

# **THE EXAMINATION IN MINING LAW RELATING TO HEALTH AND SAFETY 2004**

## **Specimen Answers**

### **QUESTION A1**

#### **i) The Mines (Control of Ground Movement) Regulations 1999**

**a)**

Reg 4(1)                      Manager's duty to ensure such ground control measures are taken as may be necessary for keeping secure every place in the mine where people work or pass

**b)**

Reg 5(1)                      Before any excavation undertaken, assess all factors likely to affect movement for the purpose of identifying ground control measures

**c)**

Reg 7(1)(a)                      Rules prepared setting out ground control measures

Reg 7(3)(a)(b)                      Posted that they can be easily seen and read by persons at the entrance to that part of the mine to which they apply made available to persons associated with ground control measures

**d)**

ACOP Para 46                      Good practice to take steps to support temporarily or reinforce the ground to facilitate permanent support withdrawal

#### **ii) a) MASHAM Regulations 1993**

ACOP 101                      Face line to pre-shift within 2 hours of people entering district

ACOP 102                      Four hourly inspection thereafter of the face line

#### **b) Mines (Safety of Exit) Regulations 1988**

ACOP 20                      Height within 275 m of face line can be lower than 1.7m as long as it is no lower than 1.2m and there are no more than 45m lower than 1.4m.  
Manager should take action (reasonably practicable) to regain minimum height

ACOP 22                      Face line to be sufficiently wide for people to travel without congestion not less than 1.2m

#### **iii) a) The Lifting Operations and Lifting Equipment Regulations 1998**

Reg 4                      Every employer shall ensure that lifting equipment is of adequate strength and stability for each load having regard to stress induced at mountings and fixing points and every part of load and anything attached to it (used in lifting) is of adequate strength

**b)**

Reg 7                                      Employer to ensure that machinery and accessories for lifting loads are clearly marked with safe working load and marked for each configuration or this information kept with lifting equipment  
Accessories for lifting clearly marked as to identify safe use

**c)**

Reg 8(1)                                    Employer's duty that lifting operations are properly planned by competent person and are appropriately supervised and carried out in a safe manner

Reference may be made to MASHAM – answers to be considered by Examiners at Moderators Meeting

**iv) Management of Health and Safety at Work Regulations 1999**

Reg 12(3)                                    Every employer shall ensure that any person working in his undertaking who is not his employee is supplied with appropriate instructions and comprehensive information on health and safety risks which arise

Reg 12(4)(a)                                Every employer shall take reasonable steps that (contractor's) employees shall be provided with sufficient information to identify any person appointed to implement evacuation procedures

**v) a) MASHAM Regulations 1993**

Reg 23                                        No person shall do any work at a mine unless he has received adequate instruction and training for that work and is competent or he does so under instruction and supervision of person who is competent to give instruction, supervise and train

**b)**

ACOP 135                                      Manager must ensure that contractor's staff are trained.  
Also employer of contractors must satisfy himself that his staff are fully trained and competent and he must give mine manager adequate written detail and provide evidence of employees extent and nature of training together with information on their experience and other factors influencing competence.  
If mine manager considers training desirable, employer should arrange it or get them trained in the mine's training scheme.  
When being trained they should be under close personal supervision

## QUESTION A2

### **i) Escape and Rescue from Mines Regulations 1995**

Reg 10(1)(a)	The Owner provides: a) where necessary suitable self rescuers
ACOP 48	Self rescuers fall into 2 types: b) a self-contained self rescuer provides an independent oxygen supply and provides protection in all atmospheres
Reg 10(1)(b)	The Owner provides: b) where necessary safe havens or facilities for the exchange and recharge of self rescuers
ACOP 51	Where the time necessary to escape to a place of safety exceeds the life of self rescuer, consideration needs to be given to the provision of a safe haven
Reg 10(2)(a)	Manager ensures every person issued with a self rescuer has been instructed how to use it
ACOP 56	All persons need to have received initial training followed by an annual wearing test
Reg 10(2)(b)	Manager ensure self rescuers are checked regularly, maintained and stored in a suitable place
ACOP 55	Self rescuers need to be stored in a suitable place (surface, except where stored in underground changeover facilities) and maintained in accordance with the manufacturer's instructions
Reg 11(1)(a)	Manager ensure that persons are trained in the event an emergency situation occurs, and the use of emergency equipment and hold practices at regular intervals
ACOP 65	Regular training essential so that in event an emergency everyone knows what action to take
Reg 11(2)	Manager ensures each person receives written instructions and information on action to be taken in an emergency
ACOP 69	Instructions and information need to reflect the measures identified in the emergency plan and need to be – a) brief b) pocket size c) appropriate to the person

MARKS GIVEN FOR FIVE ONLY

### **ii) The Mines Miscellaneous Health & Safety Provisions Regulations 1995**

**a)**

Reg 4(1)	Owner of every mine ensure a health and safety document is prepared which demonstrates: a) risks to persons are assessed b) adequate measures have been taken to safeguard health and safety of workforce
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b)

Reg 4(2) Document to include:  
c) where toxic gases may be present a plan detailing protective equipment and measures to protect persons

Reg 4(2) Document to include  
d) in a zone where gas outbursts may occur, a plan setting out the susceptible zones and the measures necessary to protect persons

**iii) RIDDOR 1995**

The incident is a Dangerous Occurrence

27 Any violent outburst of gas together with coal into the mine workings

**iv) (Safety of Exit) from Mines Regulations 1988**

Reg 7(5) Where Manager decides that more than 9 persons will work in a heading he shall:  
a) give 7 days notice to HSE  
b) notify the person nominated under Schedule 4, RIDDOR  
c) make suitable rules for the safe working in and exit from the heading  
d) send a copy of the rules with any notification under (a) and (b) above

ACOP 32 Rules should:  
a) specify  
(i) place at the mine  
(ii) nature and reason for the work  
(iii) proposed duration  
(iv) number of persons  
(v) support system  
(vi) ventilation  
(vii) precautions including fire detection system with automatic alarm

b) a plan

Rules also show arrangements for supervision, examination and inspection

**v) Escape and Rescue from Mines Regulations 1995**

ACOP 78 Duty to ensure two rescue teams are available may be met by full-time rescue personnel or by personnel normally employed at the mine in other capacities, but trained to act as rescue team members, or by a combination of the two

**vi) Practical Safety Measures**

Automatic methane detector on JCM  
Automatic measuring of hydrocarbons  
In-seam seismic to locate faulting  
Drilling of boreholes  
Maintain compressed air range with facilities for breathing  
Access to ventilation ducting along its length  
Directional indicators in heading

MARKS GIVEN FOR FIVE ONLY

## QUESTION A3

### **PART 1**

#### **i) The Management of Health and Safety at Work Regulations 1999**

Reg 3(1) Employer to make suitable and sufficient assessment of  
a) risks to health and safety of employees whilst at work  
b) risks to health and safety of persons not in his employment arising out of the conduct by him of his undertaking

**Reg 3(3)** Assessment to be reviewed by employer if  
b) significant change in the matters to which it relates and where any changes are required they are made by the employer

#### **ii) The Provision and Use of Work Equipment Regulations 1998**

Reg 4(1) Work equipment is constructed or adapted to be suitable for purpose

Reg 4(2) In selecting work equipment, employer shall have regard to working conditions and to the risks which exist where equipment is to be used and any additional risk posed by the use of that equipment

ACOP 106 Work equipment is installed, located and used in such a way as to reduce risks to users and other workers

Some answers may relate to MASHAM Reg 11 – mark accordingly but would discuss afterwards

#### **iii) Mines Miscellaneous Health & Safety Provisions Regulations 1995**

Reg 4(1) The owner shall ensure that the health and safety document has been prepared, which  
b) demonstrates measures including design, use and maintenance that have and will be taken to safeguard health and safety of persons

Reg 4(2)(b) A fire protection plan detailing the likely sources of fire, the precautions to protect against, detect and combat outbreaks and spread of fires

#### **iv) The Mines (Safety of Exit) Regulations 1988**

Reg 9(b) One intake airway constructed of suitable fire resistant materials and free, so far as is reasonably possible, from the risk of fire

ACOP 38  
a) the use of equipment and materials which are non-flammable or fire resistant to appropriate standards  
b) use of fire resistant supports and conveyor belting to appropriate standards  
c) use of doors of fire resistant construction  
d) provision of means of extinguishing fires  
e) automatic means of detecting outbreak of fire

#### **v) The Coal Mines (Owner's Operating Rules) Regulations 1993**

Reg 3(1) Owner shall ensure no mine is worked unless in force owner's operating rules that have been notified to the HSE

Reg 3(2) a) rules brought to the attention of all persons at work at the mine  
b) all operations are undertaken in accordance with the rules  
c) rules are observed by all persons at work at the mine

Reg 4 The operating rules shall relate to the subjects in the Schedule

The Schedule 1(b) mine fires

**vi) The Coal and Other Mines (Fire and Rescue) Regulations 1956**

Reg 5 Manager to secure provision and readiness for use of  
a) an adequate supply of water; or  
b) sufficient fire extinguishers and supply of dust or sand; and  
c) equipment for conveying and using water, dust or sand at places in relation to each working face and along main intake and return roadways

Reg 11(1) if there appears smoke or other sign indicating a fire has or will break out, the person in charge of that part of the mine affected by such a fire, shall cause all persons likely to be affected to leave it

**PART 2 Safety Measures for Conveyors and Conveyor Roadways**

vii)

Regular inspection  
Sequence tripping of conveyor belts  
Belt alignment at both ends of conveyor  
Belt slip  
Blocked chute  
Belt tear  
Belt over speed (for gradients)  
Temperature monitoring – bearings, brakes, scoops etc  
Smoke/fire detection – CO, FIDESCO etc  
Any other sensible answer

MARKS GIVEN FOR FIVE ONLY

## QUESTION A4

### **i) Mines (Safety of Exit) Regulations 1988**

Reg 3(6)            Where due to maintenance work which is planned, only one exit is available for use, the manager shall ensure that the only persons below ground are those who, so far as is practicable, will not be exposed to danger by reason that only one exit is available for use and who are:

- (a) needed to carry out work essential for securing the safety of the mine
- (b) involved in the maintenance work or
- (c) needed to secure the health and safety of those persons

Reg 3  
ACOP 6(a)        The remaining exit needs to be securely in operation, reserved for manriding and readily available to any persons below ground, with competent persons experienced in the relevant maintenance matters readily available to keep it in operation

Reg 3  
ACOP 6(b)        All possible preparatory work for the maintenance needs to be completed in advance to, so that the time for which the shaft or outlet is unavailable for use is minimised

### **ii) Electricity at Work Regulations 1989 (2001 edition)**

Reg 5            No electrical equipment shall be put into use where its strength and capability may be exceeded in such a way as may give rise to danger

Reg 5  
ACOP 1        Electrical equipment should be selected so that it is able to withstand the stress imposed on it by the system both in normal use and for the duration of any fault conditions. This includes the ability of the equipment to withstand the thermal, electro-magnetic and other effects of electrical currents which are likely to exist, and for insulation to be able to withstand the applied voltage and any transient over-voltages

Reg 5  
ACOP 2        Equipment should be selected for duties, which are within the manufacturers' ratings. It should be noted that all equipment is not continuously rated

Reg 5  
ACOP 3        Appropriate use should be made of British and International Standards in selecting equipment

### **iii) Electricity at Work Regulations 1989 (2001 edition)**

Reg 8            Precautions shall be taken, either by earthing or other suitable means, to prevent danger arising when any conductor (other than a circuit conductor) which may reasonably foreseeably become charged as a result of either the use of a system, or a fault in a system, becomes so charged; and for the purposes of ensuring compliance with this regulation, a conductor shall be regarded as earthed when it is connected to the general mass of earth by conductors of sufficient length and current-carrying capability to discharge electrical energy to earth

Reg 8  
ACOP 1                      This regulation applies to any exposed conductive parts which, although not normally charged are liable to become charged either as a result of the use of the system or a fault in the system. It requires precautions to be taken to prevent danger resulting from such exposed conductive parts becoming charged.

Reg 8  
ACOP 2(b)                      The dangers to be guarded against include the risk of electric shock from exposed charged conductors and the risks of fumes, fire arcing or explosion arising from currents in such conductors. Steps should be taken to ensure that exposed conductive parts do not become charged ..... by equipotential bonding or earthing

Reg 9                              If a circuit conductor is connected to earth or to any other reference point, nothing which might reasonably be expected to give rise to danger by breaking the electrical continuity or introducing high impedance shall be placed in that conductor unless suitable precautions are taken to prevent danger.

**iv) Electricity at Work Regulations 1989 (2001 edition)**

Reg 10                              Where necessary to prevent danger, every joint and connection in a system shall be mechanically and electrically suitable for use

In making connections so as to prevent danger, account should be taken of the need to:

Reg 10  
ACOP 1(a)                      Provide adequate insulation to prevent electric shock

Reg 10  
ACOP 1(b)                      Avoid high resistances which can lead to overheating, arcing, fire; and

Reg 10  
ACOP 2                              Circuit conductors with differing current carrying capacities should not be connected together, unless the circuit electrical protection is arranged so as to protect the circuit conductor with the least current carrying capacity

**v) Mines (Shafts and Winding) Regulations 1993**

Reg 11(2)                              When winding apparatus is modified in a way, which could affect its safe operation, the manager shall appoint sufficient competent persons who shall examine all aspects of the modification of the apparatus and make a written report.

Reg 11(4)                              The manager shall ensure that winding apparatus is not used after being modified, unless the report made states that the winding apparatus is safe to use

**vi) Mines (Shafts & Winding) Regulations 1993**

Reg 17  
ACOP 188                              All parts of winding apparatus used for carrying persons should be inspected at least once every 24hrs in which the apparatus is in use to ascertain its condition and safety

Reg 17  
ACOP 204(a)                              ..... every shift a static brake holding test should be carried out before winding starts

Reg 17 (b)  
ACOP 204(a)                              ..... weekly the device provided to prevent an overwind should be tested by raising each conveyance and counterweight beyond the point at which the device operates to stop the winder

**vii) Mines (Shafts and Winding) Regulations 1993**

Reg 93  
ACOP 122

If any modifications are made, which are likely to affect the safety system, or the way in which it is operated they should be thoroughly tested to ensure that the winding system fully meets the requirements necessary for its safe operation.

- The manager should appoint a competent person to supervise the testing
- The competent person should make out a report
- The report should be added to the commissioning report
- Changes to the winding system should be notified to the winding enginemen
- And any other person appointed to supervise or control safe operation