Exercise Headcount: What do you do with 800 scientists who cannot return to the building they have just evacuated?

Nick Berry

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Pfizer Global Research & Development, IPC 586, Sandwich, Kent, CT13 9NJ, UK Tel: +44 (0)1304 616161; Fax: +44 (0)1304 652505; E-mail: nick.berry@pfizer.com

Nick Berry is a business resilience manager at Pfizer's European Headquarters for Research & Development and business continuity management liaison for the EMEA region. His responsibilities include development of the company's UK business resilience framework, encompassing business continuity, emergency management and crisis management. Nick holds a first-class BSc in safety, health and environmental management, as well as an MSc in risk, crisis and disaster management. He is a Chartered Member of the Institution of Occupational Safety & Health and a Member of the UK Emergency Planning Society. Nick also sits on the editorial board of Resilience, the official journal of the Emergency Planning Society.

ABSTRACT

Annual fire drills serve a valuable purpose in ensuring familiarity with evacuation procedures. However, the limited duration of these exercises may be far from the reality of a real incident. In this situation, the ability to return back into a building may be restricted for hours or days. As an emergency manager, this raises a number of questions, including what to do with the evacuated colleagues, how to provide welfare support and how to identify those people who require the most immediate assistance. This paper focuses on these questions through a case study of 'Exercise Headcount'. Developed in response to the situation Pfizer faced as a result of the 2007 New York steam-pipe explosion, the paper provides an overview of the post-evacuation mustering and triage system that was developed for the Pfizer Research & Development site at Sandwich, UK.

Keywords: evacuation, post evacuation, triage, welfare, exercise

INTRODUCTION

Pfizer is the world's largest research-based pharmaceutical company. Operating in all major countries across the globe, the and development site research at Sandwich, UK, is the second largest in the organisation. The Sandwich site encompasses 183 hectares, has a building footprint of approximately 297,000m² and an average daily population of 4,000 people. From a risk portfolio perspective, the site includes a combination of office space, laboratories (chemical, biological and analytical) as well as manufacturing facilities in support of clinical trials. Based on its overall inventory of hazardous materials, the Sandwich site is classified as a lowertier establishment under the Control of Major Accident Hazards (COMAH) regulations.

Under the COMAH regulations, the site maintains a Major Accident Prevention Policy (MAPP). This document includes details of the control strate-



Journal of Business Continuity & Emergency Planning Vol. 4 No. 2, pp. 113–125 © Henry Stewart Publications, 1749–9216 Figure 1 Business resilience model in support of incident preparedness and response



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gies associated with output from a risk assessment of the most credible major accident scenarios. Of these scenarios, a key consideration is any incident with the potential to require the safe evacuation and movement of a large population of onsite colleagues.

Irrespective of the type or cause of an incident, most emergencies tend to share a number of common properties. Just like a well-written book, incidents have a beginning, a middle and, ideally, an end point. However, it could be argued that incident preparedness activities all too often spend more time focusing on the beginning and middle stages of how an incident should be managed, often to the neglect of the latter stages. For example, an organisation may have a well-rehearsed and effective building evacuation process, but how many organisations have a defined and practised strategy for the post-evacuation management of those evacuees once their life-safety needs have been addressed?

It was this latter point that 'Exercise Headcount' at Pfizer's European research headquarters aimed to practise.

INTEGRATED BUSINESS RESILIENCE MANAGEMENT

Prior to discussing the development of Exercise Headcount, the following section provides an overview of the business resilience strategy that Pfizer has adopted in the UK in support of incident preparedness and response. This model encompasses the areas of:

- emergency management;
- crisis management;
- business continuity management;
- disaster recovery.

Given the interrelated nature of these topics, business resilience management focuses on the integration of these four areas (Figure 1).

Delivery of this model is achieved via a close working relationship between relevant subject-matter experts and stakeholders including:

- business line representatives;
- environmental, health and safety;
- fire and rescue;

- human resources;
- information and data protection;
- information technology;
- media and communications;
- occupational health;
- physical security;
- security intelligence and investigations;
- site strategic management.

At the time of an incident, the business resilience strategy is implemented through a tiered level of response (1–6) supported through the adoption of a bronze/ silver/gold/platinum incident management strategy.

To assist incident management colleagues, a simple escalation matrix is used to highlight the anticipated level of response and associated management strategy in response to an incident. On one axis, incident severity is rated from a Level 1 incident (a minor event, such as an isolated medical emergency or a single smoke detector activation) through to a Level 6 incident (eg an incident that results in fatalities). On the other axis, an incident management structure is depicted against the escalating levels of:

- *Bronze*: Incident management teams located at the scene of the incident. For example: fire and rescue, occupational health and external emergency services. The main focus at the bronze level is to deal with 'hands-on' incident management.
- *Silver*: This is Pfizer's tactical management team, which is located in a UK-based emergency control centre. This team focuses on the consequences of the incident, and in so doing aims to think between 2 to 24 hours ahead of the current point in time.
- *Gold*: Pfizer's strategic management team is located in a UK-based crisis management room. Focusing on the business implications of an incident, the

strategic team acts as an interface to media communications as well as coordinating any business continuity response.

• *Platinum*: The global headquarters of Pfizer Inc is located in New York, USA. Operating from the global security operations centre, a strategic crisis management team may also be implemented in response to a significant incident with global implications.

All colleagues and teams associated with the incident management framework are incorporated into an annual training and exercise programme. This programme is centred on a risk assessment based approach. In so doing, the development of training is proportionate to the needs of an individual or team. Validation of the training occurs through a series of scheduled exercises, with minimum performance and attendance expectations being defined in order to verify competency.

Identification of scenarios for the exercise programme is based around credible events. These in turn are identified from the COMAH MAPP, the Pfizer UK business resilience risk assessment or in response to lessons learned from real incidents (internal or external to Pfizer). In addition to the use of desktop or smallscale real-time exercises, an annual major incident exercise is held at the Sandwich site. This multi-agency real-time exercise (known as 'Live Ex') aims to involve all internal levels of Pfizer incident response (bronze to platinum), as well as external emergency services.

THE DEVELOPMENT OF 'EXERCISE HEADCOUNT'

Planning for Live Ex 2008 started in December 2007. At this early stage, the most significant consideration was the identification of a credible scenario for the exercise. Based on a review of previous exercises, consideration of the MAPP and reference to significant incidents that had affected Pfizer sites globally, the foundations for Exercise Headcount started to be laid. At a high level, Exercise Headcount centred on a very simple question: if it were necessary to evacuate one of the large research facilities at the Sandwich site (which accommodates up to 800 scientists), what would we do with the colleagues after they had been evacuated?

There were two major drivers for this question. The first of these being a scenario detailed within the MAPP (as highlighted at the start of this paper). Irrespective of the trigger event that gives rise to the need to evacuate a large number of people, the practicalities of managing such an event clearly require a coordinated incident management strategy. On an annual basis, fire drills involve the unannounced evacuation of all buildings at the Sandwich site. These drills validate the ability to evacuate a building within an appropriate period of time and account for people at assembly points external to the facility. While such drills focus on the immediate life-safety of colleagues, they normally last for a limited duration. After a short period (minutes) of waiting at the assembly point, colleagues are allowed back into the building. However, in the event of an evacuation following a real incident, such as a major fire or explosion, the ability for colleagues to return to the building in such a short space of time would be far from reality.

Such a scenario starts to raise a number of interesting questions:

- What do you do with people at a fire assembly point once it is established that they cannot return back into the build-ing they came from?
- · How do you provide welfare facilities

for colleagues involved in a prolonged evacuation?

- What information do you provide the evacuated colleagues with?
- How do you identify colleagues who may require support or assistance? For example:
 - vehicle keys/house keys are located inside the evacuation area;
 - critical medication has been left behind;
 - personal items (wallets/purses/handbags/cell phones/passports for visiting colleagues) are still inside lockers and offices.
- How do you assess the priority with which support is provided to affected colleagues?

The second driver is closely related to the first, in that it highlights a case study of a prolonged evacuation event which affected a Pfizer facility.

On 18th July, 2007, an explosion occurred from a steam-pipe located beneath the road at an intersection in Midtown Manhattan, New York City. The explosion, which resulted in a crater approximately 10 metres wide¹ and four metres deep,² had a combination of both acute and chronic effects. From an acute perspective, there was the obvious management of the incident scene, casualties and local infrastructure. In terms of chronic issues, a significant consideration was the risk from asbestos contamination which may have been released from the fractured steam-pipe.

Located less than one street block away from the incident, Pfizer colleagues occupied leased space over a number of floors within a building. In evacuating the facility, colleagues left behind a variety of personal and potentially critical items, including keys, wallets, cell phones, travel documentation for visiting colleagues (passports and visas), etc. Given the scale and location of the incident, accounting for and communicating with evacuated colleagues gave rise to a number of challenges. Having escaped from the immediate location of the explosion to a position of safety, colleague focus soon moved to enquiring as to when return access to the building would be permitted. With the implications of both the acute and chronic effects, especially relating to the potential release of asbestos, there was no initial timeframe for return to the building. It was not until some days later that specialist teams from Pfizer were able to access the building, undertake monitoring for asbestos contamination and retrieve a number of critical personal items. In addition to general lessons around command, control and communications. Pfizer identified specific observations surrounding people management in the post-evacuation phase.

When both of these scenarios are considered, a conclusion can be reached in relation to the management of evacuated colleagues within complex environments. Namely, there is a need to have a rehearsed system in place not only for the initial lifesafety evacuation of colleagues, but also for the post-evacuation management of these individuals.

EXERCISE AIMS AND OBJECTIVES

The development of Exercise Headcount at the Pfizer site in Sandwich, UK, was specifically focused on the evacuation and post-evacuation management of colleagues within an industrial complex. In this sense, assuming the cause of the evacuation came from a credible scenario, the exact circumstances of the incident were secondary to the primary exercise objective. More specifically, the main exercise objective was as follows:

In response to a credible incident sce-

nario in the largest research facility at the Sandwich site, implement procedures for the safe evacuation, movement and triage of impacted colleagues. By the end of the exercise, Pfizer tactical and strategic management teams will have an awareness of where post-evacuation support should be provided to colleagues.

In addition to the main exercise objective, a series of secondary focus points were identified. These included:

- building colleague confidence around Pfizer's emergency arrangements;
- providing a full-scale real-time test for all Pfizer internal response groups (from bronze through to platinum);
- practising multi-agency interfacing by working in partnership with external emergency services (Kent Police, Kent Fire & Rescue Service, and the South East Coast Ambulance Service);
- practising internal and external communications.

To support all of these objectives, an exercise scenario was developed around a fire and explosion within a laboratory. Because of its high risk profile due to its hydrogen inventory, the hydrogenation chemistry laboratory was selected for the exercise. As this laboratory was purposebuilt to accommodate this risk profile, a range of sophisticated safety control systems are in place to prevent such a scenario from happening. It was therefore necessary to develop an exercise script that would be credible and still give rise to an incident within this laboratory area. For exercise purposes, the incident involved a fire, explosion and a number of simulated casualties. The nature and extent of the incident in turn triggered the evacuation of the building, which would normally be occupied by approximately 800 people.



This scenario therefore supported the exercise aims and objectives in that it would generate a sudden, but prolonged, evacuation. It would also provide a realtime incident for internal and external emergency services to respond to.

EXERCISE PLANNING

Planning for Exercise Headcount started in December 2007, with a target date for the exercise identified as 16th October, 2008. Following the appointment of an exercise project board, as well as multiple working parties, a project plan was developed to support the delivery of the event. This project plan broadly contained three components (see Figure 2).

Senior leadership endorsement had to be achieved early in the planning process. The proposal to evacuate the largest research building on the Sandwich site, for a period longer than a standard fire evacuation drill, represents a considerable business commitment. From the planning process, it was identified that a two-hour window would be necessary to evaluate the evacuation and post-evacuation incident management activities. In turn, this represented a potential business disruption of up to 800 colleagues (including visitors and maintenance contractors) for a combined total of up to 1,600 hours.

In presenting the business case for the exercise, examples from the steam-pipe explosion were used to help justify the need for an exercise on this scale. Guarantees were provided as to the maximum duration of the evacuation part of the exercise. It was also agreed that a small number of high criticality activities could continue within the building while the exercise took place. To the surprise of those who presented the business case, Pfizer's leadership were not only in full support of the exercise, but even suggested that the event could be larger still, involving a complete site evacuation (approximately 4,000 people). This level of commitment to business resilience was essential to the success of the exercise, and while the offer of a complete site evacuation was a vote of confidence to the planning team, efforts were refocused to the original exercise objective, the scale of which was in itself enough of a challenge.

POST-EVACUATION MANAGEMENT

Having secured agreement for the exercise to take place, a significant part of the planning phase was focused around developing a process for the post-evacuation management of colleagues. With no existing arrangements in place, a brand new system needed to be developed and validated prior to the full exercise.

In setting expectations about the purpose of the post-evacuation management strategy, an initial consideration was defining what the process was trying to achieve. Through the use of fire wardens, systems were already in place to ensure that people had been evacuated from areas of potential danger. The scope of the post-evacuation process was therefore not intended to account for people who had been in the building at the time of evacuation, but instead to provide a process for accounting for and triaging support to the people who had been evacuated.

Two different locations were identified which on their own would be large enough to accommodate the number of colleagues evacuated from the most populated building on the site. These locations were inside buildings (and hence provided weather protection) and were positioned next to restaurant facilities (with access to welfare arrangements, including refreshments and toilets). The decision as to which internal muster location to use would be made at the time of an incident by the site emergency control centre.

Once a decision as to the location of the internal muster point had been made, it was recognised that the process of preparing the venue for the arrival of the evacuated colleagues would need to be achieved in a timely manner. To achieve this requirement, trolleys were prepared that contained all of the resources needed to establish a muster location and initiate the triage process. These trolleys were pre-located at designated storage facilities.

The process for setting up and running a muster location was broken down into the minimum number of roles possible. Traditionally during a fire evacuation, a facility manager and fire wardens from the affected building would wait at an assembly point along with the rest of the evacuated colleagues until the all-clear was given. Rather than trying to gather colleagues from non-affected buildings, it was proposed that, in the event of a prolonged incident, the existing affected colleagues would be used to implement the internal muster process. At the time of an incident, a facility manager would therefore assume the role of a building evacuation manager (BEM). Under the coordination of the BEM, a small number of fire wardens would relocate to the designated internal muster location and set up the required facilities. Once these arrangements were in place, the larger population of evacuated colleagues would be asked to move from the external assembly points to the internal location. A series of detailed action cards were developed that contained exact instructions for all of the roles necessary to set up the muster location. With only ten fire wardens and a BEM, the internal muster process was designed to be set up and ready for use in only 15 minutes.

In addition to simply providing welfare arrangements, the triage and mustering process needed to facilitate a mechanism to establish the prioritised support needs of the assembled group. It was recognised that, while many of the evacuated group would have important needs that required support, not all of the group would require this support against a critical timeframe. A structured process of managing evacuated colleagues was therefore necessary. The solution was through a series of cordons set up by the fire wardens and the BEM (Figure 3):



• *The outer cordon*: As evacuated colleagues entered the internal muster area, they passed through a single entry point in an outer cordon. Demarcated with barrier tape and signage, the entry point was used to provide evacuated colleagues with a pre-printed information leaflet explaining the evacuation and triage process, a simple triage questionnaire and a pen (Figure 4). Two fire wardens operated the entrance through the outer cordon.

• *The inner cordon*: Having moved into the area between the inner and outer cordons, evacuated colleagues were asked to complete the triage questionnaire. Once complete, colleagues moved through the single entrance into the inner cordon. At this point, another two fire wardens checked that the triage



questionnaire had been completed correctly, prior to directing the colleague to one of four registration desks.

- *Registration desks*: At each of the registration desks, a fire warden reviewed completed triage questionnaires to identify into which of two categories the evacuee should be placed. The questions on the triage questionnaire were designed to allow the easy identification of whether the evacuee was low or high priority. A high priority was anyone who:
 - required medical assistance as a result of the evacuation/incident where this had not been identified at the incident scene;

— was a visitor to the Pfizer site;

- required prescription medication within the next six hours but did not have it with them;
- had an offsite care dependant (eg child at school); or
- did not have their house/vehicle keys with them and there was nobody else who could provide spare keys.

Having reviewed the questionnaire and identified whether any of the boxes had been ticked, thereby placing the evacuee into the high-priority group, the fire warden tagged the evacuee with a coloured wristband (orange for high priority and blue for low priority). Figure 4 Examples of the evacuation information form and triage questionnaire Colleagues who were identified as being of a lower priority were asked to wait for further information within the inner cordon. The evacuation information sheet helped to explain why they were being asked to wait and not simply to leave the site. Those who had been identified as a high priority were directed to one of the two support desks.

• *Support desks*: At the support desk, those colleagues who had initially been identified as a high priority were asked for additional information about their specific needs. In some cases, the priority of a colleague was downgraded. For example, if they had an offsite care dependant but were able to telephone another person and arrange for them to provide support.

Information collected during the triage process needed to be in a format that required minimal data processing. This would help to facilitate regular status updates to be made from the muster location to the emergency control centre. At the point of registration, if a colleague had been assigned as a low priority, their triage questionnaire was retained at the desk. The number of completed questionnaires at the registration desks therefore provided a running total as to the number of lowpriority evacuees. At the support desks, a matrix was used to identify the nature and number of people who required additional assistance. On a 15-minute basis, the BEM collected statistics from each of the desks in order to provide an update to the emergency control centre.

Research commissioned by the Cabinet Office highlights that the coordination of crowds and evacuees can be achieved more successfully through the provision of timely and accurate communications.³ Evacuated colleagues would therefore need to have easy access to communications and information about the postevacuation management process. In addition to the pre-printed evacuation information sheets, the role of the BEM was also to facilitate regular verbal communications to the evacuees.

Having developed a model for the postevacuation mustering and triage process, a small-scale exercise of the process was held approximately two months prior to the full-scale Live Ex. On this occasion, 30 simulated evacuees were processed following the setup of the triage system. Based on the output from this exercise, a number of the questions on the triage questionnaire were further simplified to speed up the process by which evacuees could be registered. It was also identified that firstaiders or occupational health colleagues should attend the muster location to provide immediate assistance to any evacuees who had been injured or indicated that they required medication.

OBSERVATIONS FROM EXERCISE HEADCOUNT

For the purpose of this paper, the exercise observations are focused on those associated with the post-evacuation mustering and triage process. Observations were also noted around command and control; however, these are beyond the scope of this paper.

Following the initiation of the exercise at 1.30 pm, all colleagues taking part in the exercise had evacuated the facility and assembled at the external evacuation points within five minutes of the building fire alarms sounding. Based on the nature of the incident, the site emergency control centre had convened and made the decision to initiate the post-evacuation internal muster and triage process. This decision was made and communicated at approximately 1.45 pm. The BEM and a selection of fire stewards relocated to the chosen muster location and at 2.05 pm confirmed that they were ready to start receiving evacuees. Following the arrival of the first evacuee at 2.10 pm, a total of 583 people were processed and triaged within one hour. A limitation of the exercise was that, although the building chosen for the evacuation normally houses up to 800 scientists, on the day of the exercise, a smaller number of Pfizer employees and visitors were actually within the building at the time of the exercise. The internal mustering and triage part of the exercise was terminated at 3.15 pm. Within this time, all of the evacuees had been safely and successfully moved to the internal location, provided access to welfare facilities and triaged as to their immediate support needs.

Of the 583 evacuees who were triaged, 134 were identified as falling into the high-priority category. In turn, of these people:

- six visitors were identified;
- eight were identified as requiring medication within the next six hours (and they did not have it with them);
- 79 were primary carers for offsite dependants;
- 113 were without their house/vehicle keys and had no means of access to alternative keys.

Note that the above numbers do not total 134 as some individuals fell into more than one high-priority group.

LEARNING POINTS

Following the completion of the exercise, a hot debrief was held with all exercise participants. This was followed up with a cold debrief a few weeks later. Based on the output from these debriefs, and the subsequent exercise report, a number of conclusions and learning points were identified. It is acknowledged that the exercise was of a limited duration and did not extend to the actual implementation of support to those who had been identified as a high priority. Nonetheless, the exercise did validate the process of implementing a postevacuation management system. If this had been a real incident, then the site emergency control centre and crisis management teams would not only have known that colleagues were in a position of safety, with their immediate welfare needs being addressed, but they would also have known which colleagues required additional high-priority support.

The design of the Sandwich site certainly helped with the post-evacuation process. Being a ring-fenced location, the management of large numbers of people was much easier than if, for example, people evacuated directly on to the streets of a city (as was the case in the New York steam explosion).

In considering the main exercise objective, 583 people were evacuated as part of Exercise Headcount. All of these people were successfully moved to an internal position of safety and triaged within one hour of arrival at the muster location. The speed of this accomplishment was praised by observers from the external emergency services. In so doing, the exercise validated that the internal muster and triage process worked. By the end of the exercise, Pfizer's tactical and strategic management teams had an awareness of where post-evacuation support should be provided to colleagues.

Colleague confidence was also noted around Pfizer's emergency arrangement. The following comments were received on feedback sheets at the end of the exercise:

'Key benefits start with immediately increased colleague (and company) confidence we can manage in a tough spot.' 'I started a bit irritated with this ... but I feel a strong sense of calm and confidence!'

'... a good exercise to give confidence to me as a fire steward that we would be able to handle a real scenario.'

'Can we run another exercise next week please?! ... Seriously though, I thoroughly enjoyed taking part.'

Exercise Headcount was the first real-time major incident exercise where all levels of Pfizer emergency management at Sandwich (bronze to gold), including links to the platinum level in New York, had been implemented at the same time. A key recommendation from the exercise was that all levels of Pfizer incident response, emergency management and crisis management should exercise together on a minimum of an annual basis. If all levels of response are rehearsed and able to work together, then the output is much greater than the sum of the individual parts.

A key component to the success of the exercise was the partnership and engagement with all three external emergency services (Kent Police, Kent Fire & Rescue Service, and the South East Coast Ambulance Service) as well as the Local Authority Emergency Planning Unit. This relationship applied all through the planning process as well as in the execution of the exercise on the day. The exercise reinforced that roles and responsibilities between Pfizer and the external emergency services need to be clearly understood and tested. The emergency services have defined responsibilities under the UK Civil Contingencies Act 2004. Pfizer also has defined emergency management responsibilities under COMAH as well as its own corporate guidelines. Regular liaison and exercising with external agencies is essential to ensure expectations dovetail in both directions.

Finally, it was recognised that, of those

people identified as high priority, the main driver for this categorisation was the lack of access to keys. One thing that Exercise Headcount provided to those who took part was a greater understanding of the need to adopt a mindset of preparedness (ie one of self-help). For example, if a colleague is evacuating from their normal place of work, and they have immediate access to personal items that will not impede their escape (eg vehicle and house keys, etc), then they should be encouraged to take these with them. This conclusion must of course be balanced against the potential for colleagues to delay evacuation in order to collect belongings.

CONCLUSION

Exercise Headcount was the largest exercise of its type held within the Pfizer organisation. Although previous exercises have focused on the immediate life-safety evacuation of colleagues, very little focus had been given to what happens to colleagues in the post-evacuation stage. A need was clearly identified to establish a process for managing the welfare of evacuated colleagues during a prolonged incident as well as prioritising support to those evacuees who require assistance.

The New York steam leak therefore provided a catalyst to develop and implement an internal mustering and triage process. In turn, Live Ex 2008 provided an opportunity to practise a process which required minimal time to set up, could be operated by a small number of colleagues, would help to identify colleagues with a higher priority for support, and would facilitate effective communication to all evacuees.

The process that was tested on 16th October, 2008 validated the design and benefits of the mustering and triage strategy. Although the exercise did not extend to the actual provision of support to those who were identified as a high priority (this would be an exercise in its own right), it did serve to highlight the benefits of a post-evacuation emergency management strategy as well as securing colleague confidence along the way.

Following the success of this exercise, continued support was secured from senior leadership to run an equivalent multi-agency real-time exercise on an annual basis. In 2009, 'Exercise Speedo' provided an opportunity to practise the decontamination of multiple (n = 30) casualties following a chemical spillage. Planning for Live Ex 2010 is already well underway.

In conclusion, it is hoped that Exercise Headcount will serve as a prompt for other organisations to consider their own post-evacuation management strategy and ask themselves 'What do we do with our colleagues when they cannot go back into the building they have just evacuated?'

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