PROSUM03
Control major mining hazards

Overview

This standard is about being able to monitor all the major hazards within the mine and apply control measures according to organisational requirements within the area and limits of their responsibilities -It will include observation and testing, carrying out procedures and subsequently recording/reporting.

From the nature of the industry and the environment mining is subject to several major hazards that have the potential if not controlled to result in substantial loss of life and/or loss of the mine.

The major hazards applying to all mines relate to loss of integrity of the mine due to movements of ground/strata, atmospheric hazards from loss of ventilation or other causes, and fire. There are other major hazards that affect many, but not all mines, for example explosion, inrush, outbursts, and hazardous dusts.

The identification of the major hazards within the mine, the extent and severity of that hazard, and the establishment of control measures to be practiced to minimize risk are not part of thisfunction or standard. These functions will be carried out by management and/or technical experts.

This Standard has **three** elements:
1 Carry out monitoring
2 Analyse and respond to results
3 Protect personnel from hazards

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Performance criteria

Carry Out Monitoring

You must be able to:

P1 identify monitoring/tests to be carried out (as appropriate to the mine; e.gs. barometric pressure, gas detection and/or sampling, air temperature, humidity, air flow, ground movement, smoke, dust)
P2 use equipment according to organisational procedures and manufacturers' instructions and, where necessary, statutory requirements
P3 take appropriate action where measurements are outside normal parameters according to operational procedures
P4 record information according to regulatory/operational requirements

Analyse and respond to monitoring results

You must be able to do:

P5 interpret readings taken against statutory/company pre-set action levels
P6 identify trends and levels where action is required
P7 report excessive levels according to operational procedures
P8 take action to ensure safety of personnel in areas that may be affected
P9 support the implementation of corrective measures
P10 record information according to statutory/operational requirements

Protect personnel from hazards

You must be able to do:

P11 obtain information on specific hazards in area of responsibility
P12 ensure monitoring is carried out to statutory/operational requirements
P13 ensure monitoring and/or control equipment is properly used and maintained
P14 ensure appropriate personal protective equipment is worn and used correctly at all times
P15 ensure any faults to monitoring and/or control equipment/systems are reported/rectified according to operational procedures
P16 take appropriate action in the event of suspected exposure of personnel to gases/dust/hazardous substances above prescribed limits according to operational procedures
P17 oversee the installation of additional ventilation (including de-gassing if applicable)

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Knowledge and understanding

Mine hazards

You need to know and understand:

K1 an appreciation of the main principles of health and safety and environmental legislation and regulations relevant to mines
K2 the major hazards present in area of responsibility
K3 the procedures to monitor/control major hazards present
K4 sources of information on major hazards/hazardous substances and how to use them
K5 industrial standards relevant to mines
K6 working knowledge of approved codes of practice and guidance for controlling major hazards and working safely in mines
K7 awareness of how emergency situations can occur in mines due to major hazards arising

Equipment and tools

You need to know and understand:

K8 the importance of compliance with manufacturers' instructions relating to the use of equipment and tools provided for hazard/environmental monitoring/ventilation
K9 procedures to check that equipment and tools are fit for purpose
K10 procedures to check that equipment and tools are fit for purpose
K11 the safe and proper use of monitoring/control equipment

Working with others

You need to know and understand:

K12 the limits of personal responsibility
K13 the importance of effective communications
K14 communications systems/procedures in area of responsibility
K15 the personal responsibilities/duties of others
K16 the importance and advantages of effective team work
K17 the dangers of working in isolation

Mine atmospherics

You need to know and understand:

K18 the normal constituent parts of the air we breathe
K19 the effect a sharp rise or fall in barometric pressure will have on the behaviour of gases below ground
K20 recording procedures to meet statutory/operational requirements
K21 how rises and falls in air temperature will effect the physical/atmospheric working conditions below ground heat, humidity, condensation, saturation)

Gases/dusts/hazardous substances

You need to know and understand:

K22 the gases indigenous/imported to a mine that may have an adverse effect on humans
K23 for such gases encountered whether they are toxic, suffocating and/or explosive
K24 for each gas encountered in your area of responsibility, their physiological effect on humans
K25 the dusts/hazardous substances indigenous/imported to a mine that may have an adverse effect on humans
K26 for such dusts/hazardous substances encountered whether they are explosive, carcinogenic, harmful, irritant, corrosive or toxic
K27 for each dust/hazardous substance encountered in your area of responsibility, their physiological effects on humans

Protection of personnel

You need to know and understand:

K28 when and where monitoring/testing/measurements are required
K29 ground movement/changes in strata conditions that can affect integrity of the mine/area, and corrective/remedial/reporting procedures to be followed
K30 personal protective equipment for the work area, its correct use and maintenance
K31 reporting/recording/rectification procedures for faulty equipment/systems
K32 methods used to measure airflow and corrective actions to be taken if below required levels
K33 the monitoring equipment for detecting the inception of spontaneous combustion and/or fire
K34 action to be taken should personnel be exposed to atmospheric conditions/gases/dusts/hazardous substances in excess of prescribed limits (including reports)
K35 procedures for installation of additional ventilation equipment to dilute and remove accumulations of gases, including if applicable de-gassing
K36 procedures to notify personnel of changes in mine layout/operating conditions

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

You need to know and understand:

K37 how to interpret readings taken against statutory/company pre-set action levels
K38 how to identify trends and levels that require action.
K39 when action should be taken to notify/protect others and the procedures to be followed
K40 reporting/recording procedures according to regulatory/operational requirements

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