

BUNCEFIELD – LEGAL IMPACTS

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1. INTRODUCTION

1.1 THE INCIDENT

On 11 December 2005, an extensive fire broke out at Buncefield Oil Storage Depot in Hemel Hempstead. The fire resulted from a series of vapour cloud explosions – some very severe – as a result of which a huge cloud of vapour, smoke and smog engulfed the majority of the site. Remarkably, no-one was killed in the blast, although in excess of 40 people were injured. A large scale evacuation of the surrounding area was ordered, although nothing could save the large number of nearby properties – both commercial and residential – that suffered extreme damage.

1.2 THE FALL OUT

Two years on, the Environment Agency is continuing to monitor the extent of contamination surrounding the Buncefield site. Results obtained in February 2007 indicated that groundwater under and up to 2 kilometres to the North, East and South East of the site has been contaminated with hydrocarbons and fire fighting foam. Major treatment and disposal work has been carried out at 2 sewage treatment plants in the area, with up to 5 million litres of effluent uplifted from one of the sites.

1.3 THE INVESTIGATION AND REGULATORY RESPONSE

The Health and Safety Executive (“HSE”) and the Environment Agency (“EA”) commenced a joint investigation immediately following the blast, which is still ongoing. The HSE has issued Safety Alerts to the industry, and over 100 fuel storage sites were targeted for inspection. In addition, the independent Buncefield Major Incident Investigation Board (“MIIB”) was also established to oversee and report upon the investigation.

A Task Group was also set up following the incident, comprising industry, trade association and employee representatives, and together the Group developed a number of recommendations for how the industry can enhance safety standards.

The HSE has published 2 separate consultations as a result of the incident, both of which are discussed in Section 4 below.

1.4 AIM OF THIS PAPER

This paper aims to discuss some of the issues, both legal and environmental, raised by the Buncefield incident in the light of the HSE consultations, the Control of Major Accident Hazards Regulations 1999 (the “COMAH Regulations”) and the associated duties and

obligations of site operators. The incident at Buncefield has massive implications not only for the future storage of fuel and chemicals, but also for risk assessment regimes, and land development controls.

Unless there are major surprises still to be unearthed, it is very difficult to say that any of the causes of the incident were particularly novel to the operation of facilities such as Buncefield. What is presently unclear is how such proximate development was permitted near the site, and how management systems had failed to ensure that best practice had not been observed on site.

2 PROBLEMS HIGHLIGHTED BY BUNCEFIELD

Following the explosion on 11 December 2005, the MIIB published a series of progress reports detailing its findings in relation to the cause of the incident and highlighting problems or issues which may have contributed to it. This section briefly discusses some of those key issues.

2.1 BUND INTEGRITY

Whilst the bunds substantially remained standing throughout the incident, they did not fully contain the fuel and firewaters as a result of the explosion. Pools of fuel were burning in the bunds as a result of loss of fuel from the tanks, along with fires from the tanks themselves.

The MIIB took the view that the most urgent focus of attention in preventing future similar incidents should be on preventing loss of primary containment as a first port of call and should that fail, inhibiting rapid large-scale vaporisation, and thus any subsequent dangerous migration of flammable vapours¹.

The MIIB recommended² that the industry, together with the HSE, should review the purpose, specifications, construction and maintenance of secondary containment, in particular bunds around tanks. This work should lead to revised guidance, with the necessary standards capable of being insisted upon by law. The existing standards for secondary containment should also be reviewed.

The MIIB stated that revised standards should be applied in full to new build sites and to partial installations. Where not practicable to fully upgrade bunding on existing sites, operators should develop and agree with the HSE risk-based plans for phased upgrading as close to new plant standards as is reasonably practicable.

The authors find it remarkable that such steps were thought to be widely necessary in this day and age.

¹p19, paragraph 66 of Initial Report to Health and Safety Commission and the Environment Agency (published 13 July 2006).

²p21, paragraph 73 of Initial Report to Health and Safety Commission and the Environment Agency (published 13 July 2006).

2.2 ALARM PROVISION

The MIIB found that the tanks on the site were fitted with an automatic tank gauging (ATG) system which was in turn connected to a control room from which tank levels were monitored. The ATG system was also integrated with an alarm system. Evidence from the ATG database temperature records and examination of valve positions, coupled with analysis of what took place on the day of the incident, showed that the protection system which should have shut off the supply of petrol to the tank to prevent overfilling did not operate³.

The investigation of the MIIB revealed that the recording of monitoring, detection and alarm systems must be considered by the industry for improvement⁴.

It was recommended that where a need for additional systems is identified, the Health and Safety Commission (the “HSC”) and the HSE should satisfy themselves that current legal requirements (i.e. the COMAH Regulations 1999) are robust enough, and supported with sufficient resources, to ensure that these systems are provided and maintained at every fuel storage site where risks require them, without relying upon voluntary compliance. It has not been established whether changes in the law or in the resources available to the HSE are required to achieve this end. The legal requirements in the form of the COMAH Regulations 1999 are discussed in more detail at Section 3.

Nevertheless, it cannot be said that any of these recommendations represent new learning for operators of such facilities.

2.3 EMERGENCY PROCEDURES/ TRAINING

Operators of top tier sites, such as Buncefield, are regulated by the COMAH Regulations 1999, and are required by law to prepare adequate emergency plans to deal with both the on-site and off-site consequences of possible incidents⁵.

In light of the emerging findings, the MIIB recommended that:

- (a) Operators of oil storage depots should review their on-site emergency plans and the adequacy of information they supply to local authorities to ensure they take full account of the potential for vapour cloud explosion, as well as fires.
- (b) The public health implications of potential vapour cloud explosions must be considered in both on-site and off-site emergency plans.
- (c) The HSC and HSE should satisfy themselves that legal requirements are robust enough to ensure that any necessary changes to emergency plans are duly made.

³p7 of Initial Report to Health and Safety Commission and the Environment Agency (published 13 July 2006)

⁴p20 of Initial Report to Health and Safety Commission and the Environment Agency (published 13 July 2006)

⁵p21 of Initial Report to Health and Safety Commission and the Environment Agency (published 13 July 2006)

In terms of training, the MIIB recommends⁶ that the sector should work with the HSE to prepare guidance and/or standards on how to achieve reliable industry practice through placing emphasis on the assurance of human and organisational factors in design, operation, maintenance and testing. In particular, appropriate training should be provided to staff for safety and environmental protection activities.

It is unclear why insufficient vapour cloud risk assessment had been carried out in this instance. Again, there is nothing novel about ensuring that the human and organisational factors of operating systems work in unison. What is surprising is that the MIIB appears to consider that such systems and processes were far from widespread.

3 THE LEGAL FRAMEWORK – THE COMAH REGULATIONS

3.1 AIMS AND OBJECTIVES

The main aim of the COMAH Regulations is to prevent and mitigate the effects of major accidents involving dangerous substances, which pose a serious risk of harm to the public and the environment.

The COMAH Regulations are enforced by the COMAH Competent Authority (“CA”), consisting of the HSE and the EA/SEPA (Scottish Environmental Protection Agency).

The CA inspects activities subject to COMAH and has the power to prohibit an operator from continuing to operate if they do not have in place suitable and sufficient control measures for the prevention and mitigation of major accidents.

Operators holding larger quantities of dangerous substances (referred to as ‘top tier’ sites) are subject to more onerous requirements than those who operate with lower quantities.

3.2 OBLIGATIONS/ DUTIES ON COMAH OPERATORS

The general duty on all operators is to take “*all measures necessary to prevent major accidents and limit their consequences to people and the environment*” (Regulation 4). It is a high standard and applies to all establishments within the scope of the Regulations. By requiring measures both for prevention and mitigation there is a recognition that all risks cannot be completely eliminated; proportionality is therefore a key element in the enforcement policy of the CA. Thus, the phrase “all measures necessary” will be interpreted on this basis.

Where hazards are high, appropriate high standards will be required to ensure risks are reduced to an acceptably low level, in line with the policy that enforcement should be proportionate. Prevention should be based on the principle of reducing risk to a level “as low as is reasonably practicable” in the case of risk to humans, and using the “best available technology not entailing excessive cost” principle for environmental risks, although it

⁶p18, recommendation 19 of Recommendations on the design and operation of fuel storage sites (published 29 March 2007)

indeed goes without saying that the ideal should always be, wherever possible, to avoid a hazard altogether.

Operators of COMAH sites have different obligations depending upon whether they are classified as a 'lower-tier' or 'top-tier' site. Lower-tier operators must prepare a document setting out their major accident prevention policy, or "MAPP"⁷. The MAPP not only sets out what is to be achieved in terms of prevention policy, but it should also include a summary of, and cross-refer to the operator's safety management system that will be used implement the MAPP. Top-tier operators must still comply with the requirement of a MAPP, but this is normally included in the COMAH Safety Report, which they are obliged to prepare and submit to the CA.

3.3 RISK ASSESSMENTS

All COMAH operators are under a statutory duty to undertake a suitable and sufficient risk assessment to determine the measures necessary to ensure that risks to health, safety and the environment are adequately controlled.

When the COMAH Regulations were implemented, the CA issued Guidance on the Environmental Risk Assessment Aspects of COMAH Safety Reports⁸. In such Guidance, the CA recognises that some hazards are "less readily identifiable than others", and that, for that reason, operators should consider ancillary risks posed by dangerous substances – for example, in circumstances where hazards may be posed by other substances formed/released during the course of any accident involving the primary dangerous substance with which its operations are concerned. Indeed, the Assessment Criteria in Appendix 2 of the Guidance suggests that the types of risks to be covered include "*immediate and delayed effects from uncontrolled releases arising from both normal and abnormal conditions on the installation*", which includes "*commissioning, maintenance, operation and modification phases*"⁹.

Interestingly, in relation to off-site emergency planning, the Guidance states that "*operators are not expected to prepare the off-site emergency plan*", although the majority of the information gathered during the risk assessment process will contribute to such a plan. However, it does recommend that "*the on-site and off-site emergency plans should complement each other and the requirements placed on operators include the provision of sufficient information to local authorities to allow this to happen*"¹⁰.

This Guidance, although now somewhat outdated, is intended as a reference for operators in carrying out risk assessments for their COMAH Safety Report (in the case of top-tier operators), and to try to ensure that the control measures adopted are of a recognised standard of good practice for the industry. Nevertheless, the Guidance does not

⁷Regulation 5, COMAH regulations 1999

⁸Guidance on the Environmental Risk Assessment Aspects of COMAH Safety Reports, COMAH Competent Authority, December 1999

⁹Aspect 6, "Study Scope", page 48.

¹⁰page 34.

generally contain prescriptive requirements; this is because the regulatory approach of the CA is to leave the decision-making powers with the operator and merely ensure that the operator can justify the choice of control measures it adopts. It will only intervene to take enforcement action where the standard of compliance falls significantly below accepted good practice.

The Authors would query whether, (a) in the light of the incident at Buncefield, further, up to date guidance is required in this area, and (b) whether increased supervisory control should be given to the CA to ensure that suitable and sufficient risk assessments are carried out and appropriate control measures implemented from the outset.

3.4 EFFECT OF NEIGHBOURING TANKS

The Guidance also places importance on identifying the scope of the assessment in terms of which items of plant/site are included and their status. Therefore, installations should be divided into a series of technical units so as to make the risk assessment process manageable. This should include taking into account any effects from neighbouring units (including those owned by different companies). The assessment should ultimately cover all units in which dangerous substances are produced, used, handled or stored.

However, whilst it may be necessary for practical reasons and risk assessment purposes to consider the installation as consisting of a series of individual technical units, it is important to ensure that these are not viewed as closed systems which do not have any influence on each other. The scope of the risk assessment for each unit should be sufficiently flexibly defined to allow for cross-unit interactions.

3.5 RISKS OF MOVING VAPOUR CLOUDS

According to the Guidance, the hazard identification process should cover “*all the various different types of major accident hazards*”, including:

- Loss of containment accidents due to vessel or pipework failures;
- Explosions (batch reactors, tank explosion due to operator error – for example wrong contents and boiling liquid expanding vapour explosion);
- Condensed phase explosions relating to explosives;
- Large fires – for example warehouses and pool fires;
- Pressure relief valves lifting and venting to atmosphere;
- Events influenced by emergency action or adverse operating conditions – for example allowing a fire to burn rather than apply water, dump reactor contents to drain to avoid explosion, and abnormal discharge to the environment; and
- Other types of major accident hazard or abnormal discharge.¹¹

Therefore, as part of the risk assessment process for sites such as Buncefield, the list of dangerous substances to be considered should be formulated based on the scope of the

¹¹Section 2.3 Hazard Identification Process, page 22

operations and should take into account all possible substances occurring under both normal and abnormal conditions. At Buncefield therefore, the risks associated with moving vapour clouds – and the content of such vapour clouds – should have been identified by reference to what would, or could, occur under explosive or abnormal conditions.

4 LAND USE PLANNING AND SOCIETAL RISK: THE HSE'S PROPOSALS

4.1 INTRODUCTION

The risks from top-tier sites or major hazard installations, (“MHIs”) as they are commonly referred to, are primarily managed through on-site accident prevention and mitigation measures required under COMAH, as discussed above.

The off-site risks of MHIs, however, are managed through the planning and development system. Local Authorities must consult the HSE on planning applications around these sites and the HSE will then advise planning authorities on whether the development should go ahead based on an assessment of the off-site risks from the site. The decision to grant planning permission remains with the planning authority, but experience shows that the HSE's advice is followed in the vast majority of cases.

4.2 LAND USE PLANNING

Sites storing hazardous substances above a certain level must have consent from the Hazardous Substances Authority (“HSA”), usually a part of the Local Planning Authority (“LPA”). In considering whether to give consent, the HSA is statutorily obliged to consult the HSE, who will then draw up a Consultation Distance around the site in question, identifying by way of “zones” the level of likely risk or harm to individuals within those zones. Proposed developments are also considered according to sensitivity levels, depending on the intended use; the number of people at the development; the intensity of the development; and whether the development is intended for vulnerable persons such as school children.

Following the Buncefield incident, the HSE launched a Consultation on Development Control around Large-scale Petrol Storage Sites¹². The Consultation suggested some possible options for, and sought views upon, specific changes to the HSE's advice to LPAs on Land Use Planning (“LUP”) around large-scale petrol storage facilities.

The HSE has based its current advice on the findings of the Advisory Committee on Major Hazards (“ACMH”) and the principles and objectives that it has developed as a result of the ACMH's recommendations.

(a) Current LUP advice and HSE Principles

The current LUP advice given to LPAs consists of a “protection-based” approach, rather than by way of Quantified Risk Assessments (“QRAs”); this approach focuses on

¹²CD211 HSE Consultation: Proposals for Revised Policies for HSE Advice on Development Control around Large Scale Petrol Storage Sites

determining “risk boundaries” around the site, with risk being in relation to harm to individuals at particular locations around the petrol site, rather than taking into account societal risk as a whole (whereby the entire population around a site would be considered). Societal risk is only currently taken into account to a limited extent when considering each proposed development, and is not therefore considered in the Consultation; a further HSE consultation document¹³, discussed below, examines whether societal risk should be brought into the LUP process for areas around on-shore non-nuclear MHIs.

(b) HSE Proposals in relation to its LUP advice

As a result of the Buncefield incident, the HSE’s principles in relation to separation distances and vulnerable people (which the HSE considers to include children, the sick, the elderly, those with mobility difficulties, or those unable to recognise physical danger) may need to be re-assessed, particularly as regards developments within what is known as the “Inner Zone” (i.e. 120m from site).

It was clear from the Buncefield incident that, had the surrounding buildings in the Inner Zone been occupied, significant numbers of people could have been killed or injured. Further, given the nature of the incident and the fact that the vapour cloud spread without detection, questions were raised about the ability to carry out an organised evacuation in the event of a similar incident. The HSE therefore felt that the Consultation Distances may need to be reassessed.

The Consultation put forward 4 alternative options for changes to its policies:

(i) Option 1 – No change to HSE’s LUP advice

(ii) Option 2 – Change size of the Consultation Distances and zones, based on hazard

The current Consultation Distances and planning zones would be altered so that these would cover approximately four times the area of land currently covered and a new “Inner Zone” of 250 m from the site will subsume all four areas currently within the Consultation Distance. Sensitivity levels would remain the same.

Whilst this would mean that risks to individuals within Consultation Distances would be better controlled, and there would arguably be greater reassurance to the public, development would be more restricted than at present.

(iii) Option 3 – Change size of Consultation Distances (as Option 2) and development sensitivity levels

As well as Consultation Distance areas and zones being enlarged, the type of development within the Inner Zone would be restricted to buildings that are “not normally occupied” (e.g. warehouses, outdoor storage, farm buildings and parking areas).

With this option, risk to individuals would be better controlled in line with the extent of damage seen at Buncefield, and economic disruption would be minimised in the event

¹³CD212 HSE Consultation: Proposals for Revised Policies to Address Societal Risk around On-shore Non-nuclear Major Hazard Installations

of an incident occurring. However, the limitation on development would be significantly greater and could be considered onerous.

(iv) Option 4 – Change size of Consultation Distances informed by risk, and adopt a new “Development Proximity Zone” (“DPZ”) to give more restrictive advice

Consultation Distances and planning zones would be extended as in Options 2 and 3, as well as introducing a new DPZ with increased sensitivity levels. The DPZ would be at a radius of 130m from the site, and any new development would be inadvisable unless it involved “not normally occupied” structures.

On 5 December 2007, the HSE released its finalised proposals for revised policies for its advice on development control around large-scale petrol storage sites such as Buncefield, which concluded Option 4 would best achieve the HSE’s aim of maintaining a “sensible and practicable balance between risk and development”. It found that, from the responses to its Consultation, 83% of respondents (which included a number of councils, industry members and regulators) were in favour of extending the Consultation Distance, and 79% agreed that the HSE should change its assumptions about the vulnerability of individuals living and working in the vicinity of large-scale petrol storage depots.

The HSE will continue to use its existing objectives and principles towards LUP advice, but these will be kept under review. Importantly, the role of the HSE will not change; it will remain as a consultee to planning authorities, both in its statutory capacity in relation to specific types of development which must be referred, as well as in a general advisory role with regard to consultation on policies adopted by the authorities for their development framework. The HSE does not, however, see the need for it to act as a statutory consultee for development plans as well – the onus remains on the planning authority to consult the HSE in the appropriate circumstances.

The revised policy will come into effect in summer 2008, but will be regarded as an interim policy whilst investigations into the Buncefield incident and vapour cloud explosions are continuing.

4.3 SOCIETAL RISK

Following the initial consultation issued by the HSE and discussed above, a further consultation document was released specifically addressing the question of “Societal Risk around Onshore Non-nuclear Major Hazard Installations”, again as a result of lessons learned from Buncefield. This second Consultation is based on studies by a Government Task Group¹⁴ that have been ongoing for some time since the introduction of the COMAH Regulations.

(a) HSE Consultation

The Consultation has a wider scope than the LUP Consultation discussed above, in that it considers all operators under the COMAH Regulations, or, more specifically, non-nuclear

¹⁴comprising representatives from HSE, DTI and DCLG (Department for Communities and Local Government)

on-shore MHIs, rather than addressing solely petrol storage facilities. The Consultation does not, however, deal with installations with off-shore risk, such as pipelines or nuclear facilities.

This Consultation considered the same process of HSE LUP advice as outlined in the first Consultation, discussed above. Whilst the HSE indicated that it believes that the advice and arrangements currently in place for controlling MHIs have been highly successful, it is felt the system could be further improved by taking into account societal risk in relation to both on-site measures adopted by the MHI itself, and the advice it gives to planning authorities as to development in the surrounding area.

(b) “Societal Risk” – what is it?

In terms of the current LUP system and the assessment of risks posed by nearby MHIs, “risk” is currently only assessed in relation to harm to individuals at particular locations around the MHIs, rather than taking into account “societal risk” in that area as whole. The Consultation differentiates societal risk from individual risk as follows:

‘Individual risk’ is the chance that a particular individual at a particular location will be harmed... but [it] does not take account of the total number of people at risk from a particular event. ‘Societal risk’ is a way to estimate the chances of numbers of people being harmed from an incident [and] the consequences are assessed in terms of level of harm and numbers affected, to provide an idea of the scale of an accident in terms of numbers killed or harmed”.

The HSE therefore proposes to shift its risk focus to an analysis of the entire population distribution around the site in question, and the potential effects a major accident may have on that population as a whole, rather than on individuals within the area. The Consultation proposed that societal risk would therefore take into account, and ultimately depend upon “*what processes and substances are at the sites, and on the size, location and density of the population in the surrounding areas*”.

Examples of sites which the HSE considers could pose high societal risk are:

- Chemical plants that manufacture or use toxic substances;
- Large LPG and LNG¹⁵ storage facilities; and
- Treatment plants that store chemicals for use in e.g. water purification.

(c) HSE proposals for dealing with societal risk

The Consultation suggests that, taking societal risk into account at the development plan stage may obviate the need for the HSE to provide separate guidance on the issue of societal risk for individual planning applications. Nonetheless, the HSE recognises that this may not capture all sites that should be subject to a societal risk assessment, for example where developments outside the Consultation Distance were not initially identified at development plan stage as posing a societal risk.

¹⁵Liquified Petroleum Gas and Liquified Natural Gas

For larger developments, such as housing estates, which are proposed close to certain MHIs but outside the current extent of the HSE's Consultation Distance¹⁶, it is likely that societal risk may be increased to such a level where there is a chance that planning permission would be turned down. In these instances, the HSE considers that it would agree an extension to the Consultation Distance to ensure that the planning authority would have to consult the HSE in the case of such large developments. However, the HSE insists that this would not mean a full-scale extension of the Consultation Distance for all other cases. One may question, then, how this squares with the new 'Development Proximity Zone' and alterations to the Consultation Distance as proposed in the previous LUP Consultation.

4.4 CONCLUSION

The HSE issued an initial Regulatory Impact Assessment in relation to societal risk and land use planning in April 2007. It considered that using societal rather than individual risk as the concept for assessing the risks posed by MHIs would mean that the level of risk posed by a particular site could *increase* over time as the population in an area rises, while the level of individual risk would stay the same¹⁷. The result may be that the site operator would be required to put in place even more stringent on-site risk reduction measures that could be very costly to implement. Furthermore, the HSE stated that there could be negative effects on the 'wider society and the economy' if land use planning restricted the construction of new buildings around a MHI due to concerns over societal risk.

However, the benefits of taking account of societal risk would be that the off-site consequences of an incident should be smaller; there would be lower numbers of fatalities and injuries and reduced medical costs; and less damage to surrounding property and economic infrastructure.

Nevertheless, as discussed by the CIA in its statement (see section 4.5 below) there is potential for allocating the increased costs brought about by using the concept of societal risk in place of individual risk, between developers and site operators.

The HSE's work¹⁸ indicates that there are only a limited number of existing sites where the introduction of societal risk calculations may result in future advice on planning applications, or future advice to site operators, being different from that which might otherwise have been the case. This is because:

- Only a relatively small proportion of all major hazard sites give rise to a level of societal risk that makes such considerations appropriate;
- The existing basis on which advice is given to planning authorities by the HSE would already prevent many of the developments within the existing consultation zone that could increase societal risk; and

¹⁶and therefore do not require HSE consultation

¹⁷p5 of Health and Safety Executive initial regulatory impact assessment (*published around April 2007*)

¹⁸In Health and Safety Executive initial regulatory impact assessment (*published around April 2007*)

- Around many of the sites being considered, there are limited opportunities to develop due to their location (e.g. the land around them is already built up).

The HSE does not foresee its proposals as bringing about a radical change to its LUP advice; the HSE will not have any power to refuse planning permission – its role will remain purely advisory. The only change to the current system will be one of improvement, by incorporating societal risk considerations into its LUP advice and extending this to include revised planning zones and increased sensitivity levels. Nevertheless, questions have been raised as to whether, as a result of the proposed changes to land use planning, there will be a negative effect upon MHI owners/operators – referred to as the “reverse COMAH” effect. This is discussed in more detail below.

4.5 “REVERSE COMAH”

The term “Reverse COMAH” refers to the effect brought upon COMAH operators as a result of changes in local land use; i.e. where development of land surrounding the COMAH site is such that the operator is forced to alter or increase its safety control measures in order to respond to the increased risk posed to the community as a result of the development.

The Chemical Industries Association (CIA) has recently issued a statement expressing concern over the effect of the HSE’s proposals as they currently stand, in that COMAH operators look set to face huge financial burdens in order to reduce the societal risk created by a proposed development in the vicinity of its site.

Whilst the CIA recognises that development is needed to address issues of socio-economic importance such as unemployment and land blight, it is of the opinion that, in many cases, the associated costs of requiring an operator’s COMAH Safety Report to be reviewed and further risk reduction measures implemented will be inequitable and should be borne by the developer who is proposing to build on the surrounding land.

The CIA fundamentally agrees that the principle of reducing risks “as low as is reasonably practicable” should still apply; however it feels that the criteria upon which judgments of risk are made could be improved.

(a) CIA Recommendations

The objectives and proposals put forward by the CIA can be summarised as follows:

- (b) The HSE should make available to the public its individual risk methodology currently used for calculating the Consultation Distances. This would assist in engaging stakeholders in the societal risk methodology and ensure a greater understanding of the land use planning system.
- (c) The UK should not be put at a competitive disadvantage in terms of implementing the Seveso II Directive, which means any measures adopted should be consistent with those adopted by other member states.
- (d) LPAs should not be given increased responsibility in terms of assessing the risks of development plans and making planning decisions accordingly. If left to their own devices, LPAs could approve a number of developments that the HSE would advise

against, and hence there is less control exerted over developers. At the very least, the current advisory system should remain in force until superseded by a more comprehensive societal risk policy is introduced. Indeed, in cases where LPAs do not follow the HSE's advice against a certain development, it should be legally required to inform the HSE, and the costs of risk reduction should be weighted against the developer.

- (e) LPAs should lead the planning process, working in partnership with the industry and the HSE. Each LPA should have in place a structural plan for MHIs, which balances societal benefit against societal risk and sets out criteria and guidance in relation to proposed planning. The plan should attain central Government approval.
- (f) Operators should be legally required to be involved in the consultation process for any proposed development within the Consultation Distance/ societal risk zones. Where the HSE is of the opinion that a risk exists, this should be communicated to the operator, who should be involved in a discussion about the consequences of allowing the proposed development to go ahead.
- (g) In conjunction with (e) above, the cost of the burden on the operator to introduce risk reduction measures should be shared appropriately between the developer and the operator – this is particularly appropriate where the development threatens a “reverse COMAH” effect.
- (h) Operators should have the right to object to any proposed development.
- (i) In cases where development is proposed and the required compliance with the COMAH Regulations in terms of measures to be introduced to counter the increased risk cannot be achieved, there must be a procedure in place to determine what else can be done.

The HSE's Consultation on societal risk closed in July 2007. It therefore remains to be seen whether the response issued by the CIA, along with all other responses, will have an effect on the proposals initially put forward by the HSE.

5 CONCLUSION

The MIIB has conducted some sterling work in the aftermath of this incident, and has made a series of eminently sensible responses and recommendations. However, the Authors find it very difficult to escape the conclusion that this incident could have been avoided, and that contributory factors were identifiable. Off-site damage to buildings could have been avoided by thorough and proportionate assessment of the real risk profile of the installation. Had the explosion happened during conventional business hours (and not 06:00) quite a horrific loss of life could have ensued.

On the basis of the MIIB's findings thus far, the Authors are surprised by the apparently poor condition of the asset (in terms of safety systems, bunds etc) and the manner in which too proximate development was permitted.

It is unclear whether the CIA will get its way with regard to “Reverse COMAH” but much can certainly be done to ensure that suitable and sufficient risk assessment, safety procedures and management systems, all of which must be second nature to operational and safety professionals in the chemicals industry, are properly conducted, implemented and maintained.