the oversight of what they are doing with regard LPG.

Q. Mrs Ferguson and Mrs Smith have suggested or proposed that there should be a clear system to ensure that any Health & Safety Executive recommendations have a deadline for action and are followed up and on various other issues, they be entitled to do various other things in this regard. Mrs Russell has proposed the HSE should be given more power by Government in what could

be high risk areas of industry. Instead of advising companies on issues, there should be recommendations for action which should be followed up.

One can well understand why these steps are being

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suggested, Mr Sylvester-Evans, and clearly it could be something separate or additional or whatever. But as far as you are concerned, if the regime whereby there is clear responsibility for the system is set out as you have described and a clear procedure leading ultimately to the supply being discontinued if the system is unsatisfactory, would that have a practical effect of removing the hazard without necessarily the enforcement actions coming into play at all?

A. Yes.

Q. At 5.3.4:

"The LPG supplier should be obliged to provide the user with a summary of its asset register ..."

I take it that is so the safety dossier can be completed, can cover the complete system.

A. That is true but it is also again a two-way issue whereby the user should know what sort of risk, what sort of issues it is importing onto its site and, therefore, as you say, it is important for completeness.

It does not need to be absolutely everything from every detailed engineering drawing but as a basic information flow there should be the basic hazards and safeguards that are incorporated transmitted from supplier to user.

Q. We will no doubt have evidence on this but as far as the

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HSE are concerned, they say it is not clear how this recommendation is intended to achieve greater safety in the users' practice or use of such equipment in practice.

Again, the HSE can speak for themselves but is it not obvious that if there is an incomplete record of the installation then there is potentially part of it which is out of sight and out of mind.

A. That is correct. It's all part of the knowledge that is needed.

Q. So far as Calor are concerned, they say that there are already duties on LPG suppliers under the Health and Safety at Work Act, the Management of Health and Safety Regulations and the PSSR, Pressure Systems Safety Regulations, to provide documents to customers on request. That may or may not be right. I am sure Calor can explain in more detail, but they suggest you not asking for anything that it would be particularly difficult to implement?

A. No, that's right.

THE CHAIRMAN: What is an asset register, Mr Sylvester-Evans?

A. An asset register, my Lord, is basically a list, a tabulation of the equipment that you have and the design envelopes, design measures as operating envelopes and

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then, in particular, details of inspection and maintenance requirements and so forth. So it is really just what you own and what it is capable of doing in layman's words.

MR MARTIN: The next recommendation is, in effect, repeating what we have already discussed, the creation of or the compilation of a safety dossier and Calor would support UKLPG in creating and agreeing a template for such a safety dossier with the Health & Safety Executive and

endorse this recommendation. I take it from the way that you look at this, this is not surprising given the regime that already exists which provides the legal background, if you like, to this.

- A. That's right and the dossier, the reason for the template is why should each company have to reinvent it. It could easily and should be a common document that's part and parcel of the package that goes with the handling and use of LPG.
- Q. The Health & Safety Executive question whether this would be proportionate if placed on all commercial users. We will no doubt come back to that in later evidence, Mr Sylvester-Evans.

Do you see any reason why this is not proportionate, having regard to the hazards that you have been considering?

- A. No, because obviously there is a potential for a very serious explosion or fire.
- Q. 5.3.6 is dealing with guidance and the template. Again, I do not think I need to repeat that. We then move on in section 6 to communication, learning and sharing knowledge. I do not think I need to take you in any detail to that.

If you just go, please, to 6.2.1 on page 45 under the heading of "Learning Lessons" you talk about learning from near-misses, failures and incidents as a prerequisite for managing health and safety.

Just at the bottom of that paragraph you talk about organisations such as the Building Research Establishment who have collected explosion incident data, including LPG for non-industrial sites, to assist them understanding the impact of accidental loadings on structures.

We have already discussed the statistics which are available from the Health & Safety Executive and you put them in your report at an earlier stage.

Is it fair to say that although, as you have described them, such statistics appear to exist and have been used for associated purposes in the past, it has been quite difficult actually for the Inquiry to get a straightforward set of statistics which might

disclose the things that you are referring to.

- A. That is my understanding and it's not a surprise because people are looking at statistics for different reasons in different places. So HSE will look at it historically from a domestic point of view but also will collect information through RDO, Reporting of Dangerous Occurrences, and there will be the suppliers who have their own reporting systems through UKLPG. But it is a question of trying to get a representative or good set of data on which trends can start to be identified and so one can then set priorities.

Why am I saying this? Well, if that information was available the issue of ageing pipework might have been recognised earlier possibly. But the point is it is to recognise future trends, to drive future improvements. It is good practice. It is used in the chemical industry, off-shore databases, and this is what one would expect.

The problem is that LPG is mixed in with natural gas and other issues and it is lost in the plethora of the databases and it is difficult to pick up the details that one would want reasonably to use and assess the safety trends.

Q. In the following paragraph, 6.2.2, you say it would be very beneficial if the existing data could be harnessed

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and future data collected, which is what you just described.

If, as a matter of fact, Mr Sylvester-Evans, we know that the HSE has the statistical information which is relatively easily available, at least I think for the last ten or so years, we do know the British Research Establishment as successor to various other bodies and also having access to information from fire authorities, appears to have certain statistical information which, as I have said, has not been very easy for the Inquiry to access?

A. Indeed, the Building Research Establishment.

Q. Yes, I am sorry, Building Research Establishment.

You have not made a formal recommendation about this and, in a sense, it might be said to be on the margins of the terms of reference of this Inquiry but nevertheless do you feel that it would be helpful, as it were, for somebody to have a sort of overview of all of the statistics that are available? It might be the HSE; it might be the BRE; it might be somebody else and is that something you might suggest to the Chairman could be considered if not as a formal recommendation nevertheless as an observation?

A. Certainly as an observation, my Lord, that would be seriously worthy of consideration because it would allow

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people to get a good view as to what's happening in the LPG industry and whether it should include natural gas as well is another issue but it is being able to distinguish those and learning the lessons, as one might say, as I have set out in the beginning of 6.2.

Q. On the following page, page 46, this is assessing the scale of issues you say:

"Of concern is the lack of knowledge the LPG supply industry and HSE, local authorities seemingly have about the potential scale of the problem associated with corrosion of metallic buried LPG pipework. Also there seem to be widely varying estimates of the number of industrial commercial bulk LPG sites in existence. This lack of data is likely to hamper sensible decision-making as to the changes required and any review of progress."

Just before I go on to the detail of what you say thereafter, may I take it that the general aspiration would be to identify as many instances of buried metallic LPG pipework throughout the United Kingdom as quickly as possible to identify those at greatest risk of serious corrosion and thus potential leakage and potential explosion and implement a programme of replacement, removal, renewal of the ones that are at greatest risk first and, ultimately, all of the buried

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metallic pipework in due course?

A. Absolutely.

Q. Is it fair to say that if one introduces a regime, such as you talked about earlier with the safety dossier, whatever, if as an element of that the steps which require to be taken by an employer/occupier who has buried metallic pipework are more onerous than those who have modern PE modern pipework then to some extent that will encourage the occupier to install new pipes and to forget about the old ones and thus, in a sense, avoid the problem by a different route?

- A. It will act as an incentive, could well do, yes.
- Q. So is it fair to say that apart from the detailed consequences of the safety dossier route, et cetera, that you have already described, an incidental and entirely complementary benefit may be it would encourage the identification the systems most at risk and replacement of these systems as quickly as possible?
- A. Yes, and hopefully get the ownership of the LPG user so that they can manage the problem -- recognise the problem and manage it.
- Q. At 6.2.6 you say:

"I understand LPG suppliers' reluctance to share information on their market share of the various LPG supply sectors, let alone share data as to their

customer base. Also, there is the added dimension that LPG suppliers do not need to be registered as such and therefore small LPG suppliers can operate below the radar."

Then there is a 95 per cent membership and I will come to that in a second.

Are you aware that Mr Gary Tomlin of Calor Gas is to be a witness at this Inquiry to speak to certain research that he has been doing in order to try and identify the scale of the problem of buried metallic pipework throughout the United Kingdom?

- A. Yes, I have learnt that very recently, yes.
- Q. Are you also aware that it has come to the attention of the Inquiry very recently that at the initiative of the Health & Safety Executive work is being done along with the UKLPG with an apparently similar aspiration in mind?
- A. Yes. I haven't got to the detail of that but certainly I understand that HSE has contracted work with HSL to identify, shall we say, the gas dispersion through the ground of LPG and trying to compare that with natural gas so that they can then see how the natural gas models for assessing a risk can be used for the LPG market.
- Q. There is certainly work being done by the Health & Safety Executive laboratory, HSL, which you just described but whether that is the same or different

to the work that has been done between the HSE and UKLPG I think we will have to await evidence.

But at the very least does it appear that certain organisations who have an interest in the outcome of this Inquiry are doing work that could be potentially useful to identifying the scale of the risk that you are referring to in this part of your report?

- A. Indeed and as one would expect, if I may put it that way.
- Q. The last sentence which I did not read was:  
"However, UKLPG member companies over 95 per cent of the LPG sales in the UK."

The relevance of that, as I understand it, is that if one were to achieve a regime based upon codes of practice promulgated by the UKLPG, then whilst all of their members, one way or another, might fulfil their obligations, if they are only 95 per cent of the suppliers in the United Kingdom there is the potential that the other 5 per cent will not?

- A. That is correct.
- Q. Given that that is the reality, that is the situation that we are in, Mr Sylvester-Evans, and leaving aside for the moment regulatory direction through formal and secondary legislation, is the fact that you would not obtain, if I may put it this way, 100 per cent coverage

immediately of the industry a reason not to proceed with a scheme such as you suggest?

- A. No. I mean, it is a question of getting the best out of a system quickly rather than aiming for perfection and waiting and waiting and waiting. Ideally it would be lovely to have everyone on board and that would be excellent, but it is important to move with, I would have thought, due speed, obviously depending on the information and the evidence put before the Inquiry as to the nature and the urgency of the problem.

We can try and seek perfection but it is always best to manage the first 95 per cent and then whittle away and get the continuous improvement and get the rest.

- Q. The perfect is the enemy of the good: in other words, one should not delay the sort of steps you are proposing just because a minority, 5 per cent, might not immediately fall within the Code of Practice regime such as you suggested?

- A. That is correct but the one thing I would also say is that the system must be robust to the problems of ... how can I put it? I have described it as the less scrupulous LPG supplier who tries to abuse the system and take short cuts and therefore that has to be recognised within the system and dealt with as well

otherwise it's -- and the extent of that problem, I think, is really for the industry to say that is a problem or it's not, it's imagination.

- Q. We will come back to one aspect of that in a short time.

On page 47 you then begin to set out suggested improvements for consideration and in 6.4.1 you recommend improving the ongoing communication from the supplier to the LPG user of generic-type material and the formation of LPG suppliers and users forum or similar.

I do not think there is any particular resistance to that recommendation. Calor suggests that there is already in existence a wealth of information available to users from the various sources and they provide packs of information.

That is presumably exactly the sort of thing you are talking about?

- A. It is really to ensure that all suppliers are doing that.

- Q. 6.4.2 is you recommend that:

"The aspects of building structural safety, whether or not it is adequate and commensurate with workplace hazards and risks is clarified for the benefit of the duty holders and more authoritative and detailed guidance is published by HSE or whoever is

responsible ..."

HSE say this is not a role for them but for, in Scotland, the Directorate of the Built Environment. Leaving aside who has the responsibility to do it there seems to be an acceptance that that would be a reasonable thing to do.

- A. Indeed.

- Q. 6.4.3 is a suggestion about evidence.

6.4.4, suggestions about collating data and this comes back to various things so that lessons can be learned.

Calor retains records apparently and there has been an exchange of information through UKLPG and the

HSE agrees dissemination of knowledge is useful, though it says it has to be appropriate and discriminatory in order to have impact and best done in a voluntary raising of awareness. We can discuss that later.

At 6.4.5 you recommend that appropriate mechanisms are put in place to establish for industrial and commercial categories of bulk LPG sites and other categories deemed to be useful key statistics.

Who are you suggesting should maintain or retain these statistics, Mr Sylvester-Evans?

A. Well, at the moment I have not advanced any particular party but, in essence, it is all part of the driving

forward of assessing the high risk sites and one-by-one knocking them of the list, shall we say, so that suitable remedial measures are undertaken.

Whether that should be the HSE driving forward that issue or whether it should be the LPG suppliers through UKLPG is, I think, open for debate. I haven't sort of taken that step forward as to the "how". I think obviously the "what" is here and is clearly being started with the various models, risk-based models being developed but of crucial importance will be how is it to be achieved and how is it to be done quickly.

Q. I think it is fair Calor have, I think, referred to the work which is ongoing by them and we will no doubt hear about that. So you are not being proscriptive, it is simply it would be helpful if somebody, as it were, took ownership of collating this data so it is available to all.

A. Absolutely, yes.

Q. We then turn to chapter 7 which is transition and implementation issues. At 7.1.3 you say:

"It is important for interested parties to work together and cut through the inevitable difficulties that will be raised to enact the Inquiry's recommendations."

You use the expression:

"Paralysis through unnecessary analysis should be avoided".

I am not sure if you want to explain a little bit more what you mean about that.

A. I suppose a couple of examples spring to mind whereby -- from the technical side, from engineers and technicians as well as managers and indeed the regulator, we can all get sucked into, "We must have the best possible model to help prioritise where the real issues are". It is very laudable but then in certain circumstances, I can cite two examples, one being the layout risk model for the railways where in fact it took about five or seven years to develop the model, to refine it, improve it and further refine it and this was simply to identify which junctions were going to be the most critical for trains if they have a SPAD, a SPAD being a signal passed at danger. This was of course at Ladbroke Grove, the problem of the delays in actually this model maturing. That is one example.

A similar example was at Transco whereby there was a risk-based model produced for cast iron, failures of the mains, but one was not produced and implemented for ductile iron. It was conceived in 1991 but it took 9 years and eventually after the Larkhall explosion in 2000 before it was actually implemented by various

combinations of, "Well, we need it better because it's

a different mechanism of failure, this corrosion of this pipe rather than the fracture of cast iron so it's different", and there seemed to be, as I said at the time, when I gave evidence there was prevarication and then it got lost into various industry groups.

I suppose it is a sense that it is, I suppose, a little warning shot which from my own very personal experience of seeing these problems that one can over-analyse the problem in seeking perfection.

Really one wants to concentrate on getting to grips with where the true priorities lie and then refining it, but let's get going and then refine it as part of that process.

Q. At 7.1.4, you suggest the Inquiry implements or assigns target timescales for the implementation of each of its recommendations. I do not think there has been any particular response to that but that is an element of what you have said, that one needs to press on, one has enough information based on the experience of what occurred at Grovepark Mills and more generally having regard to what you have said in your report one has enough evidence to begin to devise a regime such as you have described which should have the ability to minimise the risk of something similar happening again.

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A. Indeed and the work is underway.

Q. In paragraph 7.2.1 and 7.1.2 the various elements of evidence that might be taken, I think we are going to hear something about those. In 7.2.3 your first sentence is:

"Key areas to consider are whether the implementation of a verification scheme in preparation of a safety dossier could be introduced without prescriptive regulations. Apart from the important aspect of cost-effectiveness, can a mechanism be devised that encourages the LPG user to embrace and implement such changes? It will be important that either an LPG user cannot abuse the scheme or there be unfair competitive actions by less scrupulous LPG suppliers. For example, an LPG user who is rightly denied bulk deliveries of LPG having been failed by the independent competent person should not then be able to hook up multiple LPG cylinders to maintain his supply of LPG thereby creating potentially an even greater risk of an LPG incident."

By that I take it you mean somebody who simply goes to the garage or wherever and buys some canisters and connects them up himself to a system which an ICP has already recognised is potentially unsafe?

A. That is correct.

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Q. In general however, Mr Sylvester-Evans, has it been your approach to try and devise such a scheme with the minimum need for formal regulation and indeed for proscriptive regulation rather than to do it based on the existing regulatory regime and detailed implementation?

A. That has been my overarching approach and in that sense I have hopefully suggested a direction for the Inquiry as to what could be done.

The "how" I have a view that it is not a heavy hand of regulation is needed, it is a light touch. The question is how light a touch and I think that is something the Inquiry may wish to hear as to the "how".

Q. Just moving over one point at the moment, if one goes to the end of 7.2.4 -- this is the critical matter I

referred to earlier -- your suggestion that the Inquiry could recommend that legislation is introduced whereby it would be a criminal offence to supply or use an LPG system which did not have an up-to-date verification certificate.

May I take it that is the ultimate mechanism which, as it were, addresses the problems of last resort because that will deal with rogue suppliers?

A. Yes.

Q. Because it would be an offence for them to supply to a

system which had not passed the verification regime?

A. Correct.

Q. It would be an offence for the individual buying his canisters at the garage to connect because likewise he would be connecting to a system which had not passed the verification regime and, as far as you can see and having regard to the existing statutory regime and the various regulations under DSEAR and management of Health and Safety at Work Regulations and so on and obviously bearing in mind, Mr Sylvester-Evans, that you are not speaking from a purely legal point of view here, in practical terms that ultimate sanction would achieve the result which you see as being the aspiration of the regime. Is that right?

A. Yes. I felt there had to perhaps be something that had some teeth, shall we say, other than just inspection, routine inspection, which might be infrequent and spasmodic because the sector is very fragmented. So it needed some focus at the end there and this is a suggestion for the Inquiry to consider.

Q. So far as responses to this are concerned, it is apparently the position of the HSE that it does not believe this is needed or appropriate and it might be viewed as a barrier to entering the market.

I hope I am right in saying you are not an expert

on competition but, from your own point of view, how could the prevention of someone supplying a potentially hazardous substance to a defective system be seen as a barrier to entering a market?

MRS STACEY: I am sorry to interrupt but I think in the interests of accuracy I think I have to because what counsel read is the response to the point before. So the witness is being asked to comment on something that perhaps he need not trouble himself about because the HSE's response that counsel has just read out was to the registration scheme, not to the criminal offence.

MR MARTIN: I do apologise and that is probably a misunderstanding of the document that I have. So perhaps just withdraw the question and the HSE can explain their position. Yes, I do understand. That is entirely my fault. I apologise.

Perhaps I will just leave that one,

Mr Sylvester-Evans.

The recommendation before was you also suggested a possible way forward was to introduce a registration scheme for LPG suppliers and we will no doubt hear a little bit more about that.

Is that an essential element in the scheme which you are suggesting or is it something that might be seen as desirable?

A. It's desirable. Is it essential? Well, the reason why I advanced it was really to capture or have the ability to capture every supplier who supplies LPG, whether they

are extremely small or reasonably large but not a member of the UKLPG. Therefore, it is actually to get people on the radar is the principal point that I was thinking of, then making sure they are accredited is a secondary point which is desirable. I think perhaps the Inquiry may wish to hear aspects on that as to whether it is important to get all these suppliers on the radar so that there can be a full collaborative approach and then the issue of accrediting suppliers is perhaps something that can be debated. I would say it's desirable but is it essential within the overall scheme? Probably not.

THE CHAIRMAN: The registration is just a way of finding out who are actually selling this stuff.

A. Precisely.

THE CHAIRMAN: Inevitably any registration scheme would mature into an accreditation scheme. That is the way of the world, is it not?

A. There is that risk, my Lord, yes. On the other hand it can be a fairly light accreditation so long as people -- I mean, the issue is that I could go off and invest money and buy a tanker, the two of us, and we could go off and supply LPG. Now we could do it extremely well

with great efficiency and competence on the other hand that may not be the case for starting up. I think it's that sort of situation that the suppliers here in the industry may wish to provide some insight into, whether it is a real problem or not within this overall regime that one is looking at.

MR MARTIN: If I could just go back then because I do not want in any sense to misrepresent the position, and I hope my learned friend can confirm this, and it is my misreading of my notes afraid, the position of HSE on the introduction of a criminal offence is that they suggest that it would need careful consideration and a full impact assessment. The aim remains that of achieving safe installations. That may not be word for word but if that is correct, that is a matter we can hear further evidence about and it does not seem to be something I need to trouble you with.

Then perhaps simply in summarising the ultimate position you say:

"The changes I have recommended are without recourse to a substantive change in legislation. This should be an advantage but it invites a well focused collaborative approach between parties to achieve and implement the changes to the LPG regime. Provided the progress of implementing the recommended improvements

is monitored and it is possible to assess if improvements are being realised or not through the self-setting of standards by the LPG supply industry."

That again is the general thrust of what you are seeking to achieve?

A. Indeed.

Q. You then set out your conclusions and recommendations, Mr Sylvester-Evans.

Then beginning at page 53 you repeat your substantive recommendations that we have discussed as we went through the report so I do not need to trouble you with those.

Then separately under heading B which is on page 57 this is a summary of those aspects you have identified as potentially being of value through evidence to Phase 2 of the Inquiry.

A. Indeed.

MR MARTIN: Thank you very much, my Lord. That concludes my examination-in-chief of Mr Sylvester-Evans at this stage of the Inquiry.

THE CHAIRMAN: What I would propose here is that we should perhaps hear whatever evidence other parties have and then when Mr Sylvester-Evans is recalled to pick up on various topics that have been raised that perhaps we could defer any questions to him until then because I

think the questions by then would be much better informed. If there is anything that anyone urgently wishes to raise, now is the time.

On that understanding then, we will just carry on with our review of all the various proposals and recommendations and we will defer any further questioning of Mr Sylvester-Evans until he has returned.

I hope that is convenient to you too, Mr Sylvester-Evans?

THE WITNESS: That is fine with myself, my Lord.

MR MARTIN: If Mr Sylvester-Evans could then be excused he will be remaining throughout this stage of the proceedings.

The next witness and the other witness who is available today is Mr Stephen Brown of OFGEM whose evidence I am sure can be led comfortably within the time available. At least one party has questions for him but otherwise his evidence will not take a particular length of time and, of course, he is speaking, as it were, in a context of the regulatory regime, he is talking principally about the natural gas situation which may by analogy provide some assistance to this Inquiry.

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STEPHEN BROWN (called)  
Examined by MR MARTIN

Q. My Lord.

Mr Brown, we have an Inquiry statement from you and I think you are a technical adviser with OFGEM which, I am sorry to say, I will have to ask you what exactly does that acronym mean?

A. OFGEM stands for the Office of Gas and Electricity Markets, so the economic regulator of the gas and electricity markets.

Q. Your purpose before the Inquiry is simply to give some explanation about what happens in relation to natural gas. I know you have also discussed LPG as well but for present purposes your evidence is being put before the Inquiry in the hope that it can assist simply in explaining what appears to be a similar physical regime but obviously is different in legal terms.

I wonder if you could, just for the benefit of the transcript, give a little bit of your employment history and qualifications which I think you have not set out in your Inquiry statement.

A. Well, I was employed by British Gas from 1976 through to 1994. I started as a pupil engineer and then did on the job training and also an ONC, HNC and then a degree in mechanical engineering. I moved up progressively

through the ranks and ultimately I left British Gas in 1994 as a district engineering manager where I was responsible for a district of around 250,000 customers dealing with replacement of gas services and gas mains and the emergency service to those customers, making new

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connections to housing developments, laying new mains as required, reinforcing the system and the general Op EX and maintenance of the gas distribution system.

After that, after I left British Gas and belatedly then during the liberalisation of the market and the break up of British Gas it was then Transco. I was then employed as a customer technical co-ordinator with then Quadrant Gas, which is joint venture between Esso and Shell supplying gas to the industrial and commercial market, not to the domestic market, and ultimately I finished up at Shell Gas Direct running the customer and Technical Services Department, around 50 staff dealing with metering, billing, the technical services provision and arranging of connections on behalf of our customers through the gas transporters.

Then finally when I left Shell Gas Direct late in 2003, I then joined OFGEM at their then technical directorate under the technical director as a technical adviser where I provided generally technical advice internally to help shape policy, also liaising with the

HSE on matters which involved us both (they as safety regulators and we as economic regulators), and also providing some advice to customers on an ad hoc basis when that was required of me.

Q. If I can turn then to what you said in your Inquiry statement and under the heading of "natural gas hazards and risks", I do not want you to read that out but I would like just to ask you one or two questions because you have, in effect, provided a comparison between LPG and natural gas so far as the physical and chemical propensities are concerned. For present purposes, although it may not be critical to the outcome of this Inquiry but nevertheless it is helpful for our understanding of the events with which we are concerned, is it first to be noted that LPG is explosive in a lower proportion of atmosphere than natural gas which is methane?

A. That's correct.

Q. Secondly, is it to be noted that LPG is heavier than air; whereas natural gas is lighter than air. The result is that LPG is more likely to accumulate in a lower lying space exposed to the atmosphere; natural gas is more likely to dissipate because it will tend to rise?

A. That's correct.

Q. This may not be a technical question calling for a technical answer, Mr Brown, but in a sense each of these distinctions and the particular characteristics of LPG potentially make it rather more dangerous and more likely to accumulate in a potentially explosive situation; is that fair?

A. In general summary, yes.

Q. On the second page you talk about the odour, if you like. You say in paragraph 10:

"Neither methane or propane have a natural smell... "

Am I right that the old town gas, which I am told enough to remember, did have a natural smell. It was coal gas which was made in gasworks?

A. That's correct.

Q. Whereas methane in its pure form and propane in particular in its pure form, neither has a detectable smell to the normal human sense of smell?

A. Generally, yes.

Q. Just as a matter of interest again, we know as you tell us and we have heard elsewhere that there is a stenching agent or odourising agent added to LPG. You say that it is added to natural gas also. Is that again simply for common sense reasons, that you want people to smell it if it is escaping?

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A. Yes, it is a primary leak detection device.

Q. In paragraph 12 you then say that:

"LPG is delivered as a liquid with its odourant already added ..."

I think I am right in saying there is an exception to that. There are certain chemical processes in which it is used and it cannot have an odourising agent in it. For our purposes, it is delivered with the odour already added. You say:

"It is possible for the gas to become de-odourised known as odour fade ..."

Could you just explain a little more what that means. What is odour fade, how does it come about and over what period of time would it be like to occur?

A. It would depend entirely on the circumstances. Odour fade is as a result of its interaction with other particulars in the tank, say, that it is stored and it is more of a problem if something is left for a long period of time in a tank rather than if it's cycled fairly regular. So it's not something that would happen very quickly.

Q. I was going to ask you because the evidence so far as the events on 11th May 2004 are concerned is that the tank had been filled, the LPG tank had been filled by a commercial supplier in the normal way the day before.

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It may not have been emptied before that happened but there a significant quantity of gas was added. What is the likelihood that significant odour fade could have occurred in the gas supplied from that tank by about noon the following day?

A. There would be no significant odour fade over that period.

Q. You then begin in the next section of your precognition to deal with regulation of natural gas networks and user premises. Again, I am not going to ask you to read that out, but am I right that in effect there were three categories of responsibility: first, there is transportation; second, there is distribution; and, third, there is supply? If I have misunderstood that, please correct me.

A. No, I'd say there are only two categories really. There is transportation, which can be transmission and distribution. That is one category, transportation. The second is supply. There's a third item which is the shipping of gas but that is not -- that's a virtual activity.

Q. I appreciate that clarification and it may not matter critically because of course what we are looking at or what we are focusing on by analogy is, as it were, the last stage of the supply of gas before it goes into the

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customer's premises.

A. From an LPG perspective?

Q. In our position from an LPG perspective but, so far as your evidence is concerned, the analogy of what would be the situation with natural gas. Is the pipework outside the premises, assuming industrial premises such as a traditional factory, is that pipework that is

immediately outside the premises the responsibility of the supplier or the responsibility of someone else?

- A. I wouldn't use the delineator as outside the premises, I would use the emergency control valve as being the delineator, and the transporter is responsible for the transporting/conveying of the gas to the emergency control valve. That emergency control valve could be inside the premises, either inside the boundary of the premises or it can be actually inside the building. So the transporter would be carrying gas through a service pipe into the building up to the emergency control valve.
- Q. Does the supplier have responsibility downstream of that point (that is to say, beyond the ECV) up to the appliance or, if not, who has?
- A. The supplier has a responsibility to supply gas through the ECV and then through to a meter regulator, which is effectively the end of the network. There is a

protection device in terms of the over-pressurisation of the transporter's network and then it goes on to a meter. The arrangement of the meter installation (in other words, the pressure regulator and the meter installation) is normally arranged by the supplier. That supplier does not necessarily own any of those assets. Those assets might well be owned by a meter asset owner manager.

- Q. So an MAM as you refer to later in your statement?
- A. Yes.
- Q. So far as the pipework up to the ECV is concerned, and I think that is the equivalent length of pipe we are talking about, that is the responsibility of the transporter?
- A. The transporter and the differences, I suppose, in the LPG situation is that the LPG supplier is acting both as a transporter of the -- conveying it to the site into the tank and then at least to the regulator and the emergency control valve and also supplying.
- Q. So far as the legal responsibility for that pipework, that is to say the legal responsibility for the condition of the pipework outside the building up to the emergency control valve, whether it is just outside or inside does not matter, what is the legal responsibility situation for that pipework? Does it lie with the

transporter or does it lie with someone else?

- A. It lies with the transporter.
- Q. Does the transporter then not only have the responsibility for the condition of that pipework but also certain legal entitlements to take access to that pipework not least in an emergency?
- A. Yes.
- Q. Does that come from statute?
- A. Yes, it does.
- Q. Please correct me if I am wrong but I rather infer that is probably historically derived through the original supply of natural gas or town gas by public systems, municipal systems one way or the other?
- A. Yes, the Gas Act stipulates the requirement for the transporter to provide emergency service, for instance, on the service pipe up to the ECV (emergency control valve).
- Q. But also the transporter will have, I take it, responsibility for the condition of the pipe and maintaining its safety and you refer to various regulations and so on which are set out in your

statement.

- A. Yes. In order to operate the system, they have to have a safety case accepted by the HSE which deals with both the operation and maintenance of that system. There are

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also the Pipelines Safety Regulations that are required as well.

- Q. In your witness statement on page 3, you refer to the various elements of legislation covering gas transporters and you say the Gas Safety Management Regulations and the Pipeline Safety Regulations -- and we have heard about these to some extent from Mr Sylvester-Evans in the evidence elsewhere -- the PSR has some relevance to LPG pipework; is that right?

A. I understand so, yes -- in certain circumstances.

- Q. The Gas Safety Installation and Use Regulations by and large deals only with domestic and not dissimilar premises but does not deal with industrial premises; is that right?

A. With certain exceptions, yes.

- Q. One exception being the 24-hour 7 day a week obligation?

A. Regulation 37 and I think 38 and 41 also relating to some equipment on the site as well and the requirement for the gas supplier to provide an emergency service.

- Q. You then refer to the Pipeline Safety Regulations 1996 covering the operation of pipelines not simply gas and the Pressure System Safety Regulations 2000 intended to cover risks associated with higher pressure gas pipes."

Does that apply both to LPG and natural gas?

A. I understand so, yes.

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- Q. You then talk about schemes of examination and so on. 26: the Gas Safety Management Regulations requires that a single emergency number be used for gas emergencies. If you have a natural gas emergency and it is in the area of pipework we were talking about earlier and somebody telephones that number, who would provide the practical response to an emergency call?

A. You mentioned about whether the gas emergency relates to the area that we've been talking about. Regardless of where the gas escape is coming from, whether it is coming from the gas transporters' network or possibly from the consumer's pipework, the Gas Safety Management Regulations require the gas transporters to respond to the gas escape because it cannot be ascertained at the time where that leak comes from.

- Q. So if an emergency is called then, as you say, the gas transporter has a responsibility. I think we know that so far as regulation 37 applies to LPG it is the gas supplier, in effect the person whose label is on the side of the tank, who has the obligation to the fulfil regulation 37. Is that right?

A. Yes.

- Q. Again, presumably that would be the same: it would not matter where the leak actually was at that point; they have the obligation?

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A. They have the obligation, yes.

- Q. If then -- and this is where there may be a distinction to be made -- if the call is made to the natural gas transporter, does he have statutory powers to force entry to premises if that is required in order to deal with the leak?

A. Yes, it does.

- Q. I hope you can answer this question: are you aware whether or not an equivalent LPG supplier called out in

the same situation has any right forcibly to enter premises to deal with a leak?

- A. I'm not aware whether they are or not.
- Q. Under natural gas pipework integrity, on page 4 of your statement, you say, "maintenance of pipes", under the Gas Safety Management Regulations, all gas transporters are required to compile a safety case so as to demonstrate that their proposed operations are safe and risks to the public and employees as low as reasonably practicable. The safety case is to be accepted by HSE before operations can commence and the safety case must be adhered to.

I take it that would be where there was a proposal to introduce a new natural gas supply into premises that did not have a supply?

- A. That would be where a new transporter wants to set up

operations to become a licensed gas transporter. So if you had a new entity, a new company wanted to come into operation, in order for them to become a gas transporter, before they can operate they would have to compile a safety case and get that accepted by the HSE. That would be in addition to any licensing that OFGEM would provide to enable them to operate and we would not provide a licence to someone who didn't have a safety case.

- Q. If I understand what you are saying, Mr Brown, we have at paragraph 15 your explanation of the eight gas distribution networks in 2005 National Grid (formally Transco) sold off four of these. They then presumably wanted to become gas transporters; is that right?

A. Yes, that's right.

- Q. Is what you are saying that under the GSMR you would have to establish a safety case for all of the existing installation that they were taking over?

A. That's correct.

- Q. If thereafter the transporter wished to install a new pipe into premises which did not have an existing supply, would he have to provide a safety case for that?

A. No.

- Q. So the safety case you are talking about, as it were, is a generic industry --

A. It would cover that particular company's operations.

- Q. You then talk about the Pipeline Safety Regulations, regulation 13. It may be helpful, my Lord -- I do not think we need to have it but it is page 4523:

"A duty on operators to maintain pipelines. If vulnerable pipes are buried and there is no methodology to maintain, this could be considered a breach of the regulations."

You then go on to explain that there has developed the 3030 Programme by reference to the new regulation 13(a) which is if an operator establishes an HSE-approved iron gas mains replacement programme and adheres to it, then presumably that is a defence to a criminal offence?

A. Yes.

- Q. If there was some alleged breach otherwise.

Could we look at regulation 13(a), please. This is something which is established by secondary legislation, presumably in effect a statutory defence, if the operator can say, "I had my 3030 scheme, it has been approved by the HSE, here are my records and I have been fulfilling it"?

A. That is correct.

Q. Is it too simple to say that that is an example of a risk-based approach because there is an assessment of

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the risk and an assessment of what is proportionate to deal with that risk?

A. That's correct. The programme does have a risk prioritisation programme associated with it.

Q. Finally, you talk about building structures and you say that consideration of construction is not normally considered although consideration is given, you explained, to the risks caused by natural gas pipes in close concentrations.

Thank you very much, Mr Brown. I have no further questions.

THE CHAIRMAN: Mr Ellis, I think there is some matter you want to raise.

MR ELLIS: Yes, only one.

Examined by MR ELLIS

Q. Mr Brown, in your oral evidence and in paragraph 12 of your statement you mentioned the phenomenon known as "odour fade". Could I just ask you a few things about that.

Am I correct in understanding that it is the presence of other substances in the storage tank that tends to cause odour fade?

A. That's what was understood, yes.

Q. Just thinking of that, would you accept that it is highly unlikely, given the industry's manufacturing and

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commissioning process of storage tanks, that an LPG storage vessel would have either air, water or rust or other substances in it?

A. I'd say that for a good operator that would probably almost certainly be the case but there could be LPG tanks that haven't been used for a long period of time that might not be operated by a person, it might have been out of use for a while, there could be rust or air in it. So it could be contaminated internally. I'm not making a judgment in general about condition of tanks but if a tank had those contaminants in it and then it is used and gas is stored for a long period of time, it's likely to cause odour fade.

Q. Can I ask is the issue of odour fade the same for both natural gas and LPG?

A. By "the same" I assume you said whether the fade in certain conditions would fade at the same rate. I wouldn't be able to make any judgment on that. All I would say is that I tried to make a point that natural gas is odourised as a vapour generally and the natural gas that has been odourised would be travelling through both plastic and cast iron mains which would have rust in them, but because it's generally moving, the gas would be moving continuously rather than stored statically for a long period of time, the likelihood of

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odour fade occurring in natural gas in pipelines is much less simply because of the cycle of natural gas over a period.

Q. So conditions that natural gas and LPG be meeting may be expected to be different but odour fade would be an issue in both forms of that?

A. Potentially, yes. Yes, if you had had the same kind of situations.

Q. The final thing I wanted to ask is a slightly different topic arising from your oral evidence. If I understood you correctly in your oral evidence, the meter is

normally the end of the transporter's responsibility in natural gas pipelines?

A. No. The meter -- the emergency control valve is the end of the transporter's responsibility.

Q. And that is upstream from the meter?

A. Correct.

Q. Following on from that, could I just ask would I be right in thinking that sometimes the meter can be outside or even at some distance from the premises it serves?

A. Do you mean the building or the premises?

Q. Well, the building, I suppose.

A. Certainly the meter is quite often outside of a building. In fact there has been an encouragement

amongst the industry to have an outside meter box wherever possible.

Q. So a pipe downstream of a meter which was outside of the building would be the responsibility of who? The owner of the building?

A. Yes.

MR ELLIS: No further questions.

THE CHAIRMAN: Mr Gray, I wonder is there anything you would like to raise arising from that?

MR GRAY: No. Thank you, my Lord.

THE CHAIRMAN: Thank you very much for your evidence, Mr Brown.

Mr Martin, there is one matter I would like to raise with you. It is not something that requires to be dealt with now but could we have 09686 up, please. This is the table that Mr Sylvester-Evans spoke about this morning, table 2.3. My understanding is that the figure of 1 in 10 million, if I have this right, that relates to domestic explosions but includes natural gas and LPG. So am I to take it from that that there is no available disaggregation between the risk referable to LPG and the risk referable to natural gas?

MR MARTIN: It will be confirmed.

THE CHAIRMAN: The other question that arises from this is is there a complete absence of statistics in relation to

industrial gas incidents involving fire and explosion and if there are statistics available for that, it may be disaggregated in relation to natural gas and LPG. I think these are the points that could usefully be followed up.

MR MARTIN: I am happy to take on the task of trying to follow these. As I suggested to Mr Sylvester-Evans, there has been some difficulty in getting statistics from various sources and certainly as a matter of impression to me the sources that have apparently been available, that is not just the HSE but the description of sources elsewhere and indeed a table or tables which are to be found in a report of an event some years ago which I will not mention at the moment, all appeared to be domestic. But at least in the oldest figures there did appear to be a division between LPG and natural gas.

Having seen that, I certainly encouraged those instructing me to do their best to try and get the equivalent statistics in the 21st century but we have not as yet been successful. Put it this way: I think your Lordship has an entirely valid point and it is certainly something I would prefer to see before the Inquiry if it can be achieved. I think it is also fair to say assistance from other parties, from other core participants, in the room today would be much

appreciated. We have attempted to find them and have not succeeded as best we might have.

THE CHAIRMAN: The existence of that difficulty in a way makes that case Mr Sylvester-Evans has argued for the valid collection of data.

The other question I wanted to ask is: looking further afield, would there be any value in trying to find statistics of that nature, say, in the United States?

MR MARTIN: A good question, my Lord --

THE CHAIRMAN: Have some sort of literature search --

MR MARTIN: Again, I wonder if Health & Safety Executive might resource this because I know in other contexts in the evidence they are presenting they have drawn comparisons with other European countries and I think the United States. So they may be the best people to know whether or not that is a possibility. But it can be looked into.

THE CHAIRMAN: The statistic of an annual risk of 1 in 10 million is very dramatic when you read it in that way but, on one view, it is completely beside the point.

MR MARTIN: I think it is fair to say, my Lord, that Mr Sylvester-Evans' evidence produced these figures mainly as an element background and I am certainly not going to suggest on the basis of his report any

particular recommendation turns on this because of course the recommendations are all based rather on an examination of the regime and the events which occurred both here and appear to be referred to elsewhere. But I accept that.

THE CHAIRMAN: I am not criticising Mr Sylvester-Evans but it just occurred to me, you see, that the remoteness of that risk could in fact simply mean that a great many of these actual incidents were minor; whereas it only takes one real big incident in the industrial scale to present a very different picture of the magnitude of this.

MR MARTIN: I think it is one of these examples of statistics, my Lord, because of course it is self-defining. For example, homicide by definition means there has been a death and it does not include any other events. It simply means people who have been killed. Whereas as your Lordship rightly says, statistic of annual risk of death in gas incidents does not actually give any particular indication of the number of incidents at which one might be at risk, merely the likelihood that one might suffer loss of life.

THE CHAIRMAN: Having set all those hares running, I will leave that for your consideration. What about tomorrow, Mr Martin?

MR MARTIN: My Lord, I think, subject to further instruction, the first witness tomorrow will be Mr Tomlin of Calor Gas whom I understand is going to be available and, based on the evidence that he has given, he will be giving a presentation on the research that he has done on the aspect of buried pipework throughout the United Kingdom.

Thereafter, Mr Betts from Calor is the next witness and then it will be Mr Witter and then Mr Elliot of J Gas.

THE CHAIRMAN: Thank you. 10.30 tomorrow, please. (3.43 pm)

(Adjourned till 10.30 am the following morning)

