

# **Recognised Standard 08**

## **Conduct of mine emergency exercises**

*Coal Mining Safety and Health Act 1999*

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## Recognised Standards

*This document is issued in accordance with PART 5—RECOGNISED STANDARDS and Section 37(3) of the Coal Mining Safety and Health Act 1999.*

### PART 5 - RECOGNISED STANDARDS

#### 71 Purpose of recognised standards

A standard may be made for safety and health (a “recognised standard”) stating ways to achieve an acceptable level of risk to persons arising out of coal mining operations.

#### 72 Recognised standards

- (1) The Minister may make recognised standards.
- (2) The Minister must notify the making of a recognised standard by gazette notice.
- (3) The chief executive must keep a copy of each recognised standard and any document applied, adopted or incorporated by the recognised standard available for inspection, without charge, during normal business hours at each department office dealing with safety and health.
- (4) The chief executive, on payment by a person of a reasonable fee decided by the chief executive, must give a copy of a recognised standard to the person.

#### 73 Use of recognised standards in proceedings

A recognised standard is admissible in evidence in a proceeding if—

- (a) the proceeding relates to a contravention of a safety and health obligation imposed on a person under part 3; and
- (b) it is claimed that the person contravened the obligation by failing to achieve an acceptable level of risk; and
- (c) the recognised standard is about achieving an acceptable level of risk.

### PART 3- SAFETY AND HEALTH OBLIGATION

#### 37. How obligation can be discharged if regulation or recognised standard made

37(3) .... if a recognised standard states a way or ways of achieving an acceptable level of risk, a person discharges the person’s safety and health obligation in relation to the risk only by—

- (a) adopting and following a stated way; or
- (b) adopting and following another way that achieves a level of risk that is equal to or better than the acceptable level.”

Where a part of a recognised standard or other normative document referred to therein conflicts with the *Coal Mining Safety and Health Act 1999* or the *Coal Mining Safety and Health Regulation 2001*, the Act or Regulation takes precedence.

**This recognised standard is issued under the authority of the Minister for Natural Resources and Mines.**

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# 1. Foreword

The inquiry into the explosion at the Moura No. 2 Mine in August 1994 recommended - "Emergency procedures should be exercised at each mine on a systematic basis, the minimum requirement being on an annual basis for each mine."

Five Implementation Task Groups were convened to study the Inquiry recommendations and prepare the mechanisms by which industry could effectively implement them. Task Group 2 was charged with the task of examining and preparing guidelines with respect to emergency procedures exercises. The task was completed in December 1996 with the publication of the "Approved Standard for the Conduct of Emergency Procedures Exercises."

From 1996 to 1998 significant changes occurred necessitating a review of the Standard, these being:

- Corporatisation of the Queensland Mines Rescue Service.
- New legislation with respect to mines rescue requirements in Queensland.
- The acquisition of the GAG Jet Engine Inertisation technology.
- QMRS becoming the custodian and service provider of the GAG Inertisation technology.

The intent of this recognised standard is to provide industry with a set of guidelines that are uniform and consistent. This recognised standard for the conduct of emergency exercises has been developed and reviewed by a cross section of industry stake holders and has taken account of the evolution of opinion currently in the industry in the area of withdrawal of persons and first response in the event of an emergency at a coal mine.

Exercises in withdrawal and first response are a vital part of the safety framework of any coal mine and lead to the opportunity for learning, the sharing of information and opportunity for continuous improvement. Learning from the mistakes of these exercises will encourage all persons employed in the industry to be better prepared should we ever be challenged in real life.

It is only human for us to make mistakes; it is unforgivable not to learn from those mistakes.

Gavin Taylor

Chief Inspector of Coal Mines

## 2. Scope

Moura Recommendations Implementation Task Group 2 was given the following scope regarding the conduct of emergency procedures exercises:

- Guidelines are to be prepared for industry consultation with the objective of conducting well structured emergency procedures exercises on an annual basis.
- The task group should consider if there is a need for this matter to be covered by legislation, and if so, draft legislation should be prepared for consideration.

## 3. Terms of reference

The guidelines proposed should –

1. be systematic
2. be consistent with the concept of mutual assistance from other mines
3. require direct reference to the risks at a mine
4. recognise that exercises should be held not necessarily on day shift
5. be inclusive of external agencies such as QMRS, police, media and senior company officials
6. have an audit and evaluation process
7. be subject to risk assessment principles to ensure the exercises do not introduce new safety risks to persons at a mine.

As part of the annual exercise and where the scenario requires, consideration should be made as to requiring inertisation equipment to be put in place as well as confirming airlocks and emergency seals on the surface are found to be safely accessible and operative.

## 4. Objectives of emergency exercises

To:

- Safely test the facilities and strategies in place at a mine to manage emergency events in all circumstances.
- Test the competency of mineworkers in using those facilities and implementing the strategies
- Enhance the confidence and ability of mineworkers to respond in an emergency.
- Identify opportunities for improvement.
- Share the learning outcomes with industry.

Objectives of this Standard

The Objectives of this standard are to ensure that Emergency Procedures Exercises are conducted in a manner to:

- Ensure no personnel injury, equipment damage or introduction of additional risks. Note: Design of the emergency exercises must be done using risk assessment methods.
- Test the ability of the current Mine Emergency Procedures Plan to meet the desired outcomes of an emergency response.

- Relate to the principle hazards identified as being integral to the mine itself and ensure the facilities to control are adequate.
- Demonstrate a coordinated response.
- Assess all the elements and personnel involved and identify any additional training needs.
- Avoid any community alarm / apprehension.
- Enhance the confidence and ability to respond to an emergency.
- Involve all shifts at some stage through the year. The intent is that the emergency preparedness of the mine is tested for any time of the day or night.
- Allow for a performance analysis and debrief to occur with outcomes recorded and relevant information disseminated internally and to the industry. This is to be a formal process in the case of the Level 1 Exercise.
- To test the ability of external agencies to respond to an emergency.
- Reports and outcomes of all level 2 emergency exercises shall be sent to the inspectorate in the region for the mine and the industry safety and health representative by the organising committee within 2 months of conduct of the exercise
- The mine shall forward any outcomes relevant to emergency response to the inspector for the mine and the industry safety and health representative, within six months, an action plan for corrective actions / review of the mines safety and health management system as a result of all emergency exercises (level1-4)
- The inspectorate and the industry safety and health representatives are to follow up on such plans and ensure that corrective actions that are of benefit to other mines, are circulated in a timely manner.

## 5. Hierarchy of exercise types

A hierarchy of exercise types has been identified comprising four levels and these have been incorporated into a schedule as summarised in Table 1 on page 9.

Implementation of the schedule will:

- Assist mines in ensuring that the objectives of emergency procedures exercises are achieved with respect to their operation.
- Provide regular training for Queensland Mines Rescue Service and testing of its ability to provide rescue and inertisation services according to their performance criteria.

The four levels of the exercises are:

- Level 1 – State Level Exercise
- Level 2 – Major Mine Site Exercise
- Level 3 – Minor Mine Site Exercises
- Level 4 – Supporting Exercises

## **Level 1 – State level exercise**

One mine will be selected each year to respond to an emergency exercise designed and organised by a State Emergency Exercise Executive Management Committee convened under the auspices of the Chief Inspector of Coal Mines.

Selection of the mine will be rotated, depending on the life expectancy of mines ensuring, where possible, that all mines have at least one level 1 emergency exercise during their life. The mine selected will not be required to undertake the level 2 exercise that year.

### **Objective and Scope**

The objectives of this practical exercise are –

- To test the mines emergency response system.
- To test the ability of external services to administer assistance.
- To provide a focal point for emergency preparedness in the state.

To this end, the scope of the exercise will include –

- Mine response to the scenario presented testing self escape / aided escape and in-seam response as required.
- Mobilisation of Queensland Mines Rescue Service and other external services, including mines inspectorate, industry safety and health representative(s), Simtars, police, ambulance to the extent required by the exercise scenario.

Queensland Mines Rescue Service will be expected to –

- Provide the rescue team response as defined in the Mines Rescue Agreement with the mine.
- Deploy rescue teams underground including the establishment of a Fresh Air Base (if required) in response to the scenario.

### **State Emergency Exercise Management Committee**

It is the responsibility of the Chief Inspector of Coal Mines to ensure that a State Emergency Exercise Executive Management Committee is convened each year to design, organise, implement and audit the exercise. The Chief Inspector of Coal Mines will determine who is to chair the committee. The Committee is to include:

- One representative of the inspectorate.
- One representative from Simtars
- Three representatives from mines including at least one mine manager
- One representative from the host mine.
- One representative from the Queensland Mines Rescue Service (QMRS)
- One Industry Safety and Health Representative
- Others as may be determined by the above e.g. external experts or service providers

See appendix 2 for Management Committee Guidelines



## **Auditing**

Performance of the exercise will be audited by a team comprising members of the organising committee and such other personnel as the committee deems necessary. Performance of all key personnel, both internal and external, and the effectiveness of emergency response systems will be assessed. A report detailing the pertinent outcomes of the audit will be disseminated to industry using forums such as the Queensland Mining Industry Health and Safety Conference.

## **Level 2 – Major mine site exercise**

Each year every mine is required to conduct a major practical exercise designed and organised by a committee convened under the auspices of the Site Senior Executive. It is the principal opportunity for each mine to subject its emergency preparedness to practical scrutiny.

### **Objective and Scope**

The objective of the exercise is to test:

- The mines emergency management system.
- Communication with external services.
- Periodic mobilisation of the QMRS Inertisation Unit.

To this end the scope of the exercise will include:

- Mine response to the scenario presented testing self escape / aided escape and in-seam response as required.
- Communication with QMRS to determine their ability to respond.
- Communication with other external services, as directed by the exercise plan, to determine their ability to respond.

The timing, personnel involved and scenario of the exercise is to be varied each year so as to progressively test all aspects of the Emergency Management System.

Notification as part of the exercise shall be made to the Inspector of Mines and the Industry Safety and Health Representative.

### **Organising Committee**

The site senior executive is responsible for convening this organising committee each year. It is not necessary for the manager to be a member of the committee, indeed, as the manager normally assumes the predominant role in an emergency, it would often be in the best interests of the exercise that he not be involved.

The committee is to include the most appropriate cross section for the incident, and may include a representative from QMRS and a Site Safety and Health Representative.

For example, the site senior executive may elect to keep the committee “in-house” or to place the task with an external provider or a combination of the two depending on his overall objective.

## **Auditing**

The Organising Committee is to assess the performance of the exercise and of key personnel so as to identify opportunities for improvement and training needs. The committee may employ additional personnel to achieve this task. A report on the performance and outcomes of the exercise is to be

provided to the District Inspector and Industry Safety and Health Representative, within 2 months of conduct of the exercise. The District Inspector shall ensure that pertinent issues are made available to industry.

### **Level 3 – Minor mine site exercise**

These practical exercises are to be designed and organised by a committee convened under the auspices of the site senior executive and conducted during the year. The exercises will progressively test all coal mine workers who work underground. Each exercise will test a part of the mine such that during the year all parts of the mine have been progressively tested.

#### **Objective and Scope**

The objectives of these “incremental” exercises are:

- To ensure all personnel are familiar with the mines emergency response PHMP.
- Provide practical assessment in emergency response including evacuation.

To this end the scope of the exercises will include:

- Evacuation of parts of the mine utilising, to the extent practicable, all the facilities and strategies for “self escape”.
- Progressive involvement of all crews during the year i.e. each crew to undertake at least one emergency evacuation each year.
- Involvement of any crew when their work location changes significantly (this can take the form of a familiarisation of the emergency response facilities within the panel, if the donning of the Self Contained Self Rescuer and an associated changeover is performed this would count as a level 3 exercise). This is to be done as soon as practicable after the change.

NOTE: Those personnel who have participated in an emergency evacuation of the mine as a part of the Level 1 or Level 2 exercises are deemed to have satisfied the requirements of this exercise.

#### **Organising Committee**

The underground mine manager is responsible for organisation, execution and review of the exercises.

#### **Auditing**

The underground mine manager shall assess the performance of the exercise and identify opportunities for improvement and training needs. Details and outcomes of the exercise are to be recorded as a mine record entry

### **Level 4 – Supporting exercises**

These desktop / semi-practical exercises are to be designed and organised by person(s) under the auspices of the site senior executive.

#### **Objectives**

The objectives of the exercises are:

- Provide theoretical/practical training in emergency response ranging from IMT through to panel scenarios.
- Test the ability of personnel to troubleshoot

- Focus on working as a team
- Test communication and team interaction
- Test knowledge of emergency capability, facilities and systems e.g. medical emergency, ability to perform search and rescue.
- Gain knowledge of potential hazards and causes

### **Organising Committee**

The site senior executive is responsible for the implementation of the schedule of exercises.

The Organising person(s) is to ensure the performance of the exercise and of key personnel is assessed as to identify opportunities for improvement and training needs. Details and outcomes of the exercise are to be recorded.

TABLE 1 – EMERGENCY EXERCISES STANDARD SUMMARY

	LEVEL 1 – STATE LEVEL EXERCISE	LEVEL 2 – MAJOR MINE SITE EXERCISE	LEVEL 3 – MINOR MINE SITE EXERCISES	LEVEL 4 – SUPPORTING EXERCISES
<b>TYPE</b>	One mine selected for the state each year.	Whole of mine.	MINOR MINESITE EXERCISES Part Mine or system.	Annually/Periodically
<b>FREQUENCY</b>	Once per year – selected mine	Once per year – all mines	Once per year for each crew.	Desktop/semi practical to test ability to :- <ul style="list-style-type: none"> <li>• respond to a medical emergency</li> <li>• search &amp; rescue</li> <li>• provide theoretical / practical training in emergency response including evacuation.</li> </ul>
<b>SCOPE</b>	<b>Practical exercise to test the emergency response system AND the ability of external services to administer assistance.</b> Involves – 1. Mine response to scenario to test self escape / aided escape and IMT response. 2. Mobilisation of – <ul style="list-style-type: none"> <li>• QMRS – rescue team response to mines rescue agreement standard – 1 team to be deployed underground.</li> <li>• Simtars as required by</li> </ul>	<b>Practical exercise to test the emergency response system including effective communication with external services and periodic mobilisation of the QMRS Inertisation Unit.</b> Involves – <ul style="list-style-type: none"> <li>• Whole mine response</li> <li>• Mines rescue stations and other external providers to contact stage only – “can you respond?”</li> </ul> Each year the day of the week, the time of day and personnel	<b>Practical test to ensure all personnel are familiar with the Mine Emergency response and or Evacuation Plan.</b> Involves :- <ul style="list-style-type: none"> <li>• Part mine Evacuation</li> <li>• All crews; all shifts including weekends.</li> <li>• Whenever a crews workplace changes significantly</li> </ul> Participation in Levels 1 & 2 qualifies for this exercise.	SSE must ensure these exercises are organised.

	scenario. <ul style="list-style-type: none"> <li>• External assistance per exercise plan.</li> </ul> <b>**Replaces Level 2 Exercise**</b>	involved is to be verified. The scenario is to be varied each year in order to test all aspects of the mine emergency procedures plan.		
<b>CONTROL</b>	Chief Inspector must ensure the exercise is organised each year. State Emergency Exercise Executive Committee to include: (a) 1 representative from Inspectorate (b) 1 representative from Simtars (c) 1 representative from host mine (d) 1 representative from QMRS (e) 1 Industry Safety and Health Representative	SSE must ensure the exercise is organised. Organising Committee is to include – <ul style="list-style-type: none"> <li>• QMRS representative</li> <li>• Site Safety and Health Representative</li> </ul>	SSE must ensure these exercises are organised.  Organising Committee to include:- <ul style="list-style-type: none"> <li>• Site QMRS representative</li> <li>• Site Safety and Health Representative</li> </ul>	Annually/Periodically
<b>AUDIT / REPORT</b>	Statewide	District Inspector / industry as required	District Inspector/ industry as required	mine

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## Appendix 1 – Definitions and abbreviations

**Trigger Action Response Plans (TARPs)** Elements or sub-elements of an emergency response principal hazard management plan which are predetermined actions tied to specific trigger levels or events.

**Aided Escape** Processes whereby surface personnel are directly involved in assisting underground persons to escape from a mine in an emergency (ie information on possible routes to take).

**Assisted** An emergency response that requires a mine to access external aid.

**Audit** Systematic assessment of performance against written plans, procedures and relevant legislation.

**Desk Top** An exercise type that is designed to test systems preparedness without actually involving an attendance or action response i.e. a paper, communication and acknowledgement exercise.

**Evacuation** The withdrawal of persons to a place of safety.

**Emergency Principal Hazard Management Plan** A management plan developed through the process of risk assessment aimed at ensuring that indicators of principle hazards are identified, monitored and appropriately responded to in a coordinated and orderly manner.

Emergency Principal Hazard Management Plans shall:

- Be consistent with guidelines established for safety management plans
- Be a single document that systematically defines all actions necessary to ensure that withdrawal of persons to a place of safety are conducted safely.
- Include, but not be limited to, organisational structures for emergency response, planning, activities, responsibilities, communications, practices, risks identified, audits and reviews.
- Be supplementary to, and include the implementation of appropriate codes, rules, regulations or procedures and is the method by which the withdrawal of persons is to be effectively managed and coordinated.
- Be consistent with the mine emergency procedures and may form part of the mine emergency procedures.
- More details on the requirements for a Mines Emergency response plan are included at Appendix 6

**Incident Management Team** A group of persons with authority defined by a PHMP to initiate actions ensure the safety of mine personnel and to assist with the management of an emergency.

**In Seam Response** Response team from an unaffected area of the mine which renders assistance/responds to an underground incident.

**Place of Safety** A designated place where persons will assemble without being in any danger from the hazard that triggered the evacuation. The place of safety:

- Must reflect the consequence of the hazard that has initiated the evacuation
- Must have an effective means of communication with the surface control
- May include, but is not limited to, the following locations –
- Panel crib room
- Main headings opposite a district ventilation split
- Pit bottom or the base of intake shaft or drift
- Refuge chambers / change over stations
- Surface location

**Practical Exercise** Realistic simulated scenarios, relevant to principle hazards associated with the mine, and with observations and actions taken to respond to the scenario.

**Principle Hazards** Source of potential harm or a situation with a potential to result in multiple fatalities.

**Risk Assessment** The process used to determine risk management priorities by evaluating and comparing the level of risk against predetermined standards, target risk levels or other criteria.

**Self Escape** The process of a person(s) escaping from a mine in an emergency without direct assistance from surface personnel.

**Self Reliant** Services, personnel or infrastructure provided and available at the mine site capable of responding to an emergency incident.

**Stakeholders** Any party with an interest in the safe operation of the mine.

**Surface Control** A competent person on the surface with the authority to initiate and monitor withdrawal of persons to a place of safety.

**Trigger Level** A condition / event that is not the normal, is able to be measured or observed, and on being reached requires initiation of predetermined actions.

**Withdrawal of Persons (WOP)** The organised evacuation of persons from the mine or part of the mine to a designated place of safety when the risk to life or health has exceeded predetermined trigger levels.

## **Appendix 2 – Guidelines for the organisation, management and conduct of a Level 1 mine emergency exercise**

### **Concept**

One mine will be selected each year to respond to an emergency exercise designed and organised by a State Emergency Exercise Executive Committee convened under the auspices of the Chief Inspector of Coal Mines.

It was considered that one such exercise per year would achieve the objectives and was sufficient impost on the resources of all those involved.

### **Objectives**

The objectives of this exercise are –

- To test the mines emergency response system
- To test the mines rescue capability and ability of external services to administer assistance
- To provide a focal point for emergency preparedness in the state
- To form part of the annual audit of performance of accredited corporations for mines rescue (Part 13 – Coal Mining Safety and Health Act 1999)

### **Constitution of the State Emergency Exercise Executive Committee**

It is the responsibility of the Chief Inspector of Coal Mines to ensure that a State Executive Committee is convened each year to design, organise and implement the exercise.

The committee is to include, as a minimum:

- One representative of the inspectorate
- One representative from Simtars
- Three representatives from mines including at least one mine manager invited by the management committee
- One representative of QMRS
- One representative of the Industry Safety and Health Representatives
- Others as may be determined by the above e.g. external experts or service providers.

No member of the committee may take part in the mines or any external agencies response to the emergency procedures exercise.

Committee members will be required to participate in pre-exercise meetings, exercise preparation, and provide assistance in writing relevant sections of the report.

It is anticipated that the delegate from the host mine will play a pivotal role in the planning and conduct of the emergency procedures exercise and, therefore, should be familiar with all operational aspects of the mine including short and long term planning.

### **Functions of Executive Committee**

The functions of the Executive Committee Chairman would include:

- Coordination of the activities of the committee
- Reporting to the Chief Inspector

- Consultation with senior personnel of any external service providers who are to participate in the exercise. The general nature and objectives of the exercise should be explained and the extent of the commitment to the exercise to be agreed upon.
- Consultation with senior company personnel. Agreement should be reached as to the degree of disruption to the operation.
- A two year plan or schedule should be maintained. The schedule should be made known to industry. This will give ample notice to individual mines as to which year they are scheduled for the Level 1 exercise and to adjust their own schedule of exercises accordingly.
- Responsibility for any cancellation or rescheduling of the exercise.
- Production of a report on the exercise and distribution to industry.

### **Functions of the Committee**

#### **Location Selection**

Considerations for the selection of the target mine:

- As the Level 1 exercise includes the testing of external providers, an analysis of service providers in the different districts should be made.
- Excessive impact on individual external agencies should be avoided. This may be achieved by varying the areas and / or the nature of the exercise on a yearly basis.
- The mines and operating companies involved should be appropriately varied each year where possible.
- Where emerging issues are noted, the mine selection may need to change to test new ideology / technology.

#### **Planning**

- All aspects of the plan are to be based on the risk management process.
- The Committee must develop the exercise in accordance with this standard.
- The exercise should simulate as far as practicable actual emergency conditions e.g. use of smoke glasses to simulate minimum visibility; use of training or real self rescuers where possible and available
- A thorough review of the host mine should be undertaken prior to the development of the specific exercise. The review should include:
  - Overview of operation and underground inspection where appropriate.
  - Determination of principle hazards identified by the safety management plans.
  - Emergency response plans.
  - History of emergency exercises previously conducted.
- The “exercise only” status must be effectively communicated to the families of mine personnel and the community at large to ensure anxieties are not created while also maintaining an element of surprise. This can be achieved by revealing to the mine and the community, at an appropriate time prior to the exercise, a time period in which the exercise will be initiated e.g. a “window” of one or two weeks.
- Consider the involvement of the media.
- Consideration must be given to the operational and safety status of the mine prior to the initiation of the emergency procedures exercise. It is a function of the host mine delegate to provide timely information to the committee chairman, which would cause the committee to alter or re-schedule the exercise.

#### **Auditing**

- An audit plan will need to be developed for the exercise which will require –
- A detailed review of the mines overall “emergency procedures plan” or “emergency response plan” and the “mine evacuation plan” or “emergency evacuation plan” which sits beneath it (terminology differs from mine to mine).
- A detailed review of the QMRS procedures and performance.

- Identify the number of assessors required.
- Recruit additional assessors as required.
- Allocate assessment functions to members of the committee and others.
- Determination of the effectiveness of the plan to facilitate continuous improvement.

### **Key Issues for Auditing**

#### Immediate Response

- Preservation of life
- Minimise potential harm to persons
- Prevent deterioration of conditions
- Promote recovery

#### Effectiveness of the Incident Management Team

- Incident initiation
- Establishing the team
- Accommodation and facilities
- Information transfer
- Information processing – including debriefs and flow of information in a timely manner
- Ventilation evaluation and gas analysis
- Decision making process
- Risk assessment process
- Availability of plans
- Use of external experts
- Communications to mine recovery team(s)/QMRS
- Social/HR information and issues
- Briefing of corporate incident team.
- IMT develop the desired outcomes of the Incident
- Span of control
- Safety, Health and Wellbeing
- Delegate responsibility
- Effect changeovers
- Information recording

#### Effectiveness of the Mine Control Room

- Information content and flow – in and out of control room
- Event log keeping
- Availability of competent monitoring / interpreting personnel
- Verification of missing persons
- Location of persons
- Monitoring of ventilation
- Emergency communications
- Availability of plans



- Documented action plan
- Use of duty cards
- Hazards identification and risk assessment
- Gas monitoring

With Respect to “SELF ESCAPE” Facilities and Strategies

- Ability of personnel to don SCSRs or other apparatus
- Performance of SCSRs – a sample usage
- Location and use of caches
- Change over stations
- Alternate escape routes
- Knowledge of
- Effectiveness of signage and other aids
- Contact time
- Control of personnel location
- Availability of plans
- Machinery (transport)
- Communications

With Respect to “AIDED ESCAPE” Facilities and Strategies

- Location of persons determined
- Contract made with persons
- Arrival of external assistance (QMRS, Simtars, etc)
- Arrival time
- Organisation of QMRS sub station
- Availability of plans etc
- Effectiveness of briefing
- Efficiency of preparation and time to go underground
- Compliance with designated underground task
- Compliance with SOP and Mines Rescue Guidelines
- Team reporting and debriefing
- Deployment time of teams

### Appendix 3 – Mine emergency response plan – audit / review process

The Mine Emergency Response Plan is to be audited / reviewed both internally and externally. The following basic audit criteria will assist in that process:

PLAN ELEMENT	AUDIT / REVIEW CRITERIA	FREQUENCY
1. Identify principle hazards	System to identify key hazards	Annual or changed circumstances
2. Define roles and responsibilities	Compliance with Mine Emergency Response Plan	As above
3. Competency in roles and responsibilities	Competency based assessment / challenge test	On appointment and to be defined by Mine Emergency Response Plan or other safety management plan.
4. Familiarity with mine egress routes, ventilation systems, communication systems, emergency equipment	As above	As above
5. Schedule of audits	Audit review process	As defined for each element of Mine Emergency Response Plan or other safety management plan.
6. On-site facilities	Mine plans and documented check lists	As above
7. Defined command structure	Evidence of challenge test undertaken	Annual minimum or as determined by Mine Emergency Response Plan or other safety management plan.
8. Communication procedures <ul style="list-style-type: none"> <li>▪ Hardware</li> <li>▪ Information flow</li> <li>▪ Information recording</li> </ul>	<ul style="list-style-type: none"> <li>▪ Documented inspection and testing</li> <li>▪ Documented evidence of challenge test</li> </ul>	As above
9. Specific event response relating to key hazards	As above	As above
10. Documented control	Evidence of document control	As determined by Mine Emergency Response Plan or other safety management plan.
11. Identify resourcing and integrating of external services	Documented evidence, evidence of challenge test	As above
12. Emergency response equipment and installations e.g. surface airlocks / emergency seals	Operable and accessible	As determined by Mine Emergency Response Plan or other safety management plan.

## Appendix 4 – Relevant Queensland legislation current at October 2008

### *Coal Mining Safety and Health Act 1999*

#### Division 3 Safety and health management systems

##### 62 Safety and health management system

- (1) A safety and health management system for a coal mine is a system that incorporates risk management elements and practices that ensure safety and health of persons who may be affected by coal mining operations.
- (2) A safety and health management system must be an auditable documented system that forms part of an overall management system that includes organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining a safety and health policy.
- (3) The safety and health management system must be adequate and effective to achieve an acceptable level of risk by –
  - (a) defining the coal mine operator's safety and health policy; and
  - (b) containing a plan to implement the coal mine operator's safety and health policy; and
  - (c) stating how the coal mine operator intends to develop the capabilities and support mechanisms necessary to achieve the policy; and
  - (d) including principle hazard management plans and standard operating procedures; and
  - (e) containing a way of –
    - (i) Measuring, monitoring and evaluating the performance of the safety and health management system; and
    - (ii) Taking the action necessary to prevent or correct matters that do not conform with the safety and health management system; and
  - (f) containing a plan to regularly review and continually improve the safety and health management system so that risk to persons at the coal mine is at an acceptable level; and
  - (g) if there is a significant change to the coal mining operations of the coal mine – containing a plan to immediately review the safety and health management system so that risk to persons is at an acceptable level.
- (4) The site senior executive must make available for inspection, by coal mine workers employed at the coal mine, a copy of the safety and health management system.

Maximum penalty – 100 penalty units.

- (5) The site senior executive must give a copy of a principal hazard management plan to a coal mine worker whose work at the coal mine is affected by the requirements of the plan and who requests a copy of the hazard management plan.

Maximum penalty – 100 penalty units.

##### 62A Additional requirement for coal mining operation for incidental coal seam gas

- (1) This section applies if coal mining operations at a coal mine include activities related to mining incidental coal seam gas.
- (2) In deciding whether the safety and health management system for the coal mine is adequate and effective to achieve an acceptable level of risk for section 62(3), regard must be had to the requirements for a safety management plan under the Petroleum and Gas (Production and Safety) Act 2004.

##### 63 Principal hazard management plan

- (1) A principal hazard management plan must –
  - (a) identify, analyse and assess risk associated with principal hazards; and
  - (b) include standard operating procedures and other measures to control risk.

(2) The site senior executive must give a copy of the principal hazard management plan to a person that employs persons at the coal mine whose work is affected by the plan's requirements.  
Maximum penalty for subsection (2) - 200 penalty units.

64 Review of principal hazard management plans and standard operating procedures

(1) This section applies if –

- (a) a safety and health management system has been developed for a new coal mine; or
- (b) it is proposed to change a safety and health management system at an existing coal mine.

(2) The site senior executive must review the principal hazard management plans and standard operating procedures in consultation with coal mine workers affected by the plans and operating procedures.

Maximum penalty – 200 penalty units.

(3) The review under subsection (2) must take place –

- (a) for a new coal mine – as soon as practicable after the start of coal mining operations; or
- (b) for a change at an existing coal mine – before the change happens.

Coal Mining Safety and Health Regulation 2001

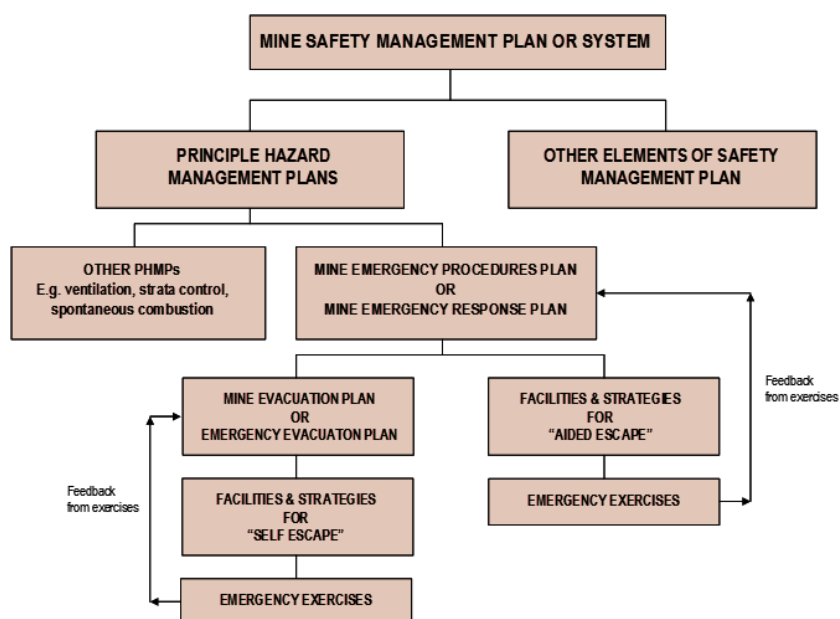
## Part 2 General

149 Principal hazard management plan

An underground mine must have principal hazard management plans that provide for at the least the following –

- (a) emergency response
- (b) gas management;
- (c) methane drainage;
- (d) mine ventilation;
- (e) spontaneous combustion;
- (f) strata control.

## Appendix 5 – Safety management plans hierarchy and link to emergency exercises



## Appendix 6 – Reference material

- NSW Mines Rescue Board, Mines Rescue and Emergency Preparedness, 1998 (Mackenzie-Wood and others)
- NSW Mines Rescue Service, Emergency Preparedness and Mines Rescue Guidelines
- Russo JE and Schoemaker PJH, Decision Trap, Simon & Schuster, NY, 1989  
Simtars / Sedgman – BMC Pty Ltd, Training of Officials for the Underground Coal Mining Industry, Vols 1 – 3, Brisbane, 1989
- Society of Industrial Emergency Services Officers UK, Guide to Emergency Planning, Paramount Publishing, Hertfordshire, UK
- Australian National Training Authority Guidelines
- Department of Mines and Energy (Qld), Mine Simulated Emergency Evacuation Exercise: Industry Report, Oct 98
- Department of Mines and Energy (Qld), Moura No. 2 Inquiry, Wardens Report on Implementation
- Department of Mines and Energy (Qld), Moura Task Group No. 4 Report: Mines Rescue Strategy Development
- Department of Mines and Energy (Qld), Simtars, Moura Implementation Program 10 (MIP10) Report: Prevention of Explosions in Coal Mine Workings Adjacent to Extraction Areas
- Mine Safety and Health Administration, NIOSH (USA), Website – [www.msha.gov](http://www.msha.gov)
- Simtars, Spontaneous Combustion Case Studies Booklet, Qld
- AS/NZS 4801:2001 Occupational Health and Safety Management Systems
- HB 211-2001 Occupational Health and Safety Management Systems – a guide to AS 4801 for small business.