Guidance Note QGN 15
Emergency preparedness for small mines and quarries

Coal Mining Safety and Health Act 1999
Mining and Quarrying Safety and Health Act 1999

Queensland
Government

Guidance Note – QGN 15

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Contents

1. Purpose and scope

This Guidance Note has been developed to assist small mine operators develop and implement effective emergency management strategies, to help control an emergency situation and mitigate further injury to persons.

This Guidance Note does not cover the additional requirements for underground operations or coal mines[1].

As per the legislation[2], the definition of a mine includes operations on tenements, quarries, and places where tourism, education or research related to mining occur and are declared under a regulation. This includes all exploration sites that are covered by the MQSHA and CMSHA.

2. Legislative obligations and risk management

This Guidance Note does not replace a mine operator's obligations to manage hazards using risk management, as provided by the MQSHA and CMSHA. The relevant mining acts[3] require operational risk to persons to be at an 'Acceptable Level'. As such, risk management should incorporate as many controls as necessary, using the hierarchy of controls.

Primary focus must always be on ensuring effective, proactive controls are in place to prevent accidents/incidents occurring. It is recognised that when these controls fail (or are non-existent), an accident or incident can result and reactive controls in the form of emergency preparedness must be implemented.

Each mine is different with respect to size and nature. Each must manage its own emergency preparedness based upon risk management processes. The site senior executive (SSE) must ensure the mine has the resources and facilities for the mine's preparedness in reasonably foreseeable emergencies[4] or potential emergency situations[5]. The MQSHR, section 32 and CMSHR, section 35, outline requirements that must be addressed when developing and implementing effective emergency preparedness strategies.

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1 CMSHA Recognised standard 08

2 MQSHA, S. 9 - 11, CMSHA, S. 9

3 MQSHA S.26, CMSHA S.29

4 MQSHR S.32

5 CMSHR S.35

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MQSHR - S. 32
Risk management for emergencies
(1) The site senior executive must ensure the risk management process mentioned in part 2, division 2, is carried out for reasonably foreseeable emergencies at the mine to decide the resources, facilities and procedures necessary to—
(a) prepare the mine for managing and controlling the hazards causing the emergencies; and
(b) detect emergencies; and
(c) respond appropriately to the emergencies.
(2) The resources, facilities and procedures considered in the risk management process must deal with the following—
(a) coordinating control of emergencies;
(b) giving notice, information and warnings about emergencies;
(c) the immediate availability of trained rescue persons or emergency services;
(d) locating, and accounting for, persons;
(e) controlling or re-establishing control of the hazard causing the emergency;
(f) isolating the area of the incident, including, for example, by cutting off the supply of energy to the area of the incident;
(g) emergency egress and evacuation, including refuges;
(h) first aid and persons trained in giving first aid;
(i) liaising with, and using, local or state emergency services;
(j) backup services and facilities for the emergency.

CMSHR - S. 35
Emergencies General
(1) A coal mine's safety and health management system must provide for managing emergencies at the mine.
(2) The system must include provision for the following—
(a) identifying, by risk assessment, potential emergency situations;
(b) minimising risks associated with potential emergency situations;
(c) carrying out aided rescue and self-escape of persons from the mine in an emergency;
(d) carrying out emergency exercises, including testing the effectiveness of emergency management procedures and the readiness and fitness of equipment for use in an emergency;
(e) auditing and reviewing the emergency exercises;
(f) if the mine is a surface mine—involving an open-cut examiner for the mine in—
(i) developing and testing the emergency management procedures for activities, including mining activities, in and around the surface excavation; and
(ii) auditing the documentation for the procedures;
(g) if the mine is an underground mine—involving an ERZ controller for the mine in—
(i) developing and testing the emergency management procedures for explosion risk zones; and
(ii) auditing the documentation for the procedures.

3. Emergency preparedness

An accident and subsequent emergency situation occurs when there is an uncontrolled release of energy resulting in the injury of workers. While there is a requirement that a site determines all foreseeable emergencies, the resulting injuries can be broken down into a number of generic areas.

- Major trauma
- Existing medical conditions aggravated
- Excessive heat or cold
- Poisons (flora and fauna)
- Chemicals
- Viral or bacterial infections
- Electrocution

The focus of this Guidance Note will be on injury to workers. A small mine can be prepared for an emergency and any resulting injury to its workers if it develops and implements an effective Emergency Response Plan (ERP)

3.1 Emergency Response Plan

In developing an ERP some basic factors must be considered. Although operations may be similar to one another, each can be different in size and nature. As such each operation needs an individual plan in place that considers, as a minimum, the type of operation, site hazards, the range of personnel, training of personnel, geography of the surrounding area, remoteness, and available equipment.

Identify and record who should receive copies of the ERP. If information changes there should be a system developed that ensures changes are made to the site ERP and any controlled copies.

The ERP should be written in plain English with critical information well indexed and easily referenced. Each ERP should consist of a number of elements that contain relevant information relating to the site. While elements may vary from plan to plan, they should cover the following generic topics:

- Mine Information
- Plans and Drawings
- Risk Management
- Emergency equipment/facilities
- First aid requirements
- Personnel training
- Incident control
- Communication
- Contact lists
- Securing the Site
- Procedures for controlling site specific hazards
- Records

The Emergency Response Plan must be a written document that is kept up to date, easily accessible and available to all workers.

3.2 Mine Information

The following basic mine information should be included in an ERP:

- Name of the Mine
- The operating company
- Location in relation to nearest town
- Location of the property (Lat/Long)[6]
- Mailing address and contact telephone numbers (as well as fax number and e-mail address if applicable)

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6 Avoid using Easting and Northing

- Mining Lease number or Property Details
- Name of the site senior executive (SSE) as appointed under the MQSHA or CMSHA
- Type of operation (e.g., underground, surface, quarry, exploration, sand and gravel, placer)
- Number of employees on site, including management and contractors.

A stand-alone page or pages with the above information should be posted near phones and radio dedicated for use in emergency situations. An ERP should provide clear written directions to the site, including maps/plans that can be used for navigation. This is particularly important in remote areas. In addition, the plan should identify locations for possible transfer sites for mine emergency transport vehicle to public ambulances.

3.3 Plans and Drawings

The site should have a documented set of site plans, which details as a minimum:
- Emergency facilities;
  - Marshalling points
  - Helicopter landing areas[7]
  - First aid kits; fire extinguishers; fire hydrants,
- Relevant reticulation services (e.g. electrical, gas) particularly underground services and power lines,
- Old mine workings, and
- Location of any toxic materials kept on site (e.g. cyanide, sulphuric acid, explosives), and any corresponding controls.

  These locations should also be clearly sign posted.

3.4 Risk Management

The ERP should use risk management processes and record the Risk Assessments[8] (RA) undertaken to identify reasonably foreseeable emergencies or potential emergency situations. It should also record the identified and implemented controls that ensure the mine can effectively respond to the emergency.

3.5 Emergency Equipment/Facilities

The equipment/facilities required to deal with emergencies should have been identified from the RA. A list of actual equipment/facilities available on site should be recorded in the ERP. This record should also include other sources of equipment that may be needed in the event of an emergency. Examples of equipment/facilities include the following:
- First aid supplies,
- Fire pumps and extinguishers,
- Rescue equipment,
- Equipment that can be assigned to an emergency task (e.g., a bulldozer or excavator used to build roads and trails can be used in an emergency to dam or dyke a flood; Water truck for fire fighting),
- Industrial ambulance or emergency transport vehicle,
- Marshalling points,
- Helicopter landing areas[9],
- External agencies that can source specific equipment, and
- External agencies that can provide specific services.

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7 Appendix 1- Emergency Management Queensland Rescue Helicopter

8 Refer – CMSHA Part 2, MQSHA Part 2, MQSHR Part 2

    Recognised standard 02 -Control of risk management practices

     AS/NZS 4360

9 Appendix 1- Emergency Management Queensland Rescue Helicopter

3.6 First Aid Supplies

The most critical equipment required on site is adequate and appropriate first aid equipment and facilities. This equipment is essential for response to any illness or injury that persons may sustain. To ensure first aid equipment is adequate and appropriate:
- Identify hazards which may cause an injury or illness (also consider workers' existing illnesses, e.g. diabetes, asthma, epilepsy, heart conditions, etc).
- Assess the risk based on the type and extent of injuries or illnesses that may occur.
- Decide on the appropriate first aid equipment and facilities. Standard or generic first aid kits may need to be added to or modified to ensure they meet the needs of the mine.
- Obtain the identified first aid equipment and facilities.
- Monitor and review first aid equipment, facilities and services to ensure they continue to meet requirements.

The first aid kit[10] must be appropriate for the types of injuries and illnesses likely to occur at the mine. Consider the following:
- The first aid kit can be any size, but must be large enough to fit all the required contents.
- A portable kit, or multiple kits, may be required.
- Consider placing appropriate kits in all mobile equipment.
- First aid kits' locations should be clearly signed.
- Include single use, disposable items in the kit where possible. Reusable items must be cleaned, sterilised and disinfected.

3.7 Training

While **all workers must receive basic first aid training[11]** as part of their induction, there is also a need to train some workers in more advanced first aid. Keep a record of the first aid training that workers have received. Names of first aid personnel, and their competencies, should be kept as part of the ERP and displayed prominently in the workplace.

Workers should have access at all times to trained first aid personnel who can undertake initial management of work related injuries or illnesses. If ongoing medical care or special medical assistance is required, first aid personnel should recommend that a worker seek further medical assistance.

First aid personnel should have **current certified first aid qualifications**. The level of these qualifications should be based upon the RA that considers the site hazards and proximity to medical facilities. First aid personnel should:
- Be reliable,
- Be competent and familiar with the ERP and first aid equipment on site,
- Have current certified first aid qualifications,
- Undertake the initial management of injuries and illnesses,
- Record details of first aid given, and
- Remain calm in an emergency.

3.8 Incident Control

The RA should clearly define how persons involved in an emergency are to access and implement the ERP. The ERP should identify:
- "First steps", including who to call, how to call and when to call,
- Who is responsible for implementing the ERP,

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10 Appendix 2 – First aid kit contents example

11 MQSHR S.91, CMSHR S.82

- Who is in charge of controlling the emergency operations,
- What communication systems are to be used during an emergency response (e.g., two-way radio, cell phone, satellite phone),
- List of tasks that need to be assigned to help manage the emergency, and
- Instructions on how to carry out those tasks

All workers and visitors must have appropriate training in the ERP before entering site, so that they understand their responsibilities and what to do in an emergency.

The ERP must be regularly tested to ensure its effectiveness. Tests should include table top as well as drills with all affected persons[12]. In some cases, evacuation drills will be required to examine persons' movements, actions and response times. Exercise debriefing should take place to analyse the effectiveness of the ERP. Any identified additional controls or changes to controls should be undertaken as soon as practicable after the exercise.

Note: Evacuating persons from the site for blasting purposes does not equate to a drill.

3.9 Communication

Effective communication is often the hardest element to initiate and sustain. The EPR should outline the communication processes needed to ensure workers, along with external agencies, are contacted and information transferred.

The following should be considered:
- Establish a list of emergency contacts and display this list near phones and radios.
- How will workers be accounted for during an emergency and where will they assemble.
- Assign a dedicated emergency frequency for radios.
- Find best coverage on site for mobile and satellite phones.
- Always have back up communications.
- Have spare batteries and power sources.
- Have regular meetings to keep workers informed of the emergency progress.
- Always have someone on site available for contact; don't leave phones and radios unattended.
- Identify how to control communications leaving site and persons seeking information from the site.

3.10 Contact Lists

Small mines usually have limited emergency response resources. As a result, on becoming aware of an emergency, they should contact external help as soon as possible. The persons or agencies required to be contacted should be determined through the RA.

An ERP should include a stand-alone page or pages with all contact information for persons or agencies that may need to be contacted during an emergency.

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12 At least yearly MQSHR S.40 (2)(a), CMSHR S.35 (2)(d)

The following are some examples of contacts that should be included, but this is by no means an exhaustive list:

External resources and contacts		Assistance on offer
Company management		Advise and approvals for resources
Emergency services • Police • Ambulance • Fire and Rescue	• SES • Helicopter rescue • Rural fire services • Royal Flying Doctor	Emergency response a core function and well resourced
Company doctor		Medical advice
Neighbouring mines and businesses		General assistance, enact any MOU's for mutual assistance
Government bodies		Legal advice/obligations and assistance
Equipment suppliers		Specialised rescue equipment
Site contractors management		Advise and assistance
Consultants and equipment specialist		Specific technical advise

Larger sites might need to include contact details of onsite workers or key locations.
As noted above, contact details should be documented, kept as part of the ERP and displayed near phones and radios.

3.11 Securing the Site

In the event of an emergency, external personnel may try to gain access to the site to watch, or record, the incident. These onlookers can inhibit the progress of the emergency response, and may even exasperate the situation or put themselves in danger. Their effect on the situation needs to be minimised. The ERP should identify how the site is to be secured and how movement of persons and equipment on and off site will be controlled.

Unauthorised communications leaving the site or external inquires coming in should be controlled and kept secure.

3.12 Additional Procedures

The site may need to have specific procedures for controlling site specific hazards (such as cyanide and sulphuric acid), that may need to be included or referenced by the ERP.

3.13 Records

Supplementary to the ERP are the records associated with it. Therefore, the following records should be kept on site:
- All RAs,
- Training (first aid, operational tasks and emergency response),
- Emergency response and first aid equipment checks,
- Implementation of emergency procedures (if applicable),
- Incident debriefing (if applicable), and
- Operational plans and drawings.

4.0 Appendices

Appendix 1- Emergency Management Queensland Rescue Helicopter

There are several emergency response agencies that can provide assistance during an emergency. It is critical that the best medical attention is given to an injured worker as soon as possible, and if required, that worker to be transported to the nearest hospital. The Emergency Management Queensland (EMQ) Rescue Helicopter is a government agency that can be deployed rapidly to your site to provide advanced medical treatment and transportation of injured workers.

To enable the best possible response, a mine should provide the EMQ Rescue Helicopter with details of their site. This information can be given any time and is used to update their data base so as to have your details at hand if an emergency arises. **Appendix 2 contains forms** that should be filled out and sent to the EMQ Rescue Helicopter giving them the required information about your mine.

To enable the EMQ Rescue Helicopter to respond to your mine, a suitable helicopter landing area should be designated. A brief outline on what is required for a suitable helicopter landing site (HLS) is listed below further details about a HLS and any other information can be obtained from:

Emergency Management Queensland
GPO Box 1425
Brisbane Qld 4001
Ph: 07 3247 8511
Ph: 07 3247 8505

http://www.emergency.qld.gov.au/emq/

HELICOPTER LANDING SITE (HLS)

This information may help you in establishing a suitable landing area for the rescue helicopter. The Civil Aviation Advisory Publication (CAAP) is quite detailed and contains information that would be beyond the requirements for a 'Basic HLS', however, it is quite a useful document.

Other information to consider:

Latitude / Longitude

Contact details (phone / radio)

Obstructions (wires / towers etc)

Other possible hazards (dust etc)

Availability of fuel (our aircraft normally uses Jet A-1 aviation fuel, but can also use diesel where necessary.

**EMQ Helicopter Rescue** is the Government's emergency helicopter service

The area near the helipad will need to be prepared for the safe arrival and departure of the EMQ Rescue Helicopter.

1. The area around the helipad up to a radius of 40 metres from the centre will need to be cleared of any loose materials and objects.
2. To ensure that dust is minimised, the area directly surrounding the helipad should be watered down prior to the arrival of the helicopter, if possible.
3. Vehicles must be parked 40 metres away from helipad to stop any flying debris causing damage.
4. For daytime evacuation, the pilot will be able to attain visual reference by a GPS location and use the windsock for wind direction and strength.
5. For night time evacuation, the helipad will need to be marked with strobe lights. This is done by setting out 4 white strobe lights and securing them on the corners of the helipad. The strobes are to be activated approximately 15 minutes prior to the ETA of the helicopter and the pilot notified of the strobes and the appropriate wind direction and strength by either illuminating the windsock with the lights of a single vehicle. Alternatively, 2 vehicles can be parked at 90 degrees to each other downwind of the helipad with their lights crossing in the middle of the pad. This shows the pilot the direction of the wind and allows it to approach over the top of the parked vehicles and land into the wind without the headlights blinding the pilot.
6. In the case of poor weather, use the same procedure as per night helipad set-up.

The following forms should be filled out and faxed to the number indicated to register your site with Emergency Management Queensland (EMQ) Rescue Helicopter.

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PART 1 of this form is to register your operation with us. This gives us the basic information about your operation in the event that you require our service. Please fax this document to 07 4779 6356 on completion.

Part 1 – Basic Information

Name of mine/operation.

Please indicate your operation's general location.

Lat. and Long. (WGS 84 dd.mm.mm).

Is your operation open cut or underground?

Please list the telephone number/s of your operation which are always manned during operations.

What CB channel do you use 'on site'? Would you also use this channel for 'incident control'?
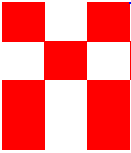
PART 2 of this form seeks details of a site you may have already identified to use as a HLS; however, please do not wait to return this form if you have not identified a landing site. REGISTER with us NOW and open the lines of communication!

Part 2 – HLS Information

Have you identified an area to use as a HLS?

Is it at least 35m x 35m?

What is the surface?

Do you have a water truck?

Do you have a windsock, and can you illuminate it?

Are there any large obstructions near the landing site?
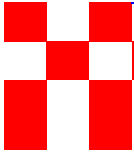
PART 3 of this form seeks further details from you.

Part 3 – General Information

Name of your Safety Officer or other contact.

Would you like to receive our Helicopter Landing Site Information Pack?

What format would you like to receive the HLS pack: Australia Post or email (PDF file)?

Please write your postal address or email address here.

Any other information you feel would be relevant?

On behalf of EMQ Helicopter Rescue, thank you for your time today. We really appreciate you taking the time to provide us with this information.

Appendix 2 – First aid kit contents example

Below is an example of contents that should be considered for first aid kit.

Qty	Description	Use
2	Conforming Gauze Bandage 2.5cm	Holding Dressings and Pads
4	Conforming Gauze Bandage 5.0cm	Holding Dressings and Pads
2	Conforming Gauze Bandage 7.5cm	Holding Dressings and Pads
2	Heavy Crepe Bandage 7.5cm x 4m	Supporting Sprains and Strains
2	Heavy Crepe Bandage 10cm x 4m	Holding Dressings and Pads
2	Medium Hospital Crepe 10cm	Holding Dressings and Pads
4	Triangular Bandage Material	Fracture Management/Support
1	Kidney Dish	Mixing Swabs and Antiseptics
1	Tray Round Galley Pot 150ml	Mixing Swabs and Antiseptics
1	Medicine Cups 30ml	Measurement of oral medicines
1	Emergency Blanket	Maintaining NORMAL Body Temperature
1	Small Burns Casualty Sheet	Treatment of Burns
1	Hot and Cold Pack Large	Reducing Swelling/Pain
1	Instant Ice Pack Small	Reducing Swelling/Pain
1	Sam Splint	Stablising Fractures
1	Soft Foam Neck Brace	Stabilising Neck Control
2	Leather Finger Stalls	Protecting Injured Fingers
5	Swab Gauze 7.5cm x 7.5cm	Use with Antiseptic to Clean
10	Alcohol Swab Each	Cleaning the Skin/Minor Scratches, etc.
5	Chlorhexidine Solution 30ml	Cleaning Wounds
10	Saline Solution 15ml	Cleaning Wounds
1	Saline Solution 500ml	Cleaning Wounds
1	Eye Shower Bottle	Flushing Eyes
1	Povidone Iodine 100ml	Cleaning wounds
1	Cotton Buds (100)	Cleaning wounds and surfaces
1	Burnaid Gel 25g	Superficial Burns
2	Burnaid Dressing 10x10cm	Superficial Burns
1	Icy Cool Spray	Relief from pain, bites, minor burns
1	Savlon Cream 30g	Antiseptic Purposes
12	Plastic Bags large 150x230mm	Prevent Cross Infection/Disposal of waste
4	Non-Adhesive Dressing 5x5cm	Applying Ointments – dry covering
4	Non-Adhesive Dressing 10x10cm	Applying Ointments – dry covering
2	Combine Dressing 9x10cm	Controlling Bleeding with direct pressure
2	Combine Dressing 20x20cm.	Controlling Bleeding with direct pressure
1	Wound Dressing No. 13	Controlling Bleeding with direct pressure
1	Wound Dressing No. 14	Controlling Bleeding with direct pressure
1	Wound Dressing No. 15	Controlling Bleeding with direct pressure
1	Basic Dressing Pack	Dressing Wounds
1	Adhesive Strips Box/50 Fabric	Covering Superficial Wounds
1	Micropore 1.25cm	Holding Dressings/Bandages in place
1	Micropore 2.50cm	Covering Superficial Wounds
5	Eye Pads Sterile	Emergency Eye Cover
1	First Aid Book Small	For the Forgetful/Untrained
1	Resuscitation Shield	Preventing Cross Infections
1	Latex Gloves Disposable (10)	Preventing Cross Infections
1	Forceps Disposable (S/S)	Removal of Splinters
1	Digital Thermometer	Monitoring high body temperature
1	Splinter Probe Packet/5	Removal of Splinters
1	Sharps Container	Preventing Cross Infections
1	Scissors Stainless Steel 12.5cm	Cutting Dressings and Bandages
1	Safety Pins Packet/12	Holding Bandages in Place
1	Heavy Duty Paramedical Shears	Cut Seatbelts, Boots, Clothing, Chin Straps, etc.
1	Disposable Torch	Establishing a clear view in the dark
1	Note Book	Recording obs/ items used/pass messages
1	Pencil	Recording obs/ items used/pass messages