

Process Safety Leadership Group guidance on implementing the Buncefield Major Incident Investigation Board Emergency Preparedness Response and Recovery report recommendations 1 and 3 to 8

Scope for the application of this guidance

The guidance in this report, on MIIB recommendations 1 and 3-6, aimed at “Buncefield-type sites”, applies to all sites falling within the scope defined in the Buncefield Standards Task Group (BSTG) initial report¹ and any subsequent amendments made to that scope. The guidance on MIIB recommendations 7 and 8 applies to all sites regulated under the Control of Major Accident Hazard Regulations 1999 (COMAH).

Background

1. This guidance has been produced by the Regulator/Industry Emergency Arrangements Working Group of the Process Safety Leadership Group to assist industry in the implementation of the Buncefield Major Incident Investigations Board (MIIB) recommendations in their Emergency Preparedness Response and Recovery report (EPRR) released in July 2007.
2. The Emergency Arrangements Working Group released initial guidance in the Buncefield Standards Task Group Final report². As a result of further work undertaken by the group on emergency arrangements, the following guidance has been developed to assist in the implementation of the MIIB EPRR recommendations 1 and 3 to 8 that place a duty on industry.
3. Where emergency plans are referred to in this guidance, this equates to relevant parts of the Major Accident Prevention Policies for lower tier COMAH sites.

Implementation Process

4. To facilitate flexibility in planning and carrying out the implementation of these recommendations there is an overall timescale for meeting these recommendations allowing sites the choice of which recommendations they complete first. **For sites within scope of all of the recommendations (1 and 3-8) the timescale for work to be completed on all of these recommendations is by the end of 2009. Such sites should have met recommendation 1 and at least two of the other recommendations by the end of June 2009.** It is sensible that there is early implementation of recommendation 1 as it underpins much of the other work.
5. Recommendations 7 and 8 are aimed at COMAH sites generally and as the guidance on these should be relatively straight forward to implement, **COMAH sites that do not fall within the BSTG scope (as amended) will be expected to have met recommendations 7 & 8 by the end of June 2009.**
6. If there are sound reasons (for example, lack of expertise or problems with the supply of equipment) why a site is unable to meet these deadlines then local regulators must be informed as soon as possible.

Mutual Aid

7. A means by which a number of the recommendations might be met is through a site participating in an effective industry/Fire and Rescue Service (FRS) mutual aid arrangement. This could well be a reasonably practicable solution and preferable to an alternative such as protecting existing emergency resources so as to withstand the effects of a Buncefield-like explosion. Achieving such a mutual aid arrangement is the focus of recommendation 23 of the MIIB's report and work on how to implement this (and recommendation 24 – a national inventory of resources) by the PSLG emergency arrangements working group has begun.
8. Owing to the complexity and scale of the work involved, delivery of guidance on mutual aid is scheduled for the end of 2009. This timescale means that it is highly unlikely that sites that intend to meet recommendations through mutual aid will be able to satisfy the end of 2009 deadline for complete implementation. Sites in this position will be considered to have met any such

¹ www.hse.gov.uk/comah/buncefield/bstg1.htm

² www.hse.gov.uk/comah/buncefield/final.htm

recommendations provided they are actively engaged³ in the work on mutual aid and have given an undertaking in principle⁴ to participate in the mutual aid arrangement once it is in place.

9. Any sites that do not do so, including sites that at any stage fail to actively engage in the mutual aid work, cannot claim to be meeting the recommendations through the PSLG mutual aid arrangements and will need to do so by other means in accordance with the timescales stated above. If at a later stage during its involvement in the mutual aid work, a site decides that it is going to disengage from the work then it will need to agree an action plan for alternative implementation of the recommendations with local regulators.

Dual Layers of Emergency Arrangements

10. The existing emergency arrangements at sites should be sufficient to deal effectively with the existing foreseeable scenarios identified at sites. Whilst it is sensible that emergency arrangements capable of coping with a Buncefield-type incident are put in place as necessary, for the existing foreseeable emergency scenarios a different level or type of emergency arrangement may be more appropriate. Sites may therefore require dual layers of emergency arrangements with existing on-site emergency equipment adequate for dealing with existing emergency scenarios, for example, a tank rim fire, retained and used when appropriate, but with another layer of capability for dealing with a Buncefield-type incident, for example, as a member of a mutual aid arrangement.

Report Format

11. This report has each MIIB recommendation followed by the guidance on how to implement it. To assist in clarity and ease of use, templates or large tables are included as appendices to the relevant section dealing with each recommendation and they are headed in the format of, "Recommendation X Appendix Y" followed by their title. The main report itself is a PDF document and the templates are Microsoft Word documents so that they can be easily used by sites.

12. The table below summarises the guidance in this report and the degree to which the guidance on implementation meets each recommendation.

MIIB Recommendation	Scope	Degree to which Guidance meets Recommendation	Page
1 - Operators should review their emergency arrangements to ensure they provide for all reasonably foreseeable emergency scenarios arising out of credible major hazard incidents.	BSTG scope sites	Full	3
3 - Operators should review their onsite emergency plans to reflect the revised COMAH CA guidance on preparing on-site emergency plans.	BSTG scope sites	Full	5
4 - Operators should review and where necessary revise their on-site emergency arrangements to ensure that relevant staff are trained and competent to execute the plan and ensure that there are enough trained staff available at all times to perform all the actions required.	BSTG scope sites	Full	14
5 - Operators should evaluate the siting and/or suitable protection of emergency response facilities such as the emergency control centre, firefighting pumps, lagoons or manual switches, updating the safety report as appropriate and taking necessary remedial actions.	BSTG scope sites	Full	16
6 - Operators should identify vulnerable critical emergency response resources and put in place contingency arrangements on or off site in the event of failure at any time of the year and make appropriate amendments to the on-site emergency plan.	BSTG scope sites	Full	As for Rec.5
7 - If the operator relies on an off-site Fire and Rescue Service to respond, the operator's plan should clearly	All COMAH	Full	22

³ Active engagement does not necessarily mean that a representative from the site attends meetings etc but does mean that a site contact is active in responding to requests for information, consultation etc.

⁴ There are some complex issues involved in such mutual aid arrangements (eg legal) and it is natural that operators are wary of giving an unconditional undertaking to become part of these when the full ramifications of doing so are not known. Once the work is complete then it will be possible for operators to assess the full ramifications of participation and decide how fully they participate.

demonstrate that there are adequate arrangements in place between the operator and the service provider.	sites		
8 - Operators should review their arrangements to communicate with residents, local businesses and the wider community, in particular to ensure the frequency of communications meets local needs and to cover arrangements to provide for dealing with local community complaints. They should agree the frequency and form of communications with local authorities and responders, making provision where appropriate for joint communications with those bodies.	All COMAH sites	Full	32

Recommendation 1 - Operators of Buncefield-type sites should review their emergency arrangements to ensure they provide for all reasonably foreseeable emergency scenarios arising out of credible major hazard incidents, including vapour cloud explosions and severe multi-tank fires that, before Buncefield, were not considered realistically credible. The Competent Authority should ensure that this is done.

13. The event that operators should plan for, **with respect to emergency arrangements**, is that of a multiple tank fire following an explosion. Emergency arrangements will need to be capable of operating effectively following such an event.

14. Further research is underway on the explosion mechanism at Buncefield, however, the results of this research are not expected in the near future. Therefore, in order to identify what scale of explosion the emergency arrangements need to be capable of surviving, the best available information from the Buncefield incident itself has been used. Accordingly, a blast overpressure in excess of 500 millibar over a radius of 250 metres has been assumed to be the magnitude and extent of the explosion to be used as the basis of the credible incident **with respect to emergency arrangements**.

15. The research may reveal that a blast over-pressure considerably in excess of 500 mB occurred at Buncefield. The table below details typical effects of over-pressure. The effects of over-pressure are not exact and sensible interpretation erring on the side of caution should be employed. It is thought highly unlikely that the research will conclude that the blast over-pressure was less than 500 mB.

Typical effects of blast overpressure on people, buildings and plant

Damage Details	Incident Equivalent Peak Overpressure in mBar
Effects on people	
Threshold for ear drum rupture.	138
Minimum pressure for penetration injury by glass fragments.	55.2
Threshold of skin laceration by missiles.	69-138
Persons knocked to the ground.	103-200
Possible death of persons by being projected against obstacles.	138
50% probability of eardrum rupture.	345-480
90% probability of eardrum rupture.	690-1034
Threshold of internal injury from the blast.	490
50% fatality from serious missile wounds.	276-345
Near 100% fatality from serious missile wounds.	483-689
Threshold of lung haemorrhage.	837-1034
Immediate blast fatalities.	4826-13790
Building damage details	
Nearly 100% of exposed glass panes broken.	46-110
Partial demolition of houses - made uninhabitable.	69
Nearly complete destruction of houses.	345-483
Probable total destruction of houses.	689
Effects on Plant	
Most pipes fail.	300
Steel cladding of buildings ruptured.	400
Brick panels in steel or concrete frame ruptured.	500
Reinforced structures distort and unpressurised tanks fail.	210-340
Wagons and plant items overturned.	340-480
Extensive damage to chemical plant.	>480
Failure of a pressurised sphere.	>700

16. At Buncefield, the damage from the Vapour Cloud Explosion (VCE) occurred out to approximately 250 metres from the bund containing the tank that was overfilled. Whilst the behaviour of vapour clouds can be directional, the movement of the cloud is heavily dependant on factors such as site topography, degree of congestion and weather conditions. Attempting to predict the travel of a potential vapour cloud with the necessary level of reliability in view of its

potential effects is not a practical proposition with existing knowledge. Hence the effects of the explosion should be considered as being 250m from the bund assuming that the cloud could travel in any direction.

17. Further information on the predictive assessment of COMAH safety reports in light of the Buncefield incident can be found at <http://www.hse.gov.uk/foi/internalops/hid/spc/spcperm11.pdf>.

18. The methodology below is for operators of fuel storage sites to use to evaluate the potential impact of a VCE on the emergency arrangements at their site. These arrangements will include fixed equipment such as fire pumps and hydrants as well as foam stocks, site ingress and egress points for off-site emergency resources, control rooms and critical equipment. Considerations in this guidance regarding personnel only pertain to those involved in the site's emergency arrangements.

19. Operators shall conduct individual site assessments at each of their sites based on the following methodology.

a. Identify the critical equipment and resources necessary to conduct a response to a credible incident scenario following a VCE. Typically this would be a multi-tank fire initiated by the VCE.

b. For those resources identified plot the location on a site plan of those that are installed at the facility or provided as part of a mutual aid or common user scheme.

c. Apply the overpressure area of 250 metres radius from the edge of any relevant bund (e.g. contains a gasoline storage tank).

Note: It is possible for typical marketing terminals that this area will encompass the whole site and may extend to include areas where mutual aid or common user equipment is held.

d. The effects of blast overpressure should be applied to all items of critical equipment and resources within the designated area. Judgement should be made as to whether the equipment or resource would remain usable or not.

Note: Apply the precautionary principle and if in doubt treat as unusable.

e. For each item of critical equipment or resource that is likely to experience a level of damage that would render it unusable in the event of a VCE the facility should give consideration to the following options.

- Move the item of equipment to a position outside the area likely to be affected.
- Duplicate the equipment by providing an alternate in a position outside the affected area.
- Provide protection for the equipment in the form of blast shielding.
Note: if site power and control systems are lost there may be little advantage in protecting pumps or other equipment that cannot be utilised.
- Provide mitigation that would reduce the consequences of the damage. For example, if a fire pump would be lost in the blast but an underground hydrant system would still be operable then additional inlet points for mobile pumps from open water could restore operation of the system.
- The use of off-site emergency equipment and resources e.g. through provision of mobile equipment from FRS or mutual aid scheme.
- For access and egress points used by off-site responders, give consideration to providing alternate routes in and out in case the principal roads and gates are affected by the incident or obstructed by debris.

20. The results of the assessment shall be documented and incorporated into the on-site and off-site emergency plans as appropriate. These results shall then be used in determining the appropriate emergency arrangements for the site in order to deal with a Buncefield-type incident. Any dependency on mutual aid or external resources should be agreed with those parties in accordance with MIIB recommendation 7 and arrangements regularly tested and reviewed.

Recommendation 3 - For Buncefield-type sites, operators should review their onsite emergency plans to reflect the revised guidance on preparing on-site emergency plans as per Recommendation 2. The Competent Authority will need to check that this is done.

21. MIIB recommendation 2 states that the Competent Authority should review the existing COMAH guidance on preparing on-site emergency plans. This guidance needs to reflect the HSE's Hazardous Installations Directorate Chemical Industries Division inspection manual used by inspectors to assess the quality of the on-site plan in meeting the COMAH Regulations. In particular, reference should be made to the need to consult with health advisors and emergency responders.

22. The HSE guidance referred to by the MIIB is RCS 8 – Guidance: On-site Emergency Response Inspection at p156 of the HID CI / SI Inspection Manual which can be found on the HSE website at <http://www.hse.gov.uk/foi/internalops/hid/manuals/pmenf05.pdf>. This guidance is being reviewed; however additional guidance will not change any parts of RCS substantively and will provide a framework for organising inspections of emergency response arrangements.

23. Sites should therefore reflect the topics covered in RCS 08 in their on-site plans. This can be done through the use of an updated version of the template for completion of the on-site plan for COMAH sites that was published accompanying the BSTG final report. This updated template is Recommendation 3 - Appendix 1 and it supersedes the original template.

24. The template can be completed and used as the basis for the on-site emergency plan with underpinning detailed incident plans. This approach may be of benefit to lower-tier COMAH sites in particular as this can then form a discrete part of the MAPP.

25. Even if a site has a well-developed emergency plan, to complete the template will take little effort and once completed it will form a useful overview document for on-site use and when liaising with off-site agencies and responders. Although the blank template can be used as a checklist against which to check the elements of a site's on-site plan, all sites within scope of this recommendation are strongly encouraged to complete the template in order to obtain maximum benefit from it.

Recommendation 4 - Operators should review and where necessary revise their on-site emergency arrangements to ensure that relevant staff are trained and competent to execute the plan and should ensure that there are enough trained staff available at all times to perform all the actions required by the on-site emergency plan.

26. Any response to an emergency will only work to its full effectiveness if there are sufficient people to perform it who have had the right training for, and are competent in, their duties under the plan. As each site is unique so each site's emergency plan is also, meaning that the detail of the appropriate training and competencies for staff involved in the emergency arrangements are site-specific.

27. So a "one-size fits all" approach is not necessarily helpful. However, certain principles are identified in this guidance and these should be followed by sites as they review and possibly revise their on-site emergency arrangements with respect to the staff who are involved.

28. The emergency arrangements should be capable of dealing with all foreseeable emergency scenarios as identified. From these scenarios, associated risks can be identified and staff should be trained to deal with these risks at the site.

29. Operators should conduct individual site assessments at each of their sites based on the following principles.

- a. Have all the risks been identified for the site with respect to the foreseeable emergency scenarios?
- b. Have response plans been developed to deal with these risks?
- c. Do the response plans identify actions and resources needed especially people?
- d. Do the response plans identify escalation measures including the resources needed to action the plan?
- e. Does the site have the resources to action these plans? This can be done by a gap analysis of the people and other resources.
- f. When doing this analysis, consider the following with respect to staff:
 - Time - Can they be released in an emergency? Have they time to do all that they need to under the plan?
 - Tools - Do the staff have access to the correct equipment/information?
 - Ability - Can they use the equipment/understand the information and do what they need to properly?

30. This can be summarised as – does the site at all times have enough staff who are able to do what they need to in the time available to make the plan work.

31. Each member of staff should be competent at carrying out what they will need to do in order to implement the emergency plan. Competency should be assessed during training and testing of emergency plans. Can each person do what they need to – if not train and check? Refresher training is vital to maintain competence and there needs to be realistic testing to ensure that staff to demonstrate competence. Sites should record all reviews, analysis, training and testing that they undertake.

32. The table below is derived from the Energy Institute guidance in Model Code of Safe Practice Part 19: Fire Precautions at Petroleum Refineries and Bulk Storage Installations⁵. The table provides an example of the competencies required by a typical emergency response team member. The areas where competencies are necessary have been identified by analysing the tasks that the person will fulfil as their part in the plan. The same process can be applied to all tasks and the competencies required identified.

33. It is essential to consider tasks such as drainage, firewater management, pollution control and site recovery when deciding on training and competencies.

⁵ (ref: 978-0-85293-437-1 This can be ordered through the Energy Institute website at <http://www.energyinstpubs.org.uk>)

EMERGENCY RESPONSE TEAM MEMBER – EXAMPLE COMPETENCY PROFILE			
IP19 Annex E – an example ERT member competency profile based on four units			
Operations	Maintenance	Procedures	Skills
1.1 Inspect and test fire vehicles	2.1 Inspect and test site portable/mobile fire equipment	3.1 Execute assigned duties	4.1 Respond to emergencies
1.2 Inspect and test fire station communications	2.2 Inspect and test site fixed fire systems	3.2 Working safely	4.2 Fixed systems/fire tender work in incident area
1.3 Exercise emergency response	2.3 Inspect and test site fire hydrants		4.3 Carry out fire-fighting or incident control operations
1.4 Fire prevention			4.4 Rescue personnel
			4.5 Reinstate resources
			4.6 Training and instruction

Recommendation 5 - For Buncefield-type sites, operators should evaluate the siting and/or suitable protection of emergency response facilities such as the emergency control centre, firefighting pumps, lagoons or manual switches, updating the safety report as appropriate and taking the necessary remedial actions.

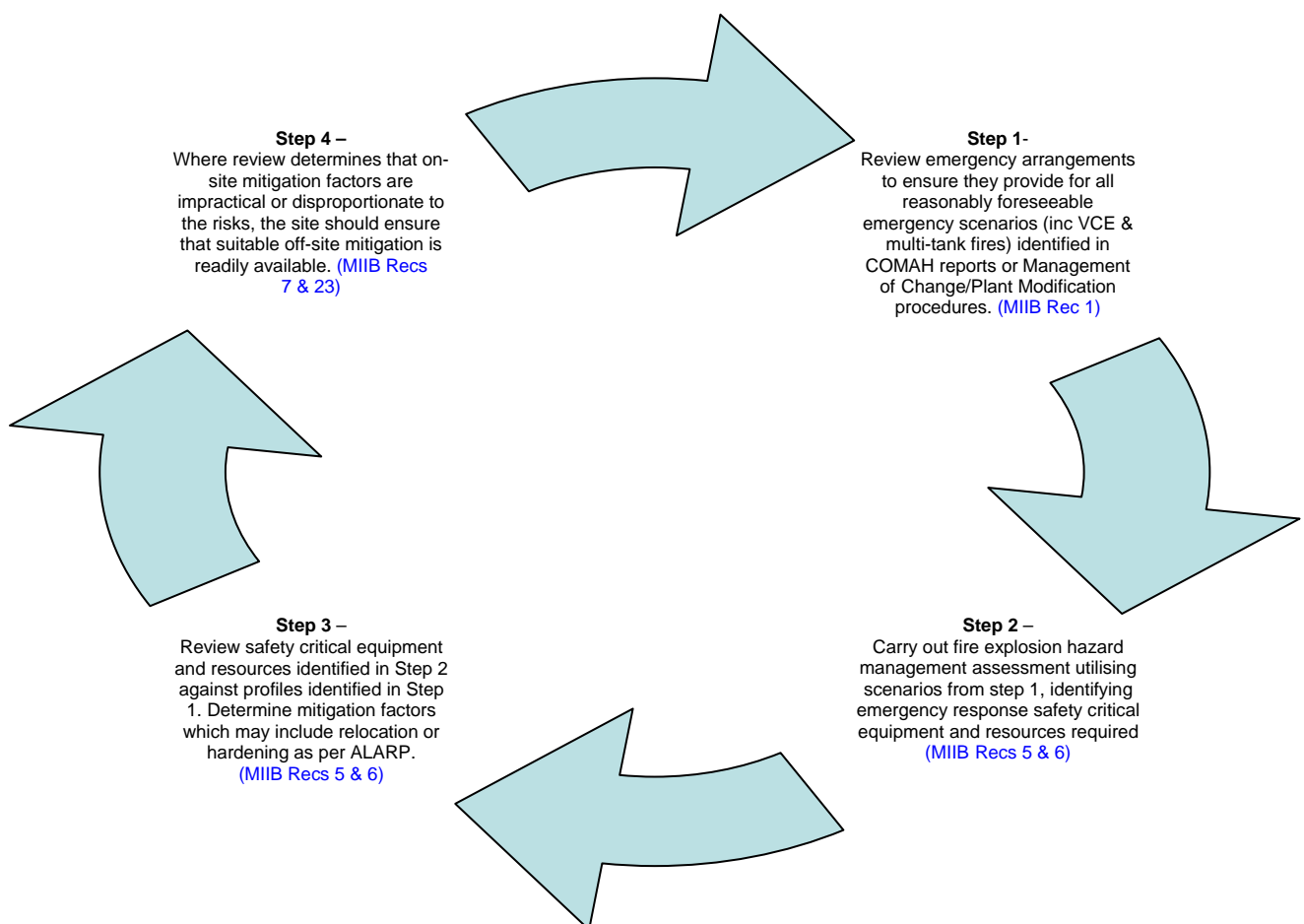
Recommendation 6 - Operators should identify vulnerable critical emergency response resources and put in place contingency arrangements either on or off site in the event of failure at any time of the year and make appropriate amendments to the on-site emergency plan. This should include identifying and establishing an alternative emergency control with a duplicate set of plans and technical information

34. The requirements of these two recommendations have considerable cross-over when it comes to implementation. Accordingly, it is sensible to approach both together and the guidance below reflects this joined up approach. This guidance sets out a methodology for identifying vulnerable critical emergency response resources. Other operational resources are outside the scope of this work.

35. IP 19 – Model Code of Safe Practice – Fire Precautions at Petroleum Refineries and Bulk Storage Installations⁶ provides good practice guidance on protection of safety critical equipment and resources.

36. Fire protection and other critical emergency equipment and resources should be located in non hazardous areas. Consequence modelling should be carried out to determine placement of such items as they may constitute sources of ignition. Consideration should also be given to locating such equipment and resources so as to enable access at all times during incidents. In addition, such equipment and resources should be capable of functioning effectively as required by the emergency plan despite the effects of fire and explosion, for example, fire pumps should be located at a safe distance away from any possible explosion/fire consequences.

Framework for evaluating emergency response critical equipment and resources



⁶ (ref: 978-0-85293-437-1 This can be ordered through the Energy Institute website at <http://www.energyinstpubs.org.uk>)

37. **Step 1** Operators should consider worst case events in terms of:

- Hazard distances
- Overpressures
- Radiant heat levels
- Potential for missile generation

The emphasis is on considering the effects of ‘worst-case’ incident scenarios, as these should identify the most vulnerable emergency equipment and resources. However, operators should consider specific issues that may arise from lesser incidents. Other vulnerable resources may be identified, e.g. different types of foam concentrate, critical emergency equipment located near relatively low-hazard operational areas, etc.

38. **Step 2** Identify critical emergency response equipment and resources vulnerable to the worst case scenarios. Operators should start by reviewing the list and identifying those resources that are relevant to their site and may be vulnerable in a major incident. Detailed site plans with significant hazard ranges marked on them may be used as an aid.

The templates at Recommendations 5 & 6 - Appendix 1 provide a detailed list of emergency response equipment and resources, drawn from industry guidance, codes, reports of the Buncefield Standards Task Group (BSTG)⁷ and the MIIB⁸. Relevant issues in “Buncefield: Hertfordshire Fire and Rescue Service’s Review of the Fire Response” (2006)⁹ have also been included. The list should not be seen as exhaustive. Operators should also consider unique features of their own sites and emergency response arrangements.

39. **Step 3** In reviewing critical equipment and resources it is essential to look beyond standard emergency response equipment and resources and consider all equipment and resources necessary to manage the incident, i.e. drainage, firewater management, power supply, control centres, communications etc. Consideration when determining mitigation factors should take into account the requirements of a site to deal with the more likely scenarios and not solely focus on the high impact - low probability event.

Operators should assess what the likely level of damage would be to vulnerable equipment and resources, in terms of:

Functionality (Can the system still meet its intended role or function?)	Availability (Is the system still available when it might be needed?)	Reliability (Can the system still work as intended when called upon?)
<ul style="list-style-type: none"> - Total loss (e.g. loss of foam supplies) - Partial lost (e.g. water spray system pipework may be damaged so that it cannot give adequate coverage to all vessels exposed to radiant heat and/or flames?) - No significant loss (the system can still function as intended) 	<ul style="list-style-type: none"> - Total loss (e.g. fire pumps destroyed by blast) - Partial lost (e.g. emergency access may be obstructed from certain directions) - No significant loss (the system is still available for use) 	<ul style="list-style-type: none"> - Total loss (e.g. severe bund wall) - Partial lost (e.g. damage to cabling may mean remote operation of valves is lost/unreliable, but manual operation may still be possible) - No significant loss (the system can still function when called upon)

40. **Step 4** If the site has the potential for a Buncefield-type incident then the necessary emergency arrangements will be required to be in place to deal with such a scenario. The review is to consider the most appropriate way in which the site can meet this requirement. This may include cost benefit analysis to decide between alternative means of achieving the necessary emergency arrangements to cope with an explosion followed by a multi-tank fire.

Where there are gaps against current relevant good practice, consideration should be given to improving contingency arrangements. Any improvements in contingency arrangements should be in accordance with the ‘ALARP’ principle (reducing risks to as low as reasonably practicable). Practical measures such as relocating mobile equipment and resources may be possible to reduce risks/improve contingency arrangements at reasonable cost. However, it may not be reasonably practicable to invest significant capital in major relocation, protection or increased redundancy of

⁷ Available at <http://www.hse.gov.uk/comah/buncefield/response.htm>

⁸ Available at <http://www.buncefieldinvestigation.gov.uk/index.htm>

⁹ Available through <http://www.tsoshop.co.uk/>

resources, bearing in mind the very low likelihood of worst-case scenarios. In these circumstances, it may be more realistic to identify what external assistance would be available (e.g. local emergency services, mutual aid schemes) and to revise emergency plans to take account of the possible loss of critical equipment and resources.

41. Additional measures to consider include:

- Reducing the risk of the incident at source
- Increased redundancy, e.g. alternative fire pumps in different locations
- Increasing supplies
- Relocating resources
- Splitting supplies into different locations
- Manual back up for automated systems
- Resources that can be brought in by the emergency services
- Mutual aid schemes
- Contracts/agreements with specialist companies who can provide additional resources within a reasonable time period
- Duplicate copies of emergency information (hazard data, site plans, etc). Information kept in different locations (on and off site) and different formats (hard copy and electronic).
- Alternative emergency control centre off site
- Alternative emergency response tactics (e.g. consideration of controlled burn if firewater supplies are lost)
- Revision of emergency plans, tactics and strategies.
- Exercises to test the adequacy of contingency arrangements

Recommendation 7 – For COMAH sites, if the operator relies on an off-site Fire and Rescue Service to respond, the operator’s plan should clearly demonstrate that there are adequate arrangements in place between the operator and the service provider. The Competent Authority will need to check that this is done.

42. The guidance on this recommendation is aimed at current site arrangements where the Fire and Rescue Service (FRS) and other off-site responders fulfil functions as part of the on-site emergency plan, not specifically with respect to more formal industry/FRS mutual aid arrangements. The work currently underway on MIB recommendation 23 which pertains to the setting up of mutual aid arrangements will be dealing with this matter specifically in the context of mutual aid set ups.

43. Emergency Plans vary in their complexity, content, accuracy and validity and this is also the case for the Major Accident Prevention Policies (MAPP) and supporting Safety Management Systems (SMS) of lower-tier COMAH sites, however. Sites commonly refer to the requirement for and attendance of off-site resources (usually FRS) and the service provider. These arrangements should also include off-site FRS response required to prevent/deal with a Major Accident to the Environment (MATTE).

44. At Appendix 1 is a template that can be used for checking/auditing a test of the on-site plan. The various elements of the on-site plan are listed and this thorough but not necessarily exhaustive list can be used as a basis for identifying those parts of the arrangements where there is a reliance on off-site responders. The following are examples of common areas where this reliance is likely:

- Reliable relations between operators, the emergency services and other responders, for example, EA/HPA, are critical in the successful management of major emergencies and there should be scheduled liaison meetings held between operator, FRS and other off-site providers.
- If the external FRS supplements on-site fire teams, the level of training and compatibility of BA & fire fighting equipment must be established.
- Has a fire plan been produced by the FRS for specific COMAH sites including RV points and alternative access to the site.
- What Resources are provided by the operator and what is expected of the FRS in terms of capability and availability to deal with the worst credible event as defined in the COMAH report. The effectiveness of the meshing together of these resources can be drilled and tested against agreed scenarios.

45. When all instances of reliance on off-site responders have been identified, the recommendation requires that the adequacy of the joint arrangements is demonstrated. Besides noting meetings and other liaisons a useful template at Appendix 1 should be used to conduct such auditing. Additionally assumptions should be validated and recorded as a key component of the emergency plan. For Lower Tier sites a MAPP with supporting SMS is produced and the operator will still need to demonstrate within it that they’ve discharged their duty to take all measures necessary to mitigate the effects of major accidents.

46. The BSTG final report¹⁰ clearly defines what should be in place with regard to the arrangements between the operator and the FRS. These include but are not limited to:

- Alerting arrangements & initial information
- Access points, suitable hardstandings for vehicles and RV points
- Site information (water supplies, foam stocks, equipment details, drainage information, containment capability, evacuation arrangements, etc)
- Pre-fire plans clearly indicating fire fighting capability, resources available and firewater management arrangements

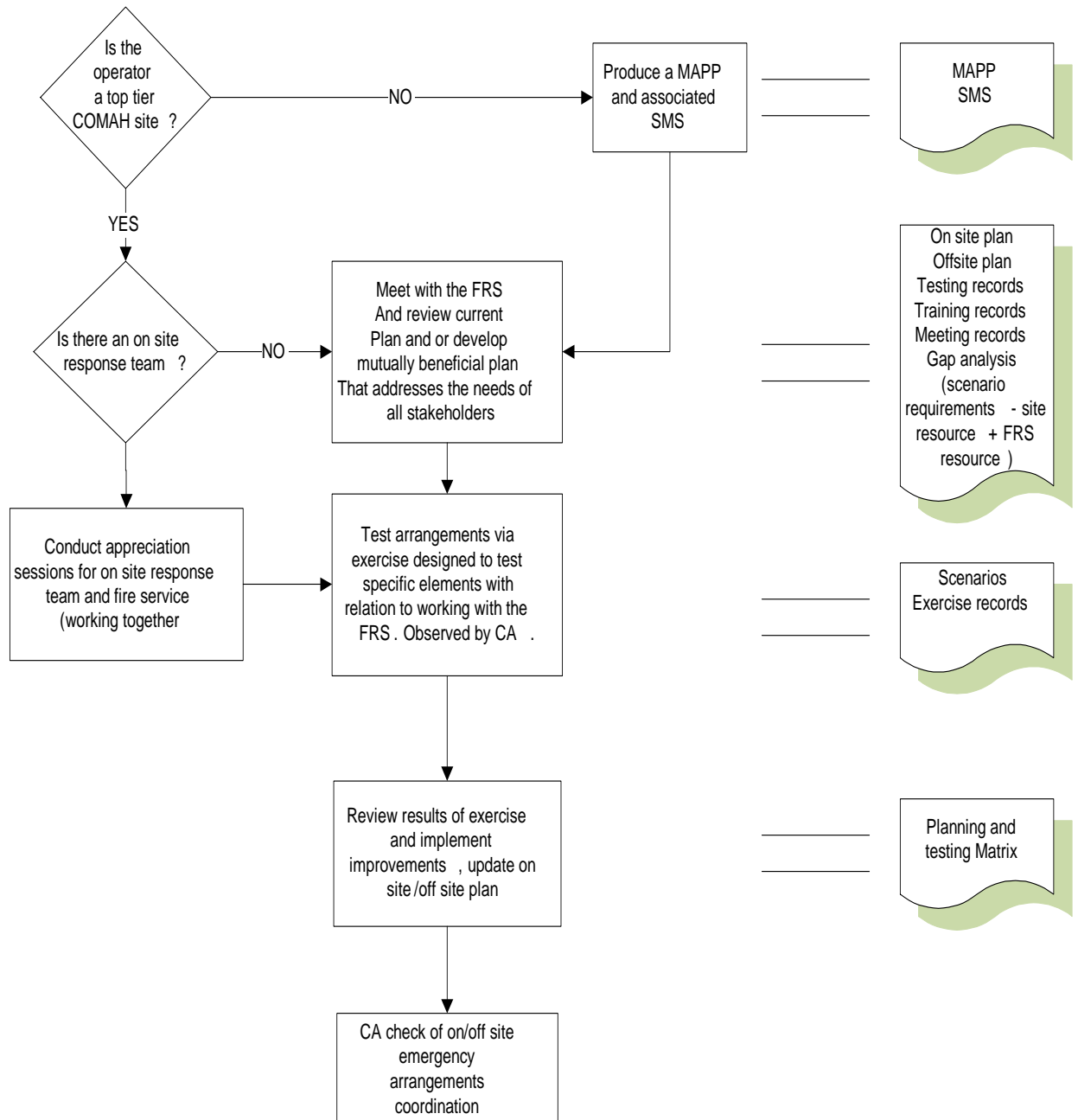
47. Have the above been included in the plan? Is the information reviewed and updated? Is the information accurate, realistic and tested for effectiveness? Is there a method to ensure changes are communicated to all parties?

¹⁰ www.hse.gov.uk/comah/buncefield/final.htm

Assessment of arrangements in place between the operator and the service provider

Process flow

Demonstration



Recommendation 8 - COMAH site operators should review their arrangements to communicate with residents, local businesses and the wider community, in particular to ensure the frequency of communications meets local needs and to cover arrangements to provide for dealing with local community complaints. They should agree the frequency and form of communications with local authorities and responders, making provision where appropriate for joint communications with those bodies.

48. The main purpose of communications with people in the vicinity of a COMAH site is to avoid/minimise the effect of an emergency. The local community must be aware of and understand the emergency instructions so that they can take effective action. Sites' communications and instructions must be clear and relevant for the whole community, including those who are blind, deaf, elderly, multi lingual, residents, employers, landlords, workers, schools, hospitals, shops and commuters.

49. Consulting with the local authority and the emergency services should facilitate more effective communications for the whole community. The appropriate local authority community officer can help identify the community and there are websites which give a summary of a community's make up based on postcode. The local authority will also be able to assist in providing a translation service. For multi occupancy COMAH sites, a joint communication is more effective at getting information across to the community as well as using less resource.

50. As well as clear instructions, relevant to the audience, the frequency of the communications should be considered to ensure that the community awareness is upheld. An annual plan (see Recommendation 8 - Appendix 1) is a useful tool to identify how sites' communicate their messages to the target audience and what the content is to be. A mailing to all properties within the PIZ should be done at least once a year to maintain people's awareness (see Recommendation 8 – Appendices 2 & 3). Always provide site contact details for handling issues or concerns from the community and set out the procedure, including the timescales for responding, that you have in place for dealing with queries and concerns/complaints.

51. The use of mailings, newspaper articles/adverts, radio messages, posters and local shows should be considered. When using mailings make clear the importance of the information contained so as to avoid it being thrown away as junk mail (see Recommendation 8 - Appendix 4). In mailings, include with your letter a card/laminate of the emergency instructions (see Recommendation 8 - Appendix 5). Some sites provide a calendar with dates and times of tests and local meetings and this is well received especially if pictures on the calendar are local e.g. pictures from the local area or pictures by local school children.

52. In press releases, local people should be reminded of when the off-site alarm is tested and the actions to take if there was an emergency. For the wider community, provide advice for those that are out and about at the time of a real alarm, e.g. to seek shelter.

53. Community liaison groups give the local community an opportunity to raise queries and concerns about the activities at sites or the emergency instructions. They provide useful feedback on the effectiveness of communications and provide an opportunity to reassure the public of your safety record and the site's beneficial role in the community. These open meetings should be held at least once a year with the dates and times of the meetings varied to accommodate businesses and residents' availability. These groups work well when there is representation from the site, the local authority (e.g. emergency planning/business continuity advisors), emergency services, residents, businesses and local representatives

54. Useful references are:

Emergency planning for major accidents: Control of Major Accident Hazards Regulations 1999 (COMAH) HSG191 HSE Books 1999 ISBN 978 0 7176 1695 4

A guide to the Control of Major Accident Hazards Regulations 1999 (as amended). Guidance on Regulations L111 HSE Books 2006 ISBN 978 0 7176 6175 6