The Health and Safety of First Responders at Major Incidents

Police Federation of England and Wales
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Executive Summary

Over the past number of years, there have been a number of major incidents at hazardous installations. In discussions with officers across the country, concerns were raised as to the protection afforded to them, and, as a result, the Police Federation of England and Wales Health and Safety Sub-Committee commissioned a study in order to look at the extent to which first responders have been prepared to deal with major incidents.

It was decided to identify three forces across England and Wales purely on a geographical basis to carry out the study. The three police forces identified had been involved in the major incidents at Corus, Port Talbot (2001); Fehrer (GB), Smethwick (2002) and Buncefield, Hemel Hempstead (2005).

The study was carried out by interviewing the first responders to the major incidents and the officers who dispatched them; to ensure a degree of consistency, sets of prepared questions were used.

A number of common themes came to light following our interviews with the police officers and control room staff who had been involved. For example, at the time of the emergencies, it proved to be impractical to read all of the comprehensive premises hazard files held in the force control rooms, and question marks were raised over how useful the data was in practice.

Other concerns were raised as to the adequacy of the training of officers in attending emergencies at major hazard sites and whether personal protective equipment should have been provided for those officers.

Post-incident debriefing of control room staff as well as police officers appeared to be another weak area, although forces needed that information in order to monitor the effectiveness of their emergency procedures.

From discussions with ACPO, they do not have a dedicated system for disseminating information on matters relating to health and safety: in itself, this can cause problems when it comes to learning from each other. Forces should share their experience of dealing with major incidents with other forces having hazardous installations.

This study was a snapshot: it is recommended that a more in-depth review of the subject should be carried out involving ACPO, HMIC and HSE in order to derive best practice for the benefit of all UK police forces.

Introduction

The PFEW Health and Safety Sub-Committee has commissioned this study into the training, support and information given to the frontline officer who attends major incidents.

It is accepted that all forces have emergency planning in place for major incidents, but we have concerns that, from the time of the initial call being received at the police force to the time of the emergency planning procedures being implemented, first responders could be exposed to hazardous working conditions such airborne toxic dusts, gases or excessive heat.

For the purposes of this study, we chose to look at three major incidents from recent years: the fire and explosion at the Corus Steelworks in Port Talbot in 2001; the fire at Fehrer (GB) Limited, Smethwick in 2002; and the explosion and fire at Buncefield Oil Storage Depot, Hemel Hempstead in 2005. All three incidents were required to be notified to the EC by HSE under the COMAH Regulations. We could equally well have chosen the Stockline/ICL Plastics explosion in Glasgow in 2004; the Terra Nitrogen explosion at Teesside in 2006 or the Festival Fireworks explosion in East Sussex, also in 2006.

The aim of our research is outlined above, but we also wished to ascertain whether forces are communicating and learning from each other, and what information, training, guidance and personal protective equipment are being provided to the first officer in attendance.

Methodology

Visits were paid to the three police forces involved in the major incidents: South Wales Police, West Midlands Police and Hertfordshire Constabulary, and interviews were conducted with managers, first line officers and control room staff. Standard sets of questions were used for all the interviews, and these are given in the Appendix.

It is not our intention to attempt to generalise across the police service on the basis of these three incidents, but to suggest that other forces could consider our recommendations and determine where their own emergency procedures stand in comparison.

We would like to express our thanks to the police staff involved and their Federation representatives for their ready cooperation in this study. The responses of the groups of interviewees have been summarised in the report, but their names have not been disclosed.

Relevant Legislation

Provision of information to the emergency services

Under the Control of Major Accident Hazards Regulations 1999 (COMAH) the operators of the higher hazard industrial plants have to consult the emergency services in the preparation of their on-site and off-site emergency plans. COMAH applies where threshold quantities of dangerous substances identified in the Regulations are kept or used. There are two thresholds, known as 'lower tier' and 'top tier'. COMAH also provides for the emergency services to be given the opportunity to participate in the periodic testing of the plans.

Operators of top tier COMAH sites must prepare adequate emergency plans to deal with the on-site consequences of possible major accidents and to assist with off-site mitigation. Local authorities for areas containing top tier sites must prepare adequate emergency plans to deal with the off-site consequences of such accidents.

The Corus Port Talbot steelworks, Fehrer (GB) Limited and Buncefield Oil Storage Depot were all COMAH sites.

Health and Safety Management

Under regulation 5 of the Management of Health and Safety at Work Regulations 1999, employers should have arrangements in place for the effective planning, organisation, control, monitoring and review of the preventive and protective measures. Those *preventive and protective measures* are determined by making a suitable and sufficient risk assessment of the risks to which employees are exposed whilst at work.

In the following pages, we shall see the range of health and safety risks to which first responder officers were potentially exposed at Port Talbot, Smethwick and Buncefield and the degree to which the force procedures in place had provided for their protection. Beyond that, the Management Regulations provide for monitoring and review to be carried out in the aftermath of the incidents, and we have sought to establish to what extent that was achieved.

The fire and explosion at Corus (UK) Limited, Port Talbot Works on 8 November 2001

Background

Three workers were fatally injured in a massive explosion within number 5 blast furnace at the Corus steelworks, which is a COMAH site. HSE reported that the explosion was caused by cooling water in the furnace coming into sudden contact with hot material and, as the water turned to steam, it expanded rapidly creating sufficient pressure to blow a confined vessel apart. The blast furnace gas subsequently ignited and flames enveloped the furnace for a short period. In addition, a quantity of toxic gas (mainly carbon monoxide) was released.

Both on-site and off-site emergency plans were initiated and fire, police and ambulance services attended the scene. To restrict access, the police cordoned off the furnace area. The incident resulted in 3 fatalities and 17 other injuries to employees (5 of whom were detained in hospital in intensive care, critically ill from burns and lung damage sustained by inhalation of hot gas).

In December 2006 Corus (UK) Limited pleaded guilty to two charges of failing to ensure the safety of their employees and others brought by HSE under the Health and Safety at Work Act 1974 and was fined £1.3 million. HSE has said that it will publish a full report into the incident in 2007, but that was not available at the time of writing.

Summary of information from interviews with police staff

(a) Control Room Senior Officer

'A' Files on installations that have the potential to cause major incidents are compiled by the Civil Contingencies Unit (CCU) who deal with emergency planning for South Wales Police. They list the hazards for each site (COMAH and non-COMAH) and the initial actions for the control room supervisor and controller to take. At the time of the Corus incident, the information for the site had been updated by the police, but not the 'A' File itself. There is no periodic review procedure: it can vary between 18 months and 5 years.

The force becomes involved with the other emergency services in testing emergency plans of COMAH sites: these are table top exercises on site. There is no planned programme for inspectors to attend in turn, so not all have been involved.

When a call is received about a major incident, the call handler would bring it to the supervisor's attention and a dedicated console set up for it. Call handlers can access the 'A' Files via their computer screens but in practice

they would probably not have the time to do so during an incident. The supervisor would take control, referring to the 'A' File. The information passed to first responders would depend on what was available at the time.

The emergency plan states that officers attending major incidents will attend a forward control point to obtain strategic information and relay it to the control room inspector. Officers will not enter the danger zone, but maintain the outer cordon. Met Office information about wind/fallout direction assists with the evacuation of properties around the plant, but is not received in time to inform the officers who are the first attenders.

In order for the emergency plan to be activated, a major incident has to be declared: often it just becomes apparent as details emerge that it is a major incident. The force does not have a great deal of experience of dealing with major incidents.

The force does not communicate with other forces about major incidents in order to share best practice.

The officer was not aware of any officers becoming injured or suffering ill effects as a result of the Corus incident.

(b) First Responder

The information received from the control room was to go to the gate house at the Corus works where there was an RV point and to wait for posting. We already knew what had happened at the works.

No protective clothing was provided before or after the incident, although the on-site health and safety officer suggested officers should wear BA because of some of the locations of the cordon. No prior training had been given on attending any major hazard site other than the CHALET [initial scene assessment] cards. No further training was given after the incident.

Rank and file police officers did not receive a post-incident debrief, although there was a senior command level debrief. If there had been, we could have expressed our concerns that, due to the terrain, the fumes would inevitably be swirling around. No additional pressures were placed on officers, other than the press trying to get on site, but that is the function of the cordon.

The fire at Fehrer (GB) Limited, Smethwick, West Midlands on 24 July 2002

Background

A fire at the Fehrer (GB) Limited factory in Smethwick on 24 July 2002 resulted in the destruction of the factory. Fortunately, nobody was injured, although 110 people were evacuated for about 5 hours.

This was a COMAH site involved in manufacturing polyurethane resins and moulding it into car seat cushions. It was classified as a lower tier site by virtue of its inventory of toluene diisocyanate (TDI).

The incident occurred during a factory shutdown while various maintenance work was being undertaken including cutting out redundant pipework with an oxy-propane torch. A spark from the cutting operation ignited combustible material. The fire subsequently spread to the process and manufacturing areas, which resulted in the loss of the factory.

The fire service attended the scene, supported by the Environment Agency, ambulance services and police. Approximately 110 people were evacuated for approximately five hours, with the site remaining under control of the fire service until 27 July 2002. Approximately 0.5 tonnes of TDI in day tanks in the process area was lost during the incident, although fire protection and action by the fire service in line with the emergency plan prevented any release from bulk or drum stores of TDI.

No information was given in the news reports about whether stocks of completed polyurethane (PU) foam seat cushions had been involved in the fire, but it is known that the products of combustion of PU foam include the toxic gases hydrogen cyanide and carbon monoxide. TDI itself is a known respiratory sensitiser.

There were no injuries sustained and no damage to the environment.

So far as we are aware, no HSE or other report on the incident has been published for public information.

Summary of information from interviews with police staff

(a) Control room senior officer

The force gains information about emergency procedures at chemical works via the fire service, including quantities on site and the procedures. Data on a couple of the sites are regularly updated – by the control room officer - when new information comes in, but for others, never. The information goes into a hard copy file in the control room, and the computer files will flag up that a hazard file exists for a given premises. The force becomes involved in testing

emergency plans at COMAH sites. The force emergency plan states that we send an officer to look at the major incident and assess the situation. If the incident involves a COMAH site, the emergency plan on file is automatically activated.

The officer had no information about whether procedures had been amended as a result of the incident or whether the force communicates with other forces with similar hazardous sites in order to share best practice.

(b) Control room call handlers

When a call is received about a major incident, the procedure is to send a double-crewed car first and wait for feedback to assess the situation, and then the action plan goes into effect. Calls tend to go through the fire brigade and ambulance first, but they did not inform the force in this case.

There are folders held in the Operations Centre for the main hazardous sites. In this case, the plume of smoke could be seen from the Ops Centre before we were contacted. There is so much information in the files: too much to read through quickly enough, so the information does not always go out. Everything else that you find out should be passed on to the officers on site.

Control room staff are not given debriefs after major incidents – or very rarely.

(c) First responders

The two first responders interviewed had received no information directly from the control room. They had no PPE in their cars, just a first aid kit and a fire extinguisher. The HAZMAT officer who attended had a cotton overall but no goggles, face mask or BA.

Neither of the first responders had received any specific instruction or training about attending major incidents. The HAZMAT officer had attended a specialist police HAZMAT consultant officer's course and the Fire Service HAZMAT course provided by West Midlands Fire Service. Since the Fehrer incident, one of the first responders had received the police HAZCHEM course.

Neither the first responder officers nor the HAZMAT officer had been given a post-incident debrief. None of the officers had had additional pressures placed on them in attending the incident; none of them had suffered any health problems as a result of their attendance.

The explosion and fire at Buncefield Oil Storage Depot, Hemel Hempstead on 11 December 2005

Background

Buncefield Oil Storage Depot is a large fuel storage site which receives petrol, aviation fuel, diesel and other fuels by pipeline. The Depot contains three sites which are 'top tier' sites under the COMAH Regulations: Hertfordshire Oil Storage Ltd, British Pipeline Agency Ltd and BP Oil Ltd.

On 11 December 2005 a number of explosions occurred at Buncefield, followed by a large fire which engulfed over 20 large fuel storage tanks. There was an explosion and fire apparently resulting from a massive escape of fuel and the formation of a flammable cloud. The fire burned for several days, destroying most of the site and emitting large clouds of black smoke into the atmosphere, dispersing over southern England and beyond.

There were 43 people injured in the incident, but none seriously. About 2000 people were evacuated from a large area around the site.

Published reports on the Buncefield fire

The Buncefield Major Incident Investigation Board (MIIB) set up by the Health and Safety Commission has published a series of reports on the causes of the fire and explosion and the lessons to be applied to other fuel storage depots. However, these reports do not touch on the health and safety of the emergency services staff who attended the incident: the health aspects are dealt with solely in the Health Protection Agency publication *The Public Health Impact of the Buncefield Oil Depot Fire – 2006.*

The HPA report states 'The initial view, based on previous knowledge, experience and expert advice, was that the plume of smoke posed a minimal risk to health. In the very high temperatures of the fire, it was predicted that all organic chemicals in the fuel would be completely destroyed, leaving few pollutants. The public were informed that the risk to health was low and should not be associated with increased illness.' Subsequently, the finding from the HPA study was that there was 'no evidence of a public health risk from the plume either as deposits or air quality.'

Appendix 2 of the HPA report includes an analysis of the accident and emergency attendances in Hemel Hempstead and Watford by members of the emergency services. In total, 187 emergency service employees attended A&E, and, of those, 34% presented with symptoms. 84% of those were respiratory complaints such as sore throat, cough and shortness of breath. Three out of the 187 employees needed medical follow-up and were referred to their GPs.

Summary of information from interviews with police staff

(a) Control room senior officer

Detailed information on the hazards of individual sites is contained in detailed files in a cabinet in the Control Room. However, due to the volume of information in the files, it is totally impractical to read these documents fully at the beginning of a major incident. The senior officer had requested one page advice sheets that would have been more beneficial, but these had not been forthcoming.

The files are updated when new information is received but this is infrequent. Much of the information is out of date, particularly regarding emergency contacts. The Operational Planning and Public Order Unit is responsible for updating the files.

The force is involved with the other emergency services in testing emergency plans. Mainly desk top exercises, although there have been some very constructive joint emergency exercises carried out recently.

As regards the force emergency plan, initial action by officers at the scene would be in line with the mnemonic SAD CHALET. Ideally, the specific plan for the premises will be followed. In many cases officers will have good local knowledge of the issues, but where premises are rarely visited, they would depend on the control room staff. First responders are specifically referred to in some cases.

In the case of the Buncefield incident, the initial 2 hours was ‘by the seat of the pants’ response: the use of common sense rather than contingency plans. There was no time to read the contingency folder.

The force has a vast experience of dealing with major incidents and is extremely good at those incidents that we deal with on a regular basis, such as motorway incidents. Buncefield was, hopefully, a one-off.

It is thought that not many amendments have been made to plans and policies since Buncefield. Nobody knew whether best practice was shared with other forces.

(b) Control room dispatchers

In this case, there was no single initial call, but hundreds came in: there was a big bang and the building shook. A decision normally has to be made about what sort of incident it is - serious, major or critical - but in this case no decision was made: we just sent everything.

The “trigger plan” for Buncefield referred to one silo being affected, not a number of them at the same time. We gave a concise version of what we had learned to the first responder and more information came in quite quickly.

We were understaffed and inexperienced to deal with such a major incident. We had received no training in what dispatchers should be doing in such circumstances. Within 15 minutes we had collected 100 pages of log, and the earlier information logged was not accessible to us.

We were not debriefed after the incident: they could at least have asked us how it went.

(c) First responders

The first responders received reports of explosions across different parts of the town and went towards the orange glow in the sky. There was confusion for a few minutes and then they established that it was at Buncefield.

There was no PPE in the officers’ cars, except for a fire extinguisher. Paper face masks were provided within 2-3 hours, but no additional PPE had been provided since. Officers manned the cordon 150 metres from the fire: it was 2½ hours before they were moved back to a safer position.

Very limited training on major incidents had been provided to the officers – less than a morning, although now probationers are being given training using scenarios. No additional training has been provided to serving officers.

The first responders had received a team debrief, but no structured debrief was given.

The press were trying to get comments from officers on the cordon, but were satisfied when they were given a contact at corporate level. There was no pressure from within the force.

Discussion

A number of common themes appeared in the accounts given by the officers and control room staff of the three major incidents, concerning the accessibility of the information in the premises files, the quality of force emergency plans, the training/PPE given to officers and the action taken by the forces following the incident.

It was clear that all three forces had hard copy files for their major hazard sites containing comprehensive details of the plants and their complement of hazardous materials, and South Wales Police had made the files available on computer for their call handlers. However, it was equally clear that it was impossible for the control room staff to absorb all that information in the hectic period when first responders were being dispatched to the scene of the incident. As a result, those police officers would have had very limited information about what hazards they would meet when they arrived on site.

One of the Control Room senior officers had asked for one-page advice sheets condensing the hazard file information, but the force had not provided them. This seems to be a practical solution to the problem, and could also be made available on the computer screens for all the control room staff to access on demand.

There is also the related question of whether the premises hazard files contain all the information that is needed by first responders. For example, they may tell the reader that the site has storage tanks containing x litres of toluene diisocyanate (TDI), but do they say that TDI is a respiratory sensitiser and explain what the health risk is? The products of the combustion of stored materials and process chemicals would also be an issue in a catastrophic fire such as that at Fehrer (GB) where polyurethane foam was manufactured, or at Buncefield, where a plume of smoke covered the area and caused widespread respiratory symptoms amongst emergency services staff.

Perhaps the force's HAZMAT officer or other experts on site would be able to give that advice in time, but our concern here is what information first responders would have received about health and safety risks before reaching the site and whether personal protective equipment was deemed necessary for officers manning the cordon. In the case of Buncefield, disposable face masks were provided by the force in view of the fall-out from the smoke plume, but that was a few hours after the officers had reached the scene.

Our information about the premises hazard files was gleaned solely from discussions with control room officers and staff, but nevertheless we felt justified in drawing the conclusion that the information held on those files was probably not sufficient for the forces' health and safety needs. None of the interviewees mentioned that they had interrogated the emergency planning system, and so the study concentrated on the way that information was

passed on when receiving calls, dispatching and during attendance at the scene.

All three forces had taken part in emergency planning exercises with the other emergency services, but, conversely, only one of the groups of first responders interviewed had received training in attending major incidents, and that was limited to less than a morning. In the wake of these incidents, one force was giving training to probationers but not to serving officers; one officer in another force had attended a police HAZCHEM course; and, in the third force, no additional training had been given. One group of control room staff felt strongly that their inexperience and lack of training had left them ill-equipped to deal with such a major emergency.

Both police officers and control room staff were concerned about their forces' failure to provide an effective post-incident debriefing. In one case, officers had received a team debrief although they did not feel that it was properly structured, but otherwise no debriefing whatsoever had been given. In one particular case, this had clearly upset all of the control room staff, who did not feel that their efforts had been properly recognised by senior management. Apart from the unhappiness caused by this oversight, the force had not taken the opportunity to determine how effectively their emergency plan had worked and what needed to be improved for the future.

The provision of information, training and PPE are all matters for forces to assess and progress, as part of their duty under regulation 5 of the Management of Health and Safety at Work Regulations to have arrangements in place to cover the health and safety of their first line officers. These arrangements should include the monitoring and review of the preventive and protective measures, as embodied in the force emergency plan, but this does not appear to have been done in the three forces covered in this study. The result was that, so far as could be established, none of the forces had amended their emergency procedures in the light of their experience with these major incidents.

It would also have been useful if the three forces had shared their experience with other forces responsible for hazardous installations in order to establish best practice, but there was no evidence to suggest that this had taken place.

The three cases studied are not isolated incidents: there have been other major industrial emergencies in recent years, such as the Stockline/ICL Plastics explosion in Glasgow in 2004; the Terra Nitrogen explosion at Teesside in 2006 and the Festival Fireworks explosion in East Sussex in which two fire service employees were killed and a police sergeant injured. In the wake of all these incidents, it would seem to be an opportune time for a more in-depth review of the health and safety of responders at major incidents to be carried out, involving ACPO, HMIC and HSE in order to derive best practice for the benefit of all UK police forces.

The Buncefield Major Incident Investigation Board set up by HSC has published a number of reports into the explosion and fire, but none of them

touch on the health and safety of the emergency services staff who attended the scene, in particular the police. So far as we are aware, no HSE report has been published into the Fehrer (UK) incident, although a report is awaited dealing with the Corus explosion. From our brief findings, over the period from 2001 to date, it appears that lessons are not being learnt or communicated and we feel that , when carrying out their investigations, HSE or the designated incident investigation board should take into account all those affected by the incident, including the emergency services, who appear to have been overlooked so far. In particular, any issues identified as affecting the police service should be addressed in their published reports.

Recommendations

1 The comprehensive hard copy hazardous installation files held in the force control rooms proved to be impractical to read at the time of the emergencies. Summary sheets should be produced, which could be made accessible by computer in control rooms.

2 The police files should contain not only details of the hazardous materials on each site and the health hazards of those substances but also the products of the combustion of those materials in a large fire.

3 On the basis of (2), the force should make an assessment of whether personal protective equipment would be necessary for officers attending and, if so, to make suitable provision.

4 Officers and control room staff should be given suitable instruction and training for their roles in attending emergencies at major hazard sites.

5 Forces should carry out post-incident debriefing involving control room staff as well as police officers, in order to monitor how effectively their emergency procedures had worked in practice and carry out a review.

6 Published reports from HSE or designated investigation boards into major incidents should also consider the health and safety of the emergency services personnel who were attending the scene.

7 Forces should share their experience of dealing with major incidents with other forces having hazardous installations.

8 A more in-depth review of the health and safety of responders to major incidents should be carried out involving ACPO, HMIC and HSE so as to derive best practice for the benefit of all UK police forces.

Appendix

QUESTION SETS FOR INTERVIEWS

Questions for first responders

1 What information were you given by the control room staff when you received the call-out to the incident in question?

2 Was any personal protective equipment made available to you prior to attending the major incident?

3 What general training/instruction had you been given about attendance at major incidents?

4 Has any additional training been provided to you since the major incident?

5 Were you given a debrief following the incident?

6 Were there any additional pressures placed upon you in attending this incident, (a) from within the job, or (b) external pressures, eg the media, public?

Questions for senior officer in the Control Room

1 What information does the force hold about hazardous installations in the area, either COMAH or other sites?

2 How often is the information updated?

3 By whom?

4 Does the force become involved with the other emergency services in consultation on, or testing emergency plans at COMAH sites in the force area?

5 If so, is it “desk top” or actual emergency exercises?

6 What is the emergency plan for officers attending major incidents?

7 Are 1st responders referred to specifically in that policy?

8 How is the emergency plan activated in practice?

9 What is the force's experience of dealing with major incidents, and how has this informed the procedures in place?

10 Have procedures been amended in the light of experience?

11 Does the force communicate with other forces with similar hazardous installations and share best practice?

Questions for the Call Handler

1 When a call is received about a major incident, what is your procedure to deal with it?

2 What information is held on your terminal about hazardous sites?

3 When allocating, what information do you pass on to the first responder?