PROMR23
Identify, monitor and control mine emergency hazards

Overview

This standard about the identification, monitoring and control of issues relating to health and safety by those involved during a mine rescue operation. It is expected that additional hazards and risks will be experienced to those normally present as a result of the emergency.

The process of hazard identification is continuous; therefore individuals should be on the look-out for hazards at all times but with especial diligence on first entry to the mine or mine area. They will monitor the situation, report to responsible persons and carry out work to facilitate the rescue operation and reduce risks as directed.

PROMR23

Identify, monitor and control mine emergency hazards

Performance criteria	Identify and monitor mine hazards
You must be able to:	P1 confirm to responsible person at fresh air base that you understand your assigned task/s / routes of travel / times P2 check you are suitably equipped (e.g. PPE, RPE, mine plan, temperature / gauge card, stretcher, resuscitation / first aid equipment, environmental monitoring equipment) P3 check/test operation of all rescue equipment and environmental monitoring devices P4 Complete all wearers inspections / tests on breathing apparatus immediately before going operational P5 orientate self to mine plan identifying relevant places in the vicinity (e.gs. roadways, airways, doors, safe havens, fire fighting equipment) P6 establish and maintain effective communications P7 travel mine roadways confirming that areas are safe for travel P8 clearly mark route of travel P9 monitor the mine environment using prescribed equipment safely and correctly P10 accurately interpret readings P11 report readings as required according to organisational procedures P12 if excessive hazard/risk identified, withdraw to a place of safety, warning others according to organisational procedures P13 On completion of task return to deployment point, complete relevant reporting procedure P14 ensure used equipment segregated for after use servicing
	Implement hazard control measures
You must be able to:	P15 Deal with equipment / procedural issues that may endanger the health and safety of a rescue team (e.g. malfunction of rescue equipment, illness / injury to team member, disorientation) P16 Deal with unforeseen circumstances which has or may prevent progress of the rescue team of achieving the allotted task (e.g. fall of ground, smoke laden atmosphere, water laden strata P17 carry out remedial work as necessary to allow rescue team to progress using tools and equipment safely in the prescribed manner P18 in the event of being at imminent risk, withdraw to place of safety and where relevant fence off to prevent access P19 regularly report progress to responsible person according to organisational procedures

PROMR23

Identify, monitor and control mine emergency hazards

Knowledge and understanding	General
You need to know and understand:	K1 legal and organisational requirements for the conduct of a rescue operation (including command structures, roles, methods of communication during an emergency) K2 basic procedures for carrying out health and safety risk assessment K3 safe working practices to include all systems, procedures, equipment and materials in use K4 the organisations record keeping requirements K5 mine maps and plans i.e. fire and rescue and emergency plan
	Mine hazards
You need to know and understand:	K6 definitions of hazard, risk, accident, danger. K7 hazards encountered within mines K8 the additional hazards arising from mine emergencies K9 working knowledge of Approved Codes of Practice and Guidance for controlling major hazards and working safely in mines K10 types, causes and effects of major mining hazards encountered during an emergency (e.gs. ground movement/changes in strata conditions , fires, explosions spontaneous combustion, inrushes, outbursts, rock outbursts K11 your responsibilities and limitations for dealing with hazards and risks including reporting procedures
	Equipment and tools
You need to know and understand:	K12 the importance of compliance with manufacturers' instructions relating to the use of equipment and tools provided for hazard/environmental monitoring K13 procedures to check that equipment and tools are fit for purpose K14 the limitations of equipment provided for use in monitoring/control K15 the safe and proper use of monitoring/control equipment K16 when and where monitoring/testing/measurements are required K17 the purpose and safe use of mine emergency equipment (e.gs. breathing apparatus, lifelines, stretchers, cutting and spreading equipment, ancillary emergency/first aid equipment) K18 methods and equipment for use in small mine fires K19 techniques and equipment for clearing access / stabilising ground/falls of ground in emergency situations
	Working with others
You need to know and understand:	K20 the importance of effective communications K21 communications systems/procedures K22 your own responsibilities and the limitations of your responsibility K23 the personal responsibilities/duties of others K24 the importance and advantages of effective team work K25 the dangers of working in isolation

PROMR23

Identify, monitor and control mine emergency hazards

You need to know and understand:

Mine atmospherics and ventilation

K26 legislative requirements for mine ventilation including remedial actions should ventilation not meet legislative requirements

K27 the effect a sharp rise or fall in barometric pressure will have on the behaviour of gases below ground

K28 ventilation systems types, uses, advantages and limitations

K29 terms in relation to mine ventilation, (including direction, flow, volume, speed, temperature, pressure, quality, geothermal gradient, gas fast)

K30 the methods and appliances used to establish / restore mine ventilation (e.gs. airways, barriers, stoppings, fans, booster fans, ducts, brattices)

K31 how rises and falls in air temperature will affect the physical working conditions below ground (heat, humidity, % saturation)

K32 types of instruments to measure ventilation airflow and humidity; including how to check instruments, the correct use of instruments and interpretation of readings

K33 environmental conditions that could adversely affect mine ventilation (e.gs hazardous gasses, gas fast situations, roof fall, fire , explosion, inrush, temperature, gradients, cross sectional area of roadways/airways)

K34 techniques and equipment for clearing access / stabilising ground/falls of ground in emergency situations techniques and equipment for clearing access / stabilising ground/falls of ground in emergency situations

You need to know and understand:

Gases/dusts/hazardous substances

K35 the properties, physiological effects of gases indigenous/imported to a mine

K36 methods of detecting hazardous gasses in a mine

K37 levels at which gasses may become harmful, and actions to be taken should this occur

K38 the properties, physiological effects of dusts/hazardous substances indigenous/imported to a mine

K39 the levels at which dusts/hazardous substances become harmful and actions to be taken should this occur

You need to know and understand:

Analyse readings/record and carry out corrective/further actions if required

K40 how to interpret readings taken against statutory/company pre-set action levels

K41 how to identify trends and levels that require action.

K42 when action should be taken to notify/protect others and the procedures to be followed

K43 reporting/recording procedures according to regulatory/operational requirements

PROMR23

Identify, monitor and control mine emergency hazards

Developed by	Proskills
Version number	1
Date approved	June 2009
Indicative review date	April 2014
Validity	Current
Status	Original
Originating organisation	Proskills
Original URN	MRO23
Relevant occupations	Coal mine operatives; Quarry workers and related operatives; Managers in mining and energy;
Suite	Mines Rescue Operations
Key words	mines; mining; rescue; underground; operations; hazards; emergency