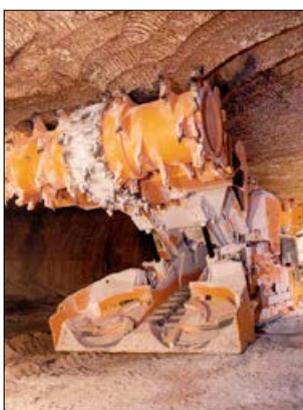


The Mines Regulations 2014

Guidance on Regulations



**L149 (First edition)
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The Mines Regulations 2014 came into force on 6 April 2015 and replace all previous mines-specific health and safety legislation.

This publication provides practical advice and guidance on what you have to do to comply with the Mines Regulations 2014. It also directs the reader to other general health and safety regulations that apply at mines and gives additional guidance where appropriate.

It is particularly relevant to mine operators but will also be useful to others within the mining industry such as mine managers; safety representatives and representatives of employee safety; any employer with employees who work below ground at mines; and self-employed contractors working below ground at mines.

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Guidance

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

Contents

Introduction	7
PART 1 Interpretation and general	8
Regulation 1 Citation, commencement and extent	8
Regulation 2 Interpretation	8
Regulation 3 Meaning of 'mine'	11
Regulation 4 Application of these Regulations	12
PART 2 Health and safety management	14
Regulation 5 Duties of the owner	14
Regulation 6 Notification of mining operations	15
Regulation 7 General duties of the mine operator	15
Regulation 8 Co-operation	17
Regulation 9 Health and safety document	17
Regulation 10 Management structure	19
Regulation 11 Competence	21
Regulation 12 Instructions, rules and schemes	23
Regulation 13 Permits to work	24
Regulation 14 Inspection of the mine	25
Regulation 15 Maintenance and inspection of equipment	26
Regulation 16 Record of persons below ground	27
Regulation 17 Danger areas	28
Regulation 18 Power of safety representatives to report imminent risk	28
PART 3 Control of major hazards	30
Fire protection	30
Regulation 19 General duty	30
Regulation 20 Fire protection plan	31
Explosive atmospheres	31
Regulation 21 Application of regulations 22 and 23	31
Regulation 22 Explosive atmospheres	31
Regulation 23 Ignition risks	32
Regulation 24 Application of regulations 25 and 26	33
Regulation 25 Burning and welding in coal mines	33
Regulation 26 Risks of explosion in coal mines	33

Explosives	34
Regulation 27	Application of regulations 28 to 31 34
Regulation 28	General duties relating to explosives 34
Regulation 29	Duties relating to explosives in mines with explosive atmospheres 35
Regulation 30	Storage of explosives 35
Regulation 31	Rules 36
Ground movement	37
Regulation 32	Duty to take ground control measures 37
Inrushes	40
Regulation 33	Precautions against inrushes 40
Regulation 34	Information about inrush hazards 41
Regulation 35	Mine workings in potentially hazardous areas 42
Shafts, outlets and winding	44
Regulation 36	Shaft construction and modification 44
Regulation 37	Equipment in relevant shafts and outlets 44
Regulation 38	Safety features of winding apparatus 46
Regulation 39	Inspection, maintenance and testing 46
Regulation 40	Signalling and communication 47
Transport systems	47
Regulation 41	Transport systems 47
Regulation 42	Transport rules 50
PART 4 Ventilation	51
Regulation 43	Ventilation 51
PART 5 The mine environment	54
Inhalable and respirable dust in coal mines	54
Regulation 44	Application of COSHH below ground in coal mines 54
Regulation 45	Assessment and control of inhalable and respirable dust in coal mines 54
Lighting and personal lamps	57
Regulation 46	Lighting 57
Regulation 47	Personal lamps 58
PART 6 Safe exit, escape and rescue	59
Regulation 48	Exits from the mine 59
Regulation 49	Ways out from places of work 60
Regulation 50	Emergency routes and emergency doors 61
Regulation 51	Auxiliary equipment 61
Regulation 52	Intake airways 62
Regulation 53	Duties of the mine operator with regard to escape and rescue 62
Regulation 54	Escape and rescue plan 66

Regulation 55	Emergency equipment and communication systems	67
Regulation 56	Training and information	67
Regulation 57	Self-rescuers	68
PART 7	Surveyors and plans	70
Regulation 58	Surveyor	70
Regulation 59	Working plans, sections, ventilation plans and geological map	70
PART 8	Tips and tipping	73
Regulation 60	General duty to ensure safety of tips	73
Regulation 61	Appraisal of tips	74
Regulation 62	Geotechnical assessments	77
Regulation 63	Tips which are a significant hazard (notifiable tips)	78
Regulation 64	Records of substances tipped	79
Regulation 65	Notification of tips	79
Regulation 66	Tips rules	80
Regulation 67	Abandoned tips	81
PART 9	General	82
Regulation 68	Record keeping	82
Regulation 69	Plans of abandoned mines	83
Regulation 70	Exemptions	84
PART 10	Transitional provisions, repeals, revocations and modifications	85
Regulation 71	Transitional provisions: General	85
Regulation 72	Transitional provisions: Tips	86
Regulation 73	Transitional provision: Winsford mine	86
Regulation 74	Repeals and revocations	86
Regulation 75	Modifications	87
Regulation 76	Review	87
SCHEDULES	88	
Schedule 1	Support system standards for coal mines (regulation 32(7))	88
Schedule 2	Content of geotechnical assessments (regulation 62(2))	90
Schedule 3	Repeals (regulation 74(1))	92
Schedule 4	Revocations and partial revocations (regulation 74(2) and (3))	93
Schedule 5	Modifications (regulation 75)	94
References and further reading		100
Further information		102

Introduction

About this book

1 The Mines Regulations 2014 have replaced all previous legislation specifically relating to health and safety in mines. Their aim is to protect mineworkers and others from the significant hazards inherent to mining. This publication provides practical advice on how to comply with the requirements of the Regulations.

2 This advice is primarily for mine operators but will also be useful to others in the mines management structure, safety representatives and representatives of employee safety.

3 The principal aim of the Mines Regulations 2014 is to provide a comprehensive and simpler goal-setting legal framework to ensure that mine operators provide all the necessary protection for mineworkers and others from the hazards inherent to mining. Where general health and safety law adequately covers particular issues, duties are not duplicated in these Regulations.

Further guidance

4 Further sector guidance is available that complements this document and can be found at www.hse.gov.uk/mining.

Other health and safety legislation that applies to mining operations

5 There are other general health and safety regulations which apply to mining operations. This publication gives additional guidance where appropriate.

Presentation

6 The text of the Regulations is in *italics* with the supporting guidance following in normal type. Coloured borders also indicate each section clearly.

PART 1 Interpretation and general

Regulation 1 Citation, commencement and extent

Regulation 1

- (1) *These Regulations may be cited as the Mines Regulations 2014.*
- (2) *These Regulations come into force on 6th April 2015.*
- (3) *These Regulations apply outside Great Britain as sections 1 to 59 and 80 to 82 of the 1974 Act apply by virtue of the Health and Safety at Work etc. Act 1974 (Application outside Great Britain) Order 2013.*

Regulation 2 Interpretation

Regulation 2

- (1) *In these Regulations, unless the context otherwise requires –*
 - “the 1954 Act” means the Mines and Quarries Act 1954;*
 - “the 1974 Act” means the Health and Safety at Work etc. Act 1974;*
 - “the 1971 Regulations” means the Mines and Quarries (Tips) Regulations 1971;*
 - “the 2014 Regulations” means the Explosives Regulations 2014;*
 - “abandoned mine” means –*
 - (a) *a mine to which section 151 of the 1954 Act applied immediately before the commencement date; or*
 - (b) *a mine in respect of which a notice of abandonment has been given;*
 - “action level” means –*
 - (a) *in relation to respirable dust, a concentration in air equal to or greater than 3 mg/m³ as a time-weighted average over a 40 hour period; and*
 - (b) *in relation to respirable crystalline silica, a concentration in air equal to or greater than 0.3 mg/m³ as a time-weighted average over a 40 hour period;*
 - “appoint” in relation to a person means appoint in writing with a statement summarising the person’s duties and authority, and “appointed” is to be construed accordingly;*
 - “auxiliary fan” means a fan used or intended to be used at a mine wholly or mainly for ventilating a heading, drift or blind end;*
 - “commencement date” means 6th April 2015;*

Regulation

2

“competent” in relation to a person means a person with sufficient training and experience, or knowledge and other qualities, to enable that person properly to undertake the duties assigned to that person, and “competence” is to be construed accordingly;

“conveyance” means any carriage, cage, skip or kibble in which persons, mineral or materials are wound through a shaft;

“COSHH” means the Control of Substances Hazardous to Health Regulations 2002;

“counterweight” means a frame containing weights connected into a single conveyance winding system to reduce the out of balance static loads within the system;

“danger area” means any part of the mine below ground which is not for the time being safe to work in or pass through;

“DSEAR” means the Dangerous Substances and Explosive Atmospheres Regulations 2002;

“escape and rescue plan” has the meaning given in regulation 54;

“emergency” means a situation which renders necessary the evacuation or rescue (or both) of persons from a mine;

“explosive article” means an article containing one or more explosive substances;

“explosive substance” has the meaning given in regulation 2(1) of the 2014 Regulations;

“explosives” means explosive articles or explosive substances;

“gas outburst” means a sudden release of gas with or without the projection of minerals or rocks;

“ground control measure” means a measure designed to control the movement of the ground, including the provision and installation of support materials;

“health and safety document” has the meaning given in regulation 9(1);

“health surveillance” means an assessment of the state of health of a person, in relation to exposure to inhalable dust;

“inhalable dust” means airborne material which is capable of entering the nose and mouth during breathing, as defined by BS EN 481:1993;

“inrush” means a sudden, unexpected inflow into the mine having the potential to expose persons to danger;

“lower explosive limit” means the minimum concentration of vapour in air below which propagation of a flame will not occur in the presence of an ignition source;

“the Management Regulations” means the Management of Health and Safety at Work Regulations 1999;

“MASHAM” means the Management and Administration of Safety and Health at Mines Regulations 1993;

Regulation 2

“mine” has the meaning given in regulation 3;

“mine operator” means –

- (a) in relation to a mine, the person who is in control of the operation of the mine; and*
- (b) in relation to a mine which is to be constructed or operated, the person who proposes to control its operation or (if that person is not known) the person who in the course of a trade, business or other undertaking carried on by that person has commissioned its design and construction;*

“misfire” means an occurrence in relation to the firing of shots where –

- (a) testing before firing reveals broken continuity which cannot be rectified; or*
- (b) a shot or any part of a shot fails to explode when an attempt is made to fire it;*

“notice of abandonment” means a notice given under regulation 6(3) that a mine has been abandoned;

“notifiable tip” has the meaning given in regulation 63;

“overwind” means unintentional overtravel of a conveyance or counterweight beyond the limits set by a device installed for the purpose of preventing such overtravel;

“owner” means the person entitled for the time being to work a mine;

“potentially hazardous area” has the meaning given in regulation 34;

“PUWER” means the Provision and Use of Work Equipment Regulations 1998;

“respirable dust” means airborne material which is capable of penetrating the gas exchange region of the lung, as defined by BS EN 481:1993;

“respiratory protective equipment” means equipment which is intended to be worn or held by a person at work and which protects that person against risks to that person’s health from inhalation of harmful substances, and any addition or accessory designed to meet that objective;

“rockburst” means a sudden, violent failure of stopes, pillars, walls or other rock buttresses adjacent to or in the mine workings;

“self-rescuer” means respiratory protective equipment designed for use while escaping from a mine;

“shaft” includes a staple-pit, raise, winze, or any similar excavation (whether sunk or in the course of being sunk);

“shot” means a single shot or a series of shots fired as part of one blast;

“shotfirer” means a person appointed in accordance with the mine operator’s written procedures to be responsible for shotfiring operations;

“tip” means an accumulation or deposit of any refuse from a mine (whether in a solid or liquid state or in solution or suspension) other than an accumulation or

Regulation 2

deposit situated underground, and includes, but is not limited to –

- (a) overburden dumps, backfill, spoil heaps, stock piles and lagoons; and
- (b) any wall or other structure that retains or confines a tip;

“tips rules” has the meaning given by regulation 66;

“ventilation plan” has the meaning given by regulation 59;

“winding apparatus” means mechanically operated apparatus for lowering and raising loads through a shaft and includes a conveyance or counterweight attached to such apparatus and all ancillary apparatus.

(2) For the purposes of these Regulations, a mine is treated as being worked at any time when –

- (a) there are persons at work below ground; or
- (b) plant or equipment is in operation at the mine to maintain the safety of that mine or of any other mine; or
- (c) the operation of sinking a shaft or driving an outlet is being undertaken at the mine.

(3) For the purposes of these Regulations, the mine with which a tip is associated is determined as follows –

- (a) in the case of a tip on premises which are deemed to form part of a mine, the tip is associated with that mine;
- (b) in the case of a tip not falling within paragraph (a) but on premises which, at any time after the commencement date, have been deemed to form part of a mine, the tip is associated with that mine, or (if applicable) the most recent mine of which the tip has been deemed to form part; and
- (c) in any other case, the tip is associated with the mine from which refuse is deposited on the tip, or, in the case of a tip which is used for the deposit of refuse from more than one mine, whichever of those mines the Executive directs in writing.

Regulation 3 Meaning of “mine”

Regulation 3

(1) This regulation defines “mine” for the purposes of these Regulations.

(2) “Mine” means an excavation or system of excavations (including all excavations to which a common system of ventilation is provided) made for the purpose of, or in connection with, the extraction, wholly or substantially by means involving persons working below ground, of –

- (a) minerals (in their natural state or in solution or suspension); or
- (b) mineral products.

(3) A mine is deemed to include so much of the surface (including buildings, structures or works on it) surrounding or adjacent to the shafts or outlets of the mine as is occupied with the mine for the purpose of, or in connection with –

- (a) working the mine;
- (b) the storage, treatment or preparation for sale, consumption or use of minerals or mineral products extracted from the mine; or

Regulation 3

- (c) *the removal from the mine of minerals or mineral products extracted from it or of refuse from it.*
- (4) *A mine is not deemed to include premises in which a manufacturing process is carried on for a purpose other than –*
 - (a) *working the mine; or*
 - (b) *the preparation for sale of minerals extracted from the mine.*
- (5) *Premises used to deposit refuse from a single mine and occupied exclusively by the owner of the mine are deemed to form part of the mine.*
- (6) *Premises used to deposit refuse from two or more mines and occupied by the owner of one of the mines (either exclusively or jointly with the owner of the other or any of the others) are deemed to form part of whichever of the mines the Executive directs in writing.*
- (7) *A railway line serving one or more mines, other than a line falling within paragraph (3) or belonging to a railway company, is deemed to form part of the mine or (if more than one) of whichever of the mines the Executive directs in writing.*
- (8) *A conveyor or aerial ropeway provided for the removal from a mine of minerals extracted from it, or of refuse from it, is deemed to form part of the mine.*

Guidance 3

- 7 The definition of mine remains the same as in previous mines health and safety law (although its language has been modernised). This includes any mine extracting mineral, mines not currently extracting mineral and mines that originally extracted mineral but are now used for other purposes, eg storage or tourism.
- 8 Not all of the requirements in the Regulations will be relevant to all categories of mine. In particular, regulations that relate to the control of specific hazards, eg explosion, ground movement, shafts, will only apply where those hazards are present. So in a tourist mine, for example, where there is no likelihood of methane or other flammable gases, the mine operator will not need to take any specific action in relation to those hazards.
- 9 The definition includes surface activities connected with the mine such as process plant treating the extracted mineral and waste tips.

Regulation 4 Application of these Regulations

Regulation 4

- (1) *Subject to paragraphs (2), (5) and (6), and except where a contrary intention appears, these Regulations apply to all mines.*
- (2) *Subject to regulation 69 (plans of abandoned mines), these Regulations do not apply to abandoned mines.*
- (3) *These Regulations apply to a tip if –*
 - (a) *the tip is on premises which are deemed to form part of a mine under regulation 3; or*
 - (b) *the tip is not on such premises but the mine with which it is associated has not been abandoned and the premises on which the tip is situated continue to be occupied exclusively by the owner of that mine.*

Regulation 4

(4) *If a tip is not, apart from this regulation, deemed to form part of a mine under regulation 3 by reason only that part, but not the whole, of the premises on which the tip is situated is occupied exclusively by the owner of the mine, the tip is deemed to be one to which these Regulations apply and the premises on which it is situated are deemed to form part of the mine with which it is associated.*

(5) *The Executive may by direction in writing given to the mine operator and owner direct that, as from such day as may be specified in the direction, a tip or part of a tip is, for the purposes of paragraph (4), one to which these Regulations no longer apply.*

(6) *If the whole or any part of a tip which, apart from this paragraph, would be a tip to which these Regulations apply is appropriated to some use which, in the opinion of the Executive, is inconsistent with the resumption of tipping operations on the tip, or on a particular part of it, the Executive may direct in writing that, as from the day specified in the direction, the whole or part or any part of the tip that is specified in the direction ceases to be a tip to which these Regulations apply.*

(7) *Where a direction is made under paragraph (5) or (6), the premises on which the tip (or part of the tip) is situated cease to be part of the mine with which the tip is associated.*

(8) *Part 8 of these Regulations applies to a tip on premises which are occupied exclusively by the owner of an abandoned mine and which are used for depositing refuse from another mine as if the person who is in control of the tip were the mine operator.*

Guidance 4

10 The Regulations apply to all mines, except those that have been abandoned. Tips are also covered, provided that the mine with which the tip is associated has not been abandoned. The Regulations apply even if the tip is not currently being tipped on, and irrespective of whether it is receiving refuse from one mine or a number of mines.

11 In some circumstances, a tip at an abandoned mine will receive refuse from a working mine. Where this is the case, the tip will be associated with the mine that is depositing the refuse, and will be covered by these Regulations.

PART 2 Health and safety management

Regulation 5 Duties of the owner

Regulation 5

(1) *The owner of a mine must not appoint another person to be the mine operator unless that person is suitable and has sufficient resources to be able to operate the mine safely.*

(2) *Where the owner of a mine appoints another person to be the mine operator, the owner must provide the mine operator with any relevant information that is available, or that becomes available, about circumstances that might affect the health and safety of persons at the mine.*

(3) *Where the owner of a mine appoints another person to be the mine operator, a written statement of that appointment must be signed by the owner and the mine operator and a copy must be provided to the mine operator.*

(4) *The owner must keep the record, and the mine operator must keep the copy, referred to in paragraph (3) for the duration of the appointment.*

Guidance 5

12 The mine owner is defined as the person entitled, for the time being, to work a mine. This means the person who holds a licence to extract coal or a permit to work other minerals. The word 'person' is a legal term and it can mean an individual, a partnership or a corporate body such as a limited company. In most cases the mine operator will be a corporate body, but for smaller mines it might be a partnership, or for very small mines an individual.

13 The owner can work the mine themselves, in which case they are also the mine operator, or they can appoint someone else to work the mine on their behalf. A mine operator is the person who is in control of the operation of the mine and is the primary dutyholder under these Regulations. At non-producing mines where people are at work, such as tourist or storage mines, the owner is the person who controls access.

14 Where the owner is also the mine operator they should satisfy themselves that they have in place sufficient resources to lead, manage, supervise and work the mine safely, including management of the major hazard risks that may be present.

15 In determining the suitability of a potential mine operator the mine owner must ensure that the potential mine operator has sufficient resources to operate the mine safely, including financial resources and access to experienced and, where necessary, competent staff.

16 There cannot be two mine operators for the same mine at the same time. If the owner appoints a different person to be the mine operator then the owner should not retain day-to-day control over the operation of the mine. If they do, then they will be regarded as the mine operator for the purposes of these Regulations, rather than the person they have appointed.

Guidance 5

17 Where the owner appoints someone to be the mine operator then that appointment must be in writing and both parties must have a copy of the written appointment. In most circumstances there will be a written contract setting out the agreement and this would form a suitable record. Both parties must keep copies of the agreement while it remains in force.

18 The owner must provide the mine operator with any information available to him or her that is relevant to working the mine safely, eg geological information, geotechnical reports, details of previous mine or quarry workings and information about materials deposited on the site.

Regulation 6 Notification of mining operations

Regulation 6

(1) *At least 28 days before a mine is worked, the mine operator must notify the information specified in paragraph (2) to the Executive in writing.*

(2) *The information to be notified under paragraph (1) is –*

- (a) *the name and address of the mine;*
- (b) *the name and address of the owner; and*
- (c) *the name and address of the mine operator and whether the mine operator is an individual, a corporation or a partnership.*

(3) *Where an event specified in paragraph (4) occurs, the mine operator must notify the Executive in writing of the event within 28 days of that event occurring.*

(4) *The events to be notified to the Executive under paragraph (3) are –*

- (a) *any change in the name, address or location of the mine;*
- (b) *any change in the name, address or location of the mine operator;*
- (c) *the use of a mine for a purpose other than the extraction of mineral;*
- (d) *the abandonment of the mine or a seam or vein system, shaft or outlet.*

(5) *In the case of a mine which is in existence or under construction on the commencement date, subject to regulation 71 (transitional provisions: general), notification that has been made under section 139 of the 1954 Act or under regulation 7 of MASHAM is deemed to be notification under paragraph (1).*

Regulation 7 General duties of the mine operator

Regulation 7

(1) *The mine operator must take the necessary measures to ensure, so far as is reasonably practicable, that the mine and its equipment are designed, constructed, equipped, commissioned, operated and maintained in such a way that persons at work can perform the work assigned to them without endangering their own health and safety or the health and safety of others.*

(2) *The mine operator must coordinate all measures relating to the health and safety of persons at work at the mine and their implementation.*

(3) *The mine operator must ensure that, in the event of the abandonment or ceasing of operations at a mine, the mine is left, so far as is reasonably practicable, in a safe condition.*

Guidance

7

19 Regulation 7 is the underpinning requirement of these Regulations. It is intended to secure a co-ordinated, proactive approach to the management of health and safety, which ensures that risks are properly controlled. The mine operator must be able to demonstrate that the control measures adopted are adequate for the risks identified.

20 To demonstrate this, the mine operator must identify the hazards present at the mine and assess the risks to ensure that the necessary measures are taken to ensure that people can work safely.

21 Mine operators should focus principally on the major hazards at their mines. These may include: fire, explosion, toxic gases, ground movement, inrushes, mass transport, shafts and winding, tips and use of explosives. In addition, there should be suitable electrical supply and control systems and escape and rescue arrangements.

22 The mine operator should employ a risk management approach to identify the measures which are required to secure workers' health and safety. A typical risk management system would usually include the following elements:

- (a) identifying the hazards;
- (b) quantifying the risks;
- (c) examining the control options available and their merits, including the human factor aspects, and setting appropriate control measures;
- (d) implementing the control measures;
- (e) monitoring the effectiveness of the control measures and revising where necessary.

Safety management system

23 To ensure that necessary measures are taken the mine operator should have in place an effective safety management system (SMS) which addresses all significant risks at the mine and provides the necessary control measures. The management structure should cover the functioning of the SMS and include monitoring and auditing to check its effectiveness.

24 In addition to the above, there are other specific circumstances that should trigger reviews, including significant changes to equipment or working practices, the introduction of new technology, and following incidents and near-misses.

Safety performance indicators

25 An effective SMS will include the use of appropriate safety performance indicators (SPIs) that monitor the continuing effectiveness of control measures. For every significant major hazard, measures should be applied to both prevent adverse events and to mitigate harm should an event occur. Effective SPIs allow the mine operator to monitor these measures (or barriers) to ensure their effectiveness. Inspections and audits by mine management of these indicators, and the accuracy of reporting arrangements on their effectiveness, are important elements.

26 The mine operator and all those in the management structure should appreciate the difference between major hazard risk SPIs and those relating to non-major hazard risks. Commonly used measures of safety performance such as accident, ill-health or incident statistics (lagging indicators) are not reliable indicators of how well the measures to prevent major hazard incidents are working.

27 Mine operators should identify leading indicators in relation to major hazard risk control as these provide information about the level of risk before any failure or

Guidance 7

harm occurs. They should check that important risk reduction measures are working and effective.

28 Further guidance on the risk assessment process, SMS and SPIs can be found on the HSE website.

Co-ordination, communication and co-operation

29 Regulation 11 of the Management Regulations requires all employers sharing a workplace to work together to ensure health and safety. This remains the case in mines but, in addition, a key element through regulation 7(2) is the duty on the mine operator to manage health and safety for the whole site, including exercising sufficient control over work carried out by contractors. Mines may have employees from several companies, as well as self-employed workers, in the mine for some or all of the time. The mine operator will have overall responsibility for planning, co-ordinating and overseeing all work activities in the mine. In order to comply with the duty under regulation 7(2) the mine operator should make sure that the appropriate health and safety measures are taken by all employers and contractors etc and that there is no confusion or conflict concerning these.

30 The mine operator should, for example, make sure that contractors have correctly identified hazards and control measures by carrying out risk assessments under regulation 3 of the Management Regulations, and other relevant legislation.

Regulation 8 Co-operation

Regulation 8

Every employer of persons at work at a mine and every person at work at a mine must co-operate with the mine operator to the extent necessary to enable the mine operator to comply with the relevant statutory provisions.

Guidance 8

31 Effective co-operation is crucial to ensuring health and safety and to enable the mine operator to fulfil their duties under these Regulations to:

- (a) compile the health and safety document;
- (b) manage the mine in a co-ordinated way that ensures health and safety;
- (c) ensure that the arrangements described in the health and safety document work in practice.

Regulation 9 Health and safety document

Regulation 9

(1) The mine operator must ensure that no work is carried out at the mine unless a document (in these Regulations referred to as the "health and safety document" has been prepared which –

- (a) *demonstrates that the risks to which persons at the mine are exposed have been assessed in accordance with regulation 3 of the Management Regulations;*
- (b) *demonstrates that adequate measures, including measures concerning the design, use and maintenance, including (where appropriate) testing, of the mine and of its equipment, have been and will continue to be taken to safeguard the health and safety of persons at the mine;*
- (c) *includes a statement of how the measures referred to in sub-paragraph (b) will be co-ordinated; and*
- (d) *records the following information –*
 - (i) *rules required by regulation 12; and*
 - (ii) *the conclusions of any appraisal or assessment of a tip undertaken in accordance with regulation 61 or 62 (as applicable).*

Regulation 9

(2) *In addition to the matters referred to in paragraph (1), the health and safety document must, where appropriate, include –*

- (a) *a plan detailing the equipment and measures required to protect persons at work at the mine from the risk of explosion;*
- (b) *where toxic gases are or may be present in the atmosphere at the mine in such concentration that the atmosphere may be harmful to the health and safety of persons at work, a plan detailing the equipment and measures required to protect persons at work at the mine from the harmful atmosphere; and*
- (c) *in respect of any zone below ground where rockbursts or gas outbursts may occur, a description, including an operating plan, setting out as far as possible the zones susceptible to such rockbursts or gas outbursts and the measures necessary for the protection of persons at work in, approaching or passing through such zones.*

(3) *In relation to the escape and rescue plan required by regulation 54, the health and safety document must identify those with responsibility for the preparation and execution of the plan and the places where the plan and copies of it are kept.*

(4) *The mine operator must ensure that the health and safety document is –*

- (a) *reviewed from time to time and kept up to date; and*
- (b) *made available to each employer of persons at work at the mine and to all persons at work at the mine.*

(5) *The mine operator must ensure that the measures identified in the health and safety document are taken and any plans included in the document are followed.*

Guidance 9

32 The health and safety document demonstrates in writing that a mine operator has identified and assessed that all the significant risks to people at the mine have been identified and assessed and that adequate control measures are in place. It should be written so that the relevant parts can be easily understood by all those on whom it places responsibilities.

33 For new mines the document must be written before work at the mine starts and, in such cases, preparation of the document should begin at the design stage so that justification for the design aspects of the mine can be set down. It should be continuously developed to keep it up to date as more is learned about the geology of the site, or as management systems or working methods change.

34 The focus of the document should be on demonstrating that the risks to which a person might be exposed have been assessed and that adequate measures are in place to safeguard the health and safety of persons at the mine. The health and safety document must be a living document providing practical information to workers and others about health and safety measures and their role in implementing them.

35 The health and safety document must provide sufficient evidence that all necessary measures are in place. It does not need to be a single comprehensive document containing detailed descriptions of all the risk assessment processes and risk control measures. It is likely that these will exist as separate documented procedures elsewhere as part of the mine operator's SMS. Providing all the specified elements of the health and safety document are covered, including cross-referencing to other procedures, such an approach is acceptable. It is important to

Guidance

9

consider the document as a demonstration that all necessary measures are in place.

36 The document must be made available to all employers and all employees at the mine. This does not mean it has to be given to everybody, but a copy should be available on site so that people who have to comply with it, or parts of it, or with procedures etc to which it refers, have access to it.

Regulation 10 Management structure

Regulation

10

(1) *With a view to securing the health and safety of persons at work at the mine, the mine operator must –*

- (a) *establish a management structure which enables the mine to be operated in accordance with the relevant statutory provisions;*
- (b) *make a record of the management structure and the extent of the authority and duties of persons in that structure;*
- (c) *appoint a competent individual to be responsible for the overall management of the mine, provided that where the mine operator is an individual and is competent, the mine operator may discharge the functions of that competent individual;*
- (d) *ensure that when, for whatever reason, the individual appointed in accordance with sub-paragraph (c) is not readily available, a competent individual is nominated as a substitute to hold the authority and perform the duties of the first named individual;*
- (e) *ensure that a competent individual is present at and in charge of the operation of the mine at all times when persons are working at the mine; and*
- (f) *ensure that sufficient competent individuals are appointed to the management structure to manage the mine safely.*

(2) *Without prejudice to the generality of paragraph (1), the management structure must be established to provide in particular that all persons working in the mine come under the authority of a competent person in the management structure who has a duty to exercise such supervision as is appropriate to ensure the health and safety of those persons and of all others who may be affected by their activities.*

(3) *The mine operator must ensure that the management structure is reviewed regularly and revised where necessary and in particular if the mine undergoes significant changes, extensions or conversions.*

(4) *The mine operator must ensure that each person who forms part of the management structure is provided with a copy of those parts of the health and safety document which describe that person's authority and duties.*

(5) *The reference to a competent individual in charge in paragraph (1)(c) is a reference to that individual in charge subject to the overall control exercised by the mine operator.*

Guidance

10

37 The competent individual referred to in regulation 10(1)(c) is normally referred to as the mine manager.

38 A well-defined management structure is an integral part of the mine operator's SMS. The mine operator should make sure that within the company and the mine management structure, roles and responsibilities for all the risk control measures

Guidance 10

are clearly defined and carried out. This includes clear, direct reporting systems between the mine operator, mine manager and, where necessary, individuals in the management structure.

39 The mine operator should have a clear understanding of the difference between health and safety leadership and management. Competence in both leadership and management is an essential requirement. The directors of the undertaking or the mine operator (if they are an individual) should lead by example in demonstrating health and safety leadership and management. The various levels of management should have clearly defined health and safety leadership and competence management skills, with appropriate indicators used to evaluate performance. A competency management system (CMS) should be an integral part of the SMS and should specifically cover necessary management skills.

40 The SMS should identify those posts / individuals needed to exercise leadership at strategic, operational and team levels. Leaders at all levels should possess appropriate core leadership qualities and their skills should be demonstrated by appropriate behaviours commensurate with the role, and assessed to a leadership competence standard.

41 The mine operator must set out the extent of the authority and duties of the people within the management structure. This should include their health and safety management responsibilities.

42 The management structure should be designed to address the mining hazards and include the:

- (a) organisation and personnel necessary to control these hazards at the mine;
- (b) roles and responsibilities at relevant levels in the organisation;
- (c) identification of competence requirements of such personnel.

43 The roles, responsibilities, accountability, authority and interrelation of all people who manage, perform or verify work affecting safety should be defined. For example, mine operators should give consideration to:

- (a) defining and implementing preventative, protective and mitigating measures for the control of the risks arising from major mining hazards;
- (b) the inspection and maintenance of the mine;
- (c) the design, operation and maintenance of mechanical and electrical plant;
- (d) the action required to ensure staff awareness of hazards, and compliance with the mine emergency procedures;
- (e) identification, recording and follow-up of corrective or improvement actions;
- (f) control of abnormal situations, including emergencies;
- (g) identifying training needs, provision of training and assessment and evaluation of its effectiveness;
- (h) provision of resources, including human resources, for SMS development and implementation;
- (i) co-ordinating the implementation of the SMS and reporting to senior management.

44 All employees and contractors should be made aware of the management structure and key roles and responsibilities of the people within it, relative to them, and to whom they should report.

45 In the case of visitors to a mine it is important that they know who has responsibility for them.

Guidance 10

46 To comply with regulation 10(1)(c) the mine operator must appoint a competent person to be responsible for managing the operation of the mine at all times when it is working. This is the role traditionally fulfilled by the mine manager. This person should have the authority to control and co-ordinate the activities of all those who work at the mine (including any contractors) and exercise control in the event of an emergency. It is important to note that the ultimate legal responsibility for the safe operation of the mine and connected activities continues to lie with the mine operator and other relevant employers. The requirement to appoint this competent person does not affect this responsibility. A mine operator who is an individual may appoint themselves if they are competent to undertake the role.

47 When the mine manager is not readily available, or the post is vacant, a suitably qualified and competent person must be appointed by the mine operator as a substitute. The mine manager cannot be considered readily available if unable to be contacted and able to take charge of an incident. The substitute carries the duties of the manager and will be regarded as the mine manager during the period that they act as substitute and should be capable of undertaking all of the manager's duties.

48 All people in all parts of the mine must be appropriately supervised. A supervisor should be appointed for each shift for each area of the mine and should be on duty in that area while people are in it. The duties and responsibilities of all such supervisors should be reviewed as often as is necessary to keep pace with the changing geography and activities of the mine. The person appointed to carry out inspections under regulation 14 may also be appointed as the supervisor.

49 The extent of a supervisor's area will depend on the potential risks present in that area and the competence of the people involved. Circumstances may arise when, for safety reasons, the supervisor should justifiably restrict their personal supervision during a shift to areas which are smaller than their area of command, for example, when excessive flammable gas concentrations or falls of ground are an urgent problem demanding their full attention. In such cases, other arrangements must be made for the continued supervision of others elsewhere in the district.

50 Each supervisor should have an up-to-date record of the names of the people in their area of command, including visitors. People having roving commissions, eg technicians, should notify the supervisor of their presence.

51 All appropriate health and safety information should be passed from one shift supervisor to the next.

52 In addition, functional supervisors, eg for mechanical and electrical work, may be required.

Regulation 11 Competence

Regulation 11

The mine operator must ensure that –

- (a) no person undertakes any work at the mine unless the person either is competent to do that work or does so under the instruction and supervision of some other person who is competent to give instruction in, and to supervise, the doing of that work; and*
- (b) no work is undertaken at the mine unless a sufficient number of persons are present who have the requisite competence to perform the tasks assigned to them.*

Guidance 11

53 Competence is a combination of a range of factors, all of which should result in an individual achieving effective and safe performance. Competence also includes fitness and capacity to discharge duties, and for those who supervise it also includes leadership and ability to exercise authority.

54 The mine operator should have arrangements in place to ensure that people understand the limit of their own competence and do not undertake work beyond it. Behaviour is an important element for all in reducing accident risks. Technical expertise, although important, is not by itself sufficient to ensure that people will not create hazards for themselves or for others.

55 Formal and practical workplace training is important in developing the competence of all workers, including those in the management structure. The mine operator should make sure arrangements are in place to assess that all those receiving training have understood it and continue to use it.

56 The mine operator should have in place a policy and arrangements for an effective CMS as an integral part of their SMS. The CMS should identify and be used to manage the competencies required for all workers and for all work they undertake or supervise, including those necessary to control the major mining hazards at the mine.

57 The important parts of a CMS include:

- (a) the procedures, methods and work instructions for operating the CMS;
- (b) the competency standards and assessment criteria, and identification of any skills gaps;
- (c) the training, development and assessment requirements;
- (d) the competencies and responsibilities of those managing and operating the system;
- (e) the arrangements for contractors working at the mine;
- (f) the periodic reassessment of competence required for each individual;
- (g) the arrangements for monitoring, audit and review of the system.

58 National Occupational Standards (NOS) in mining have been developed for a range of posts in consultation with the mining industry. These should form the basis for training and competency assessment.

59 The mine operator should make sure that there is an appropriate 'management of change' procedure in place. A change in circumstance should trigger a competence review. Competencies for new procedures, new technologies and when a job role changes need to be identified and individuals up-skilled accordingly. Even when a job role remains unchanged, competence can decline over time and workers should be re-assessed at suitable intervals. For safety-critical posts succession planning is an important consideration.

60 The competence of management and supervisors should include training and assessment in relevant requirements of health and safety legislation, safety management leadership, risk assessment and developing and using safe systems of work.

61 When allocating work or supervisory duties, the mine operator should have a system in place to ensure the demands of the job do not exceed the individual's ability to carry out or supervise the work without risk to themselves or others. The system should take account of the individual's competence and the level of their training, knowledge and experience. If additional training and assessment is required it must be provided.

Guidance 11

62 The mine operator should consider the potential consequences of outsourcing work to contractors, particularly safety-related work. The mine operator must make sure that the contractor can manage and oversee the work in question, have a clear understanding and knowledge of the product or service being supplied, and be mindful of their responsibility for managing safe operations.

63 Further information on the use of contractors and intelligent customer capability can be found on the HSE website.

Regulation 12 Instructions, rules and schemes

Regulation 12

(1) *The mine operator must ensure that –*

- (a) *rules are in place at the mine with a view to securing –*
 - (i) *the health and safety of persons at the mine; and*
 - (ii) *the safe use of equipment; and*
- (b) *copies of all current instructions, rules and schemes required to be made under these Regulations –*
 - (i) *are given to any person at work at the mine upon whom they impose duties; and*
 - (ii) *are comprehensible to all persons at work at the mine to whom they apply.*

(2) *The mine operator must take all reasonable measures to ensure that each person at work at the mine understands any instructions, rules and schemes made under these Regulations and which are relevant to that person.*

(3) *The mine operator must ensure, so far as is reasonably practicable, that any instructions, rules and schemes made under these Regulations are followed or (as appropriate) complied with, by persons at work at the mine.*

Guidance 12

64 The purpose of instructions, rules or schemes required by these Regulations is to have procedures that are effective in avoiding or reducing health and safety risks. Such rules are commonly known as ‘Manager’s Rules’.

65 There are some regulations which specifically require the mine operator to produce written instructions, rules, schemes or plans; examples are:

- (a) inspection of all parts of the mine;
- (b) inspection and maintenance of equipment;
- (c) explosives;
- (d) fire and explosion;
- (e) prevention of inrush;
- (f) use and inspection of shafts and winding apparatus;
- (g) safe exit from the mine;
- (h) escape and rescue;
- (i) transport;
- (j) tips.

66 All instructions, rules and schemes must be given to and be understood by those who have to enforce or follow them. In some circumstances, it may be appropriate to display the relevant parts at the workplace rather than providing individual hard copies.

Regulation 13 Permits to work

Regulation 13

(1) Where it is shown by the health and safety document that such a measure is necessary, the mine operator must make arrangements for a system of permits (referred to in this regulation as "permits to work") to carry out –

- (a) hazardous operations; and
- (b) operations which are usually straightforward but which may interact with other activities to cause serious hazards.

(2) A permit to work must –

- (a) be issued by a suitable person in the management structure required by regulation 10; and
- (b) specify the conditions to be fulfilled and the precautions to be taken before, during and after the work concerned.

Guidance 13

67 Safe systems of work are required for all work activities. A permit-to-work system is a formal documented procedure for high-hazard activities to ensure that the system of work is planned and implemented. Permits are most often required for maintenance work where normal safeguards cannot be used, or when new hazards are introduced by the work. They should not generally be used for low-risk operations as this devalues the system. The mine operator's health and safety document should indicate where such a system should be used.

68 In some straightforward high-hazard situations, for example when there is only a single source of danger, simple systems of work such as isolation or locking-off procedures may be appropriate to ensure safety. Regulation 19 of PUWER and its guidance¹ provides more information about isolation procedures. In more complicated cases, where there are several sources of danger or where complex procedures are needed before it is safe to start work, a permit to work is likely to be required.

69 The aim of a permit-to-work system is to ensure that the task is carried out in accordance with the carefully considered conditions specified in a safe method of work and forms an essential element in the SMS of the mine. Risk assessments under regulation 3 of the Management Regulations will help the mine operator to identify circumstances where permits to work are needed.

70 A permit to work should not be confused with giving someone permission to work on a site; nor is it an excuse to carry out a hazardous task without eliminating hazards or minimising risks.

71 Issuing a permit does not, by itself, make a task safe. That can be achieved only by the diligence of those preparing, supervising and carrying out the work. The system does, however, provide a formal procedure to determine, systematically, what precautions are required and how they should be communicated, recorded and monitored, and how the work should be authorised.

72 Following the issuing of a permit, and before work commences, a final check should be made at the work site to make sure that all the risk controls are in place. This should include, where appropriate, checking that the isolation procedure and dissipation of any stored energy has been effective.

73 As well as setting out the steps which must be taken before and during a job, permits should state any conditions to be met after the work is completed, for example a fire watch following hot work, and the procedure for handing back the plant or area for normal operational use. Any re-commissioning requirements should be stipulated.

Regulation 14 Inspection of the mine

Regulation 14

- (1) *The mine operator must –*
- (a) *make arrangements for the systematic inspection of all parts of the mine below ground –*
 - (i) *where people work or pass; or*
 - (ii) *which otherwise could have an effect on the health and safety of persons at work at the mine;*
 - (b) *divide the mine into districts for the purpose of inspection under paragraph (a), taking due account of –*
 - (i) *the extent of each district;*
 - (ii) *conditions (including risk) in each district; and*
 - (iii) *other relevant circumstances;*
 - (c) *prepare and keep up to date a suitable written scheme for the inspection of the mine required by paragraph (a);*
 - (d) *appoint sufficient competent persons to undertake the activities referred to in this regulation;*
 - (e) *ensure that, where appropriate, suitable written reports are made of the inspections and that each report records significant defects and the steps taken, or proposed to be taken, to remedy them; and*
 - (f) *ensure that any proposed steps in a report are taken, provided they are appropriate.*
- (2) *This regulation does not apply to shafts.*

Guidance 14

Systematic and thorough inspection

74 Systematic inspection means ensuring that those parts of the mine that have to be inspected are inspected regularly in accordance with a plan. Thorough inspection is the detailed process of a competent person looking critically at the underground environment and the things within it to determine their condition.

Inspection districts

75 To ensure systematic inspection the mine must be divided into districts. The size of districts should be limited to ensure that they can be thoroughly inspected.

76 Other factors that may have a bearing on the size of a district include:

- (a) heat and humidity;
- (b) gradients;
- (c) roadway size.

77 In determining the size of a district the mine operator should consider the workload on the district inspector. They will need time to:

- (a) thoroughly inspect the whole of the district;
- (b) identify and investigate matters of concern;
- (c) remedy them, where appropriate, and record any action taken;
- (d) make an accurate report of matters of concern, defects or unsafe situations where immediate remedial action has not been possible;
- (e) prevent, where necessary, access to unsafe parts of the mine;
- (f) complete an end-of-shift report;
- (g) hand over to the oncoming shift.

78 The mine operator should have arrangements in place to ensure inspections are focused on checking the effectiveness of the major hazard risk-control barriers.

Guidance 14

79 Records need to be made of significant findings, and the condition of other major hazard risk-control measures designed to give an early warning of potentially hazardous events, eg:

- (a) flammable gas levels;
- (b) ground control monitor readings;
- (c) condition of roof and sides;
- (d) effectiveness of ventilation.

80 Mitigation measures and barriers should also be checked, eg fire-fighting equipment and explosion barriers.

81 Where a district inspector is also a work supervisor, the mine operator should make an assessment to make sure that their duties are balanced so that they have sufficient time to discharge both sets of duties fully. In production districts and other districts where high-risk activities are taking place it may be necessary to separate the district inspector and work supervisor roles.

82 The mine operator should have arrangements to periodically check that district sizes are consistent with the workloads of the people designated to inspect them.

Frequency of inspection

83 The purpose of systematic and thorough inspection is to determine whether or not the mine is safe for people to work or pass. In districts where conditions can change quickly inspections should be made more frequently than in those districts where conditions are relatively static. The mine operator should specify the maximum interval between successive inspections in each district. This should be based on the hazard analyses and risk assessments which satisfy the requirements of these Regulations and other relevant statutory provisions.

84 Inspection intervals should be reviewed if conditions in any part of the mine change.

Pre-shift or pre-work inspections

85 The mine operator should ensure that potentially hazardous parts are inspected before work starts.

Regulation 15 Maintenance and inspection of equipment

Regulation 15

(1) *The mine operator must –*

- (a) *prepare and keep up to date a suitable written scheme for the systematic inspection, maintenance and testing of all electrical and mechanical plant and equipment at the mine, with a view to ensuring the health and safety of the persons at work in the mine;*
- (b) *ensure that, where appropriate, suitable written reports are made of the inspections and that each report records significant defects and the steps taken, or proposed to be taken, to remedy them; and*
- (c) *ensure that any proposed steps in a report are taken, provided they are appropriate.*

Regulation 15

(2) *Schemes and written reports made for the purposes of paragraph (1) are presumed to be adequate to evidence fulfilment of the duties in regulations 5(2) and 6(3) of PUWER.*

(3) *This regulation does not apply to winding apparatus.*

Guidance 15

The written scheme

86 The written scheme should cover all electrical and mechanical plant and equipment at the mine and specify the nature and frequency of the inspection, examination, test or action required. The frequency of inspection, testing and maintenance should be proportionate to the risk that would arise if the equipment failed. To ensure an appropriate frequency of inspection the mine operator should take account of, eg:

- (a) potential failure modes;
- (b) potential consequences to health and safety in the event of equipment failure;
- (c) failure rate data, where appropriate;
- (d) manufacturers' recommendations;
- (e) duty;
- (f) working environment;
- (g) industry standards;
- (h) specific legislative requirements.

87 Where equipment is brought into the mine by another employer the operator's scheme of maintenance must take into consideration how the equipment is inspected, maintained and tested.

88 Records of examinations and the results of any tests carried out under the scheme should be stored in such a way that they can be made available at any time for a period of at least three years. Reports on the commissioning of major plant should be kept for the life of the system.

89 Mine operators should also have regard to the duty in PUWER to maintain and inspect work equipment.

Defects

90 The mine operator must make sure that arrangements are in place to remedy defects identified by the written reports.

Regulation 16 Record of persons below ground

Regulation 16

The mine operator must ensure that a record is kept of every person below ground at the mine.

Guidance 16

91 In the early stages of an emergency the location of all people below ground must be determined so they can be accounted for. Excepting tourist mines, the identities of all people should be known at all times. At tourist mines a record of the numbers underground at any one time will be sufficient.

92 If the checking system is electrical / electronic, eg a swipe card or radio frequency identification system, then a back-up power supply must be provided to allow the system to be interrogated at a time of power loss.

Regulation 17 Danger areas

Regulation 17

The mine operator must ensure that –

- (a) danger areas are clearly identified;
- (b) there is a suitable barrier or enclosure to prevent, so far as is reasonably practicable, inadvertent entry by any unauthorised person to a danger area; and
- (c) where any person is authorised to enter the danger area, appropriate measures are taken to protect that person's health and safety.

Guidance 17

93 Inadvertent and unauthorised entry to danger areas must be prevented. The level of control will depend on the significance of the hazard present, eg signage, ropes and chains may be suitable for areas of the mine that only people authorised to enter can access, whereas more significant hazards, eg preventing accidental entry into shafts, will require more substantial barriers or enclosures.

94 If persons are required to enter a danger area, the work should be risk assessed and arrangements made to cater for any emergency. Lone working in such situations should be avoided.

Regulation 18 Power of safety representatives to report imminent risk

Regulation 18

Where two or more safety representatives (within the meaning of regulation 2(1) of the Safety Representatives and Safety Committees Regulations 1977) consider that there is an imminent risk of serious personal injury arising from an activity carried out below ground at a mine, they –

- (a) may make a report in writing to the mine operator; and
- (b) may provide a copy of that report to the Executive.

Guidance 18

Workplace inspections

95 Regulation 5 of the Safety Representatives and Safety Committees Regulations 1977 (the 1977 Regulations)² confers a right on safety representatives to undertake inspections of the workplace at least every three months. However, the 1977 Regulations make specific provision for more frequent inspections by agreement with the employer.

96 The 1977 Regulations also permit additional inspections by safety representatives where there has been a substantial change in the workplace since the last inspection. As conditions in extracting mines change constantly, more frequent inspections may be appropriate. Where it has previously been the practice to undertake monthly inspections, these may continue. The guidance to regulation 5 of the 1977 Regulations gives further advice.

97 The 1977 Regulations also contain provisions and guidance relating to:

- (a) the appointment and functions of safety representatives;
- (b) the employer's duty to provide facilities and assistance, including pay for time off;
- (c) inspections following reportable injuries, diseases and dangerous occurrences;
- (d) the inspection of documents and provision of information;
- (e) cases where safety representatives need not be employees;
- (f) safety committees.

Guidance 18

Representations to the mine operator

98 Regulation 18 of the Mines Regulations 2014 gives safety representatives a right to make a written report to the mine operator about any matter they consider to present imminent risk of serious injury. Imminent risks are those that are likely to result in adverse events that could result in serious injury or death.

99 Such matters may be identified as part of a periodic inspection of the workplace by safety representatives, or at any other time. Safety representatives can also independently provide to HSE a copy of a report they have given to the mine operator.

PART 3 Control of major hazards

Fire protection

Regulation 19 General duty

Regulation 19

(1) *The mine operator must ensure that operations and work at the mine are planned and carried out –*

- (a) *so far as is reasonably practicable, to prevent the outbreak of fire or spontaneous combustion; and*
- (b) *with a view to preventing the spread of any fire.*

(2) *The mine operator must ensure that the mine is equipped with –*

- (a) *suitable fire-fighting equipment; and*
- (b) *where necessary, fire detectors and alarm systems.*

(3) *The mine operator must ensure that the fire-fighting equipment referred to in paragraph (2)(a) is maintained in good condition and is easily accessible.*

Guidance 19

100 Materials should be carefully selected taking into account their physical properties, eg oils, greases and conveyor belting should be fire resistant to minimise the fire loading and the risks of fire propagation.

101 Introduction of unnecessary flammable materials, such as food wrappings and newspapers, underground should be avoided.

102 Diesel or oil pipes should be routed or protected so a burst or leak will not contact hot engine or exhaust parts.

103 Ignition sources should be minimised. In particular, conveyor belts should be tracked correctly and fitted with idlers in which the shells wear out before the bearings.

104 Exothermic reactions should be controlled through the correct use of, for example, chemical resins or phenolic foam.

105 Any risk of spontaneous combustion must be minimised. Measures include retreat mining, minimising coal and air leakage in the goaf, use of sealants at fault areas, and the keying in of air door frames.

106 Automatic fire suppression should be installed where appropriate, eg on mobile plant and/or major fan installations.

107 Portable fire-fighting equipment should be appropriate to the hazard type and extent and should be available on mobile plant, and upwind of electrical equipment and conveyor transfer points.

Guidance 19

108 Where portable fire-fighting equipment may be insufficient, fire-fighting water mains should be provided. Means to discharge the water by hoses and nozzles should also be provided.

109 Fire / smoke detection should be installed at strategic points in the mine to detect and give warning of the outbreak of fire. These should be arranged to give alarms both locally and to a manned position at the surface.

Regulation 20 Fire protection plan

Regulation 20

(1) *The mine operator must prepare and implement a fire protection plan detailing –*

- (a) *the likely sources of fire; and*
- (b) *the precautions to be taken to protect against, detect and combat the outbreak and spread of fire.*

(2) *In respect of every part of the mine other than any building on the surface of the mine, the fire protection plan must –*

- (a) *include the designation of persons to implement the plan;*
- (b) *include the arrangements for any necessary contacts with external emergency services, particularly as regards rescue work and fire fighting; and*
- (c) *be adapted to the nature of the activities carried out at the mine and the size of the mine.*

(3) *The fire protection plan must be kept at the mine or at some other suitable place.*

Guidance 20

110 The mine operator's risk assessment made under regulation 3(1) of the Management Regulations must include the risk of fire.

Explosive atmospheres

Regulation 21 Application of regulations 22 and 23

Regulation 21

Regulations 22 and 23 apply below ground in mines in which places have been classified as hazardous under regulation 7(1) of DSEAR.

Guidance 21

111 Regulation 7(1) of DSEAR requires areas where explosive atmospheres may occur to be classified into hazardous and non-hazardous workplaces. Any hazardous workplaces should also be classified into zones. Further information on the classification of areas containing explosive atmospheres can be found in the DSEAR Approved Code of Practice.³

Regulation 22 Explosive atmospheres

Regulation 22

(1) *The mine operator must ensure that –*

- (a) *there are in place in the zones classified under regulation 7(1) of DSEAR, specific arrangements to detect the presence, and monitor the concentration, of flammable gas; and*

Regulation 22

(b) *measures are taken to reduce the level of flammable gas in any zone in which it has been detected to as low a level as is reasonably practicable.*

(2) *The measures referred to in paragraph (1)(b) must include (where necessary) drainage, removal and dilution.*

Guidance 22

112 The mine operator should identify times when the flammable gas concentration is likely to be at its highest, and specify that determinations of gas levels are made at this time. The frequency of monitoring should be proportionate to the risk of a potentially explosive atmosphere.

113 Arrangements should include provision for monitoring of the flammable gas level at least weekly and monitoring at the ventilation quantity measuring points at least monthly. Monitoring data should be regularly reviewed and analysed for trends.

114 The mine operator's measures for reducing the level of flammable gas (where detected) to as low a level as is reasonably practicable must include drainage, if dilution and removal by the mine ventilation system is not in itself sufficient.

115 The mine operator should pay particular attention to the potential for the formation of layers of flammable gas, and ensure that ventilation flow is sufficient to disperse any gas make and prevent layers from forming.

116 Any unventilated, disused or abandoned workings that may present a flammable gas or ignition risk should be sealed off with explosion-proof stoppings as soon as practicable.

Regulation 23 Ignition risks

Regulation 23

(1) *The mine operator must ensure that when in any zone, or at any place within a zone, classified in accordance with regulation 7(1) of DSEAR –*

- (a) *the concentration of a flammable gas exceeds 25% by volume of the lower explosive limit of that gas in the general body of air, all activities that present a significant ignition risk are halted until the concentration is reduced so that it is below that level; and*
- (b) *in the event that the concentration exceeds 40% by volume of the lower explosive limit of that gas in the general body of air, persons are withdrawn from that place or zone until the concentration has been reduced so that it is below that level.*

(2) *The mine operator must ensure that none of the following is taken below ground –*

- (a) *tobacco or other materials for smoking; or*
- (b) *objects used to produce a flame for the purposes of smoking.*

Guidance 23

117 Action levels are quoted in terms of percentage lower explosive limit (LEL) to allow for different gases and mixtures. For methane, the 25% LEL equates to 1.25% by volume (v/v), and the 40% LEL level equates to 2% v/v.

118 Electrical equipment and circuits, internal combustion engines and mechanical equipment should be isolated when the 25% LEL is reached unless the electrical equipment is certified as Group 1 M1 (the ATEX Regulations⁴). A suitable risk assessment may allow for the continued use of some mechanical equipment, above 25% of LEL, but not exceeding 40% LEL.

Guidance 23

119 The mine operator should ensure that electrical enclosures that have been exposed to 40% of the LEL of flammable atmosphere are purged before power is restored.

120 Other electrical equipment specified by the mine operator, eg cameras and surveying equipment, can be used underground under rules recorded in the health and safety document.

121 The mine operator must comply with the requirements of DSEAR regulation 6(3), in particular the control measures hierarchy, and should not allow the uncontrolled introduction into the mine of other items that could present an ignition risk. These include light alloys that could cause a thermite reaction, items that can generate or retain an electrostatic charge, battery-operated electrical devices, digital watches, car key fobs or mobile 'phones.

Regulation 24 Application of regulations 25 and 26

Regulation 24

Regulations 25 and 26 apply below ground in coal mines.

Regulation 25 Burning and welding in coal mines

Regulation 25

The mine operator must ensure that –

- (a) no burning or welding equipment is used except in a shaft or inset; and*
- (b) before using any such equipment in a shaft or inset, an appropriate assessment is made of the risks of the proposed operation and appropriate steps are taken to mitigate the risks identified.*

Guidance 25

122 The places where burning and welding activities in coal mines can be undertaken are restricted to shafts and insets. Additionally, the activities can only be undertaken in those places after the mine operator has undertaken a risk assessment of the proposed burning and welding activities and appropriate risk mitigation measures have been put in place.

123 Burning and welding equipment includes items that are capable of producing an unprotected spark, eg grinders, disc cutters and flint guns.

Regulation 26 Risks of explosion in coal mines

Regulation 26

The mine operator must ensure that (where necessary) there are in place –

- (a) adequate arrangements to ensure that there is sufficient inert content in dust in roadways in the mine to ensure that risks of explosion are controlled; and*
- (b) suitable and effective barriers against the spread of explosion.*

Guidance 26

124 Where the potential for a flammable dust cloud to be raised is identified, the mine operator must take steps to prevent the development and propagation of dust explosions.

125 The mine operator should make sure that sufficient inert dust is present on the roof, sides and floor of all underground roadways to render the resultant mixture non-flammable.

Guidance 26

126 The amount of inert dust required should be in proportion to the volatile matter content of the coal calculated on an ash-free dry basis in accordance with Table 1.

Table 1 Inert dust requirements

Volatile matter content of coal (per cent)	Minimum percentage of inert matter
Not exceeding 20	50
22	55
25	60
27	65
30	68
32	70
35	72
Exceeding 35	75

127 Where flammable dust is carried by a conveyor the mine operator should also provide sufficient barriers sited to minimise the spread of an explosion and to arrest it as close to its source as practicable. The locations of such explosion barriers should be indicated in a document updated periodically and available at the workplace. Further guidance on the design of suitable barriers can be found at www.hse.gov.uk/mining.

Explosives

Regulation 27 Application of regulations 28 to 31

Regulation 27

Regulations 28 to 31 apply to mines at which explosives are transported, stored, handled or used.

Regulation 28 General duties relating to explosives

Regulation 28

(1) *The mine operator must ensure that, so far as is reasonably practicable, all explosives are transported, stored, handled and used safely and securely.*

(2) *The mine operator must ensure that operations involving the transport, storage, handling or use of explosives are not carried out by anyone other than a person who is –*

- (a) *competent; and*
- (b) *authorised in accordance with rules to do so.*

(3) *The mine operator must ensure, so far as is reasonably practicable, that no person issues or takes control of explosives except in connection with the person's duties at the mine.*

Guidance 28

128 The mine operator must ensure that the explosives, detonators and all ancillary equipment such as exploders, test apparatus, circuit testers and shotfiring cables that are provided for use in shotfiring are safe for use.

Guidance 28

129 A sufficient number of shotfirers that are competent to use the explosives should be appointed and authorised. Similar appointments will also be required for those who store or handle explosives. The process for appointment must be set out in rules under regulation 29.

130 Shotfirers should have undergone a period of training and achieved an appropriate shotfiring qualification. Additionally, they should have undergone a period of close supervision by an authorised shotfirer until the mine operator is satisfied that they can undertake shotfiring duties safely and effectively.

Regulation 29 Duties relating to explosives in mines with explosive atmospheres

Regulation 29

In mines in which places have been classified as hazardous under regulation 7(1) of DSEAR, the mine operator must ensure that –

- (a) the only explosives that are used are suitable for use in such places; and*
- (b) before a shot is charged or fired, suitable tests for the presence of flammable gases are carried out.*

Guidance 29

131 The explosives include detonators provided for use.

132 Shotfirers appointed at such mines should be competent to undertake testing for flammable gas.

133 Tests for flammable gas should be made before charging and before firing in the immediate vicinity of the shot holes but not in the shot holes themselves.

134 Tests should be made for flammable gas layering at roof level, taking into account changes of gradient or road dimension, seam intersections, roof cavities and other places where flammable gas is likely to occur.

135 The charging or firing of shots must not take place when the shotfirer or any other person having control of mining operations is informed that the concentration of a flammable gas in the air in that part of the mine exceeds 25% of its LEL (or 1.25% v/v for firedamp / methane).

Regulation 30 Storage of explosives

Regulation 30

(1) This regulation applies in relation to the temporary storage below ground at a mine of explosives for which a licence for their storage is not required by virtue of regulation 7(2) and (3) of the 2014 Regulations.

(2) Subject to regulation 7(4) of the 2014 Regulations, the mine operator may designate as many places below ground at the mine as may be necessary for the temporary storage of explosives to which this regulation applies pending their use in shotfiring operations.

(3) The mine operator must not designate a place under paragraph (2) unless it is –

- (a) suitable; and*
- (b) capable of being made secure.*

(4) A place designated under paragraph (2) must, at all times, be made secure or be supervised.

Guidance 30

136 The mine operator must ensure the safety and security of explosives and detonators, which should be stored in separate compartments within the explosives store. This duty extends to ensuring that all persons handling explosives or detonators are aware of their duties.

137 Arrangements should be in place to prevent unauthorised persons gaining entry into an explosives store or other place designated under regulation 30(2). Any movement of explosives or detonators in or out of storage should be supervised by an authorised person and recorded.

138 A designated place below ground for temporary storage should be substantially constructed at the specified location and must be capable of being secured against unauthorised access. The mine operator may designate places below ground as part of the distribution system.

139 Where explosives are to be transferred from a bulk transit container into a container which will be carried by hand to a workplace, a bench or other suitable clear surface should be provided to enable the operation to be carried out safely with appropriate control of the explosives.

140 Where explosives are brought to the mine by the supplier or where explosives are manufactured on site that are immediately intended for use, or storage underground, the mine operator may designate a secure place on the surface for the transfer of such explosives.

141 Explosives that are being transported (including transport on site) will be treated as being in storage when they are, or are to be, kept at any place for more than 24 hours and the requirements of the 2014 Regulations^{5,6} with regards to licensing will apply.

142 The containers used for transportation underground should be suitable for holding explosives and/or detonators. Containers or carriages of explosives should not be mixed with those containing detonators.

143 Explosives or detonators being transported should remain under the constant supervision of a person appointed by the mine operator for this purpose.

144 It is essential that adequate key security arrangements are in operation at all places where explosives are being kept. Where premises are to be left unattended at any time, the keys should be kept in the custody of a responsible person, or in a locked container kept under direct observation or alarm. The mine operator should make arrangements for the issue and control of the keys to the explosives store, temporary storage facilities and explosives carriages.

145 Explosives and detonators should not be retained for longer than recommended by the manufacturer. Systems should be in place to identify and deal with explosives or detonators that are damaged, have deteriorated or appear abnormal in any way.

Regulation 31 Rules

Regulation 31

Rules required by regulation 12 must include –

- (a) *requirements relating to shotfiring operations;*
- (b) *procedures for appointing shotfirers;*
- (c) *procedures for authorising other persons who will be involved with the*

Regulation 31

- transport, storage, handling and use of explosives;*
- (d) requirements relating to misfires; and*
 - (e) in mines in which places have been classified as hazardous under regulation 7(1) of DSEAR, requirements relating to testing for the presence of flammable gases before any shot is fired.*

Guidance 31

146 The mine operator's rules should include a description of the procedures that must be followed during shotfiring operations.

147 This should include the inspections that need to be carried out before and after shotfiring and, in particular, the requirements for the testing for flammable gases in places identified as hazardous. The rules should include the procedures that need to be followed to enable the whole process to be carried out in a safe manner, including procedures for dealing with the various types of misfire.

148 The mine operator's rules should also include a description of the supervisory arrangements and the precautions required for the movement of explosives and detonators between places on the surface, and to either a temporary storage facility or to the working face below ground, or for transfer from one temporary storage facility to another.

Ground movement

Regulation 32 Duty to take ground control measures

Regulation 32

(1) The mine operator must ensure that such ground control measures are taken as are necessary to keep secure every place in the mine where persons work or pass.

(2) The duty in paragraph (1) to keep secure every place in the mine where persons work or pass is a duty to ensure security against any reasonably foreseeable risk to the health and safety of any person.

(3) Before any excavation is undertaken at a mine, the mine operator must carry out an assessment of the risks from ground movement.

(4) The mine operator must ensure that the assessment is –

- (a) recorded; and*
- (b) reviewed and, where appropriate, revised, if there is reason to suspect that there has been a material change in the matters to which it relates.*

(5) The mine operator must ensure that sufficient ground control measures are taken as soon as possible to address effectively the risks identified by the assessment.

(6) Paragraph (1) does not require the mine operator to take ground control measures with respect to a danger area.

(7) In the case of a coal mine, the duty in paragraph (5) is presumed to be met if the mine operator has implemented the standards in Schedule 1, provided that the assessment indicates that those standards are sufficient to address effectively the risks identified by that assessment.

Guidance

32

149 The mine operator must ensure that risks to people from ground movement, eg rock / roof falls, are under control at all times. This means that even in stable conditions where no excavation work is proposed, for example at tourist mines, the mine operator must have arrangements in place that provide assurance that, if the level of risk changes, this is detected and suitable measures are taken.

150 Where excavation is proposed, a further assessment must be undertaken to determine what ground movement risks this presents and any measures that need to be taken to ensure that the ground, ie roof and sides, is adequately controlled. The assessment must be recorded and reviewed where necessary.

151 Relying solely on the natural characteristics of the strata is not suitable as a ground control measure in coal mines and other mines with similar weak rock conditions. In coal mines where the mine operator has decided that, as a result of their assessment of ground conditions simple support systems are sufficient, the support system standards set out in Schedule 1 to the Regulations should be followed.

152 The assessment of ground conditions should include all the factors that may have a bearing on the security of the mine and any new proposed excavation. The assessment will help in determining any potential hazards so that suitable ground control measures can be developed and validated to avoid or control risks.

153 An assessment of the ground conditions should include an assessment of:

- (a) geological information, such as the type, thickness and condition of the rock beds adjacent to the proposed extraction;
- (b) the mechanical properties of the various rock types that may be encountered;
- (c) the effect of vertical and lateral stresses, including those that are likely to be caused by mineral extraction;
- (d) the likely extent and nature of ground movement to be controlled;
- (e) potential failure mechanisms;
- (f) possible effects on other working places;
- (g) the results of site investigations relevant to the area to be worked;
- (h) previous experience and relevant historical data;
- (i) the mine environment, including the effects of groundwater.

Where powered supports are to be used, the extracted height and the likely loads on the supports should be taken into account.

154 The mine operator should obtain a report from a suitably qualified, competent geotechnical specialist before ground control measures are used for the first time or before a significant change is made to any existing ground control measures. The report should verify the assessment of ground conditions, the design document and the scheme for assessing the adequacy of the control measures proposed.

155 A significant change to existing ground control measures would include:

- (a) from one free-standing support system to another one which has not been used at the mine before;
- (b) from one rockbolting system to another not used at the mine before;
- (c) from rockbolts to any free-standing support system not used at the mine before;
- (d) from any free-standing support system to a rockbolt system not used at the mine before;
- (e) from props and bars to powered supports;
- (f) from powered supports to props and bars;

Guidance 32

- (g) a reduction in the size of pillars and/or an increase in opening dimensions in bord and pillar workings;
- (h) a reduction in pillar factors of safety;
- (i) where the proposed system has been used previously at the mine but the current management team has no experience of its use at the mine.

156 Site investigation should be carried out close enough to the area to be worked to be representative. It should be continued as the work progresses and any new information obtained as a result should be incorporated into the assessment of ground conditions.

157 The area for which an assessment is considered to be valid needs to be defined and any resulting ground control system design confined to that area. The area may be redefined as more information is obtained, for example from further site investigation.

158 The assessment must be reviewed if there is reason to suspect that there has been a material change in the matters to which it relates, or brought up to date as further information becomes available in the course of working the mine. Examples include information from monitoring the performance of ground control measures, whenever a major change occurs in the nature of the strata encountered, in geological structure or in mining conditions.

159 Following the assessment the measures necessary to control ground in the area to be worked should be identified. One well-established method for doing this is by producing a design document.

160 Where an existing design has already been proved, it may be used as a basis for the design of ground control measures for a new excavation, provided the assessments at both sites are not significantly different.

161 Ground control measures must be designed to be capable of being implemented without undue risk to any person.

162 The design should take into account, as appropriate:

- (a) the limits of extraction;
- (b) the proposed method of work;
- (c) excavation dimensions;
- (d) pillar sizes;
- (e) the support and/or reinforcement density;
- (f) the specification of any material or equipment forming part of any ground control system;
- (g) procedures for dealing with abnormalities;
- (h) information on other risks such as known zones of weakness or proximity to other workings;
- (i) the likely ground stresses and movements over the life of the excavation;
- (j) ventilation requirements;
- (k) clearances for people and equipment.

163 The mine operator should prepare sufficient written information, procedures and instructions on ground control to be followed at the mine which should include, eg:

- (a) the proposed ground control measures;
- (b) the method of work;
- (c) the maintenance of ventilation;

Guidance 32

- (d) the housing of equipment;
- (e) the safe operation of transport systems;
- (f) services' requirements.

164 Suitable information, procedures and instructions should include diagrams and text showing a stage-by-stage sequence of operations. They should show the layout, pattern and dimensions of the ground control system and give the specification of the ground control system components.

165 Suitable arrangements, including observation and, where appropriate, measurements for assessing the adequacy of the ground control measures in controlling the movement of the ground, should be prepared and implemented.

166 Inspections of the security of any ground control measures should be carried out at suitable intervals by a competent person. These inspections should include observation of the condition of the roof and sides and assessment of the effectiveness of supports. An appropriate record of the findings of any such inspection should be made.

167 The mine operator must ensure that arrangements are in place to remedy any defects identified by the inspections of the security of the ground control measures.

Inrushes

Regulation 33 Precautions against inrushes

Regulation 33

The mine operator must ensure that inrush into any working in a mine of –

- (a) *gas from disused workings (whether mine workings or not); or*
- (b) *water or material that flows, or is likely to flow when wet, from any source, is prevented.*

Guidance 33

168 The mine operator must assume that an inrush is possible unless there is evidence to the contrary, for example evidence that an inrush hazard is no longer present or the mine operator has taken steps to remove the hazard, eg by dewatering waterlogged mine workings.

169 The risk of sudden inrush of surface water, eg due to heavy rainfall, should also be considered.

170 The duty to prevent inrush applies to all workings, not just those in potentially hazardous areas. The mine operator should investigate any signs of potential inrush in workings that were not previously recognised as being in potentially hazardous areas and take any necessary steps to avoid or remove the hazard.

171 Disused workings are parts of mines no longer being worked and include old workings that are potentially accessible. They may also be abandoned and sealed-off workings in the mine or from another mine, or from the surface, eg a borehole.

Regulation 34 Information about inrush hazards

Regulation 34

(1) *The mine operator must obtain, so far as is reasonably practicable, all the information which indicates, or tends to indicate, the presence or absence of a potentially hazardous area in the vicinity of any working being carried on, or proposed to be carried on, in the mine.*

(2) *The mine operator must ensure that no working is undertaken in the mine in the vicinity of a body of surface water until –*

- (a) *such steps are taken as may be necessary to ascertain the total thickness of the strata lying between the working and the surface water; and*
- (b) *the mine operator is satisfied that the strata are sufficiently reliable to prevent an inrush of water from the surface.*

(3) *In this regulation –*

- (a) *“body of surface water” means the sea, a lake or river, or any other body of surface water (whether accumulated naturally or not); and*
- (b) *“potentially hazardous area” means –*
 - (i) *any disused workings (whether mine workings or not);*
 - (ii) *any rock or stratum containing or likely to contain water (whether dispersed or in natural cavities);*
 - (iii) *any peat, moss, sand, gravel, silt, or other material that flows or is likely to flow when wet; and*
 - (iv) *any body of surface water.*

Guidance 34

172 When gathering information the mine operator should in particular:

- (a) carry out a thorough examination of abandonment plans and associated documentation. This should not be limited to old workings within 115 m outside the mine boundaries, it should extend as far as necessary (current workings may be affected by old workings many miles away). Where appropriate, gas and water flows and critical parameters, eg pumping levels and operations, should be established;
- (b) establish the type, thickness and properties (eg faults, joints, cavities and bedding) of the strata when workings are or will be in the vicinity of surface water, including strength and likely permeability between the workings and the water and the position of any incrop or aquifer;
- (c) liaise with other organisations, eg the Coal Authority, local planning authorities, British Geological Survey, to identify other surface workings or boreholes within or near the mine boundaries.

This list is not exhaustive.

173 Records of past workings may not be accurate, eg old shaft and borehole records, so reasonable steps to check any information should be taken.

174 Information should be documented and recorded so that it is readily available. If it is practical to do so, it should be shown or referred to on the working plan.

Regulation 35 Mine workings in potentially hazardous areas

Regulation 35

- (1) Before undertaking any working in a mine which would be within –
- (a) 45 metres (measured in any plane) of –
- (i) the surface; or
 - (ii) any other potentially hazardous area within the meaning of any of sub-paragraphs (i) to (iii) of regulation 34(3)(b), except disused mine workings; or
- (b) 37 metres (measured in any plane) of any disused mine workings,

the mine operator must assess the risk of the occurrence of an inrush to determine whether precautionary measures are necessary to prevent an inrush.

- (2) Where the risk assessment indicates that precautionary measures are necessary, the mine operator must ensure that the working is not carried on unless –
- (a) a suitable scheme of work is prepared which lays down the procedures designed to ensure that an inrush does not occur; and
- (b) the procedures required by the scheme are implemented.
- (3) The mine operator must ensure that a copy of the scheme is kept at the mine until the working is completed.

Guidance 35

175 If the conclusion is that an inrush is unlikely, the mine operator must remain alert to any change of circumstances. If any change of circumstances indicates that an inrush may occur, unless precautions are taken, the risk must be immediately reassessed and a suitable scheme of work established.

176 Working within a defined potentially hazardous area is prohibited unless the mine operator:

- (a) carries out a detailed investigation of the potential inrush hazards;
- (b) assesses the likelihood of an inrush from any of the hazards;
- (c) identifies and implements any measures necessary to prevent inrush (the scheme of work). One option may be not to work the mineral in this area.

177 The distances of 45 m or 37 m are measured in any plane so they are volumes. They need to be shown on the working plan to highlight their presence and are often referred to as 'cautionary zones'.

178 Inrush hazards should be removed, if possible, or avoided by maintaining an adequate separation distance. When assessing an adequate separation distance, the mine operator should consider:

- (a) the volume and pressure of the hazard;
- (b) the strength of intervening strata (which may be altered by stress redistribution caused by mining activity, particularly caving).

179 If the conclusion is that an inrush may occur unless precautionary measures are taken, then a scheme of work must be established to control the risk. The scheme of work should be tailored to each situation and describe:

- (a) the method of working;
- (b) any proposed dewatering or degassing operations;

Guidance

35

- (c) the equipment to be used;
- (d) the rules to be applied, and the supervisory, inspection and management arrangements for monitoring and enforcing these rules.

180 The scheme should include a plan showing:

- (a) the extent of the proposed workings;
- (b) the location and nature of each relevant hazard;
- (c) a reference to the Ordnance Survey (OS) National Grid;
- (d) information relating to levels, including the datum used;
- (e) a cross-section of the strata, if appropriate.

181 If the prevention of inrush depends on the maintenance of water / gas drainage or pumping systems, then the scheme of work should cover these measures.

The use of boreholes for proving or removing the hazard

182 Boreholes to prove or dewater should be designed and located to be safe during drilling and when in use. The potential pressure head and strength of intervening strata should be considered. The strata along the standpipe length should be strong enough to provide a barrier to prevent water flowing round the standpipe.

183 The mine operator should specify the method of work and operational parameters, including any additional precautions for drillers.

184 A method for dealing safely with water and any dissolved gases should be provided.

185 When determining the actual position and extent of old workings where water/gas inrush is not known to be a factor, the mine operator should tailor the proving boreholes to the outline of the hazard and avoid inadvertently breaking through into old workings. The proving borehole pattern must be started early enough to ensure this.

Working under surface water and above and below aquifers

186 Bodies of surface water include ponds, lakes, reservoirs, rivers, streams, estuaries and the sea. Undersea workings include those lying beneath the sea and tidal water. The landward extent of the potentially hazardous area should be taken as the high water mark (as shown on the 1:2500 OS plan), transposed landward by a distance equal to half the depth of workings at the high water mark, and should be shown on the working and development plans.

187 A suitable thickness of impervious strata must be maintained between the top of the workings and the base of the body of water to ensure that no connection develops through the induced tensile strain on the base of the body of water. Multi-seam extraction must be taken into account.

Shafts, outlets and winding

Regulation 36 Shaft construction and modification

Regulation 36

The mine operator must ensure that, so far as is reasonably practicable, the construction and modification of every shaft is planned, designed and carried out so as to be safe and without the risk of injury to any person.

Guidance 36

188 In the planning, design and construction of a new shaft, or staple shaft, or the modification of an existing shaft the nature of the strata through which the shaft will be sunk, and the eventual duty of the shaft, should be taken into account. The lining of the shaft should be suitable to safely withstand the forces applied to it, including hydrostatic from water-bearing strata or from weak or semi-fluid strata.

189 The mine operator should identify the hazards to workers and others during the shaft construction or modification operations, eg falls from height, ground movement, falling objects, inrush and outburst, and the lack of a second means of exit. Arrangements which allow for a safe system of work should be developed and implemented, including the provision of a safe means of exit for all people from any part of the shaft to a safe place.

190 Shaft construction operations will involve the use of specialised equipment. The mine operator should make sure that such equipment is specified, designed, installed and operated safely.

Regulation 37 Equipment in relevant shafts and outlets

Regulation 37

(1) *The mine operator must provide suitable equipment in any relevant shaft or outlet that may be used for travel by persons.*

(2) *The mine operator must –*

- (a) *ensure that it is safe for persons to use the equipment for travel; and*
- (b) *provide written instructions for the safe use of the equipment for travel.*

(3) *The mine operator must ensure that a written scheme is in place for the specification, selection and use of a rope in connection with winding apparatus, stipulating the maximum operating life of such a rope and any conditions which may reduce that life.*

(4) *The mine operator must ensure that the stipulated maximum operating life is not exceeded unless a competent person has –*

- (a) *carried out a suitable risk assessment;*
- (b) *inspected the rope; and*
- (c) *confirmed that it is safe for the stipulated maximum operating life to be extended and by how much time.*

(5) *In this regulation, a relevant shaft or outlet is a shaft or outlet in which considerable physical effort is required by persons using it to travel, having regard to the distance to be travelled, the gradient, underfoot conditions and other relevant factors.*

Guidance

37

191 In some particularly shallow shafts or outlets, stairways may be suitable equipment. Where this is not practicable, suitable winding apparatus must be provided.

192 Hazards associated with the operation of winding systems and lifts in mine shafts include:

- (a) the loss of control of the winding engine resulting in an overwind and high-energy collision of the conveyances in the headgear and the shaft bottom;
- (b) the high-speed collision between conveyances or counterweights, or with a fixed part of the shaft or its fixtures and fittings;
- (c) the failure of a safety-critical or single-line component, resulting in the detachment and free fall of a conveyance or counterweight through the shaft;
- (d) the collapse of part of the shaft structure or its fixtures and fittings, including pipes and cables, onto a moving or stationary conveyance;
- (e) the unplanned entry into the shaft and subsequent descent of plant such as a locomotive, mine-car vehicle, surface vehicle or materials.

193 The severe loading and working environment may lead to premature deterioration of ropes forming part of winding apparatus. There are a number of important factors that should be taken into account to make sure that ropes are correctly selected, remain safe when in use and are replaced before their condition may pose a major risk. These include the conditions in the shaft, the intended winding duty, loading methods and the design of interfacing apparatus such as the winding engine, rope pulleys and guides.

194 Winding system designers, rope manufacturers and suppliers, rope assessment specialists and experienced users of similar winding systems may be able to offer useful information on these factors and should be consulted.

195 The mine operator must have a suitable written scheme in place to make sure that:

- (a) all relevant factors are considered before choosing a rope;
- (b) the controls necessary for safe use and timely replacement are provided.

196 The scheme should specify:

- (a) the process for choosing an appropriate rope;
- (b) the duty, environment and maintenance regime on which the rope choice is based;
- (c) a safety factor suitable to compensate for abnormal loading, deterioration from wear and environmental conditions;
- (d) the life expectancy of any rope when used in accordance with the above conditions;
- (e) the types of deterioration which might affect the condition of the rope;
- (f) the discard limits beyond which the rope must not be used regardless of the age of the rope;
- (g) the assessment process to be applied to a rope at the end of its stipulated life so that the adequacy of the written scheme can be evaluated.

Regulation 38 Safety features of winding apparatus

Regulation 38

The mine operator must ensure that winding apparatus is suitable and has effective means –

- (a) to control the speed and distance of travel of the conveyance or counterweight;*
- (b) to stop and hold the conveyance or counterweight in a safe manner, in the event of an overwind; and*
- (c) to monitor the position and movement of every conveyance in a shaft.*

Guidance 38

197 The mine operator should have in place suitable arrangements for ensuring the safety of winding apparatus, including conveyances, ropes and their attachments, suspension gear and guides. The arrangements should provide for the safe selection, provision and installation of winding apparatus.

198 Winding apparatus should be designed and constructed to:

- (a) convey what it is designed to convey safely through a shaft;
- (b) stop and hold safely the conveyance or counterweight by means of brake-locking devices and brake-interlocking devices;
- (c) stop and hold safely the conveyance or counterweight in the event of an overwind to prevent free-fall of the conveyance;
- (d) have overspeed monitoring and protection;
- (e) have guides for the conveyance and/or counterweight;
- (f) have slack rope protection where necessary.

Regulation 39 Inspection, maintenance and testing

Regulation 39

(1) The mine operator must –

- (a) make arrangements for the systematic inspection, maintenance and (where appropriate) testing by competent persons of –*
 - (i) shafts;*
 - (ii) their linings and fixtures; and*
 - (iii) winding apparatus;*
- (b) prepare and keep up to date a suitable written scheme for the inspection, maintenance and testing required by sub-paragraph (a);*
- (c) appoint sufficient competent persons to undertake the activities required by this regulation;*
- (d) ensure that, where appropriate, suitable written reports are made of inspections and that each report records significant defects and the steps taken, or proposed to be taken, to remedy them; and*
- (e) ensure that any proposed steps in a report are taken, provided they are appropriate.*

(2) The mine operator must ensure that, when winding apparatus is installed or modified, the apparatus is not used for the transport of persons unless –

- (a) it has been inspected by a competent person;*
- (b) it has been found to be safe to use; and*
- (c) a written report has been made confirming that it is safe to use.*

Regulation 40 Signalling and communication

Regulation 40

In any shaft or outlet in which there is winding apparatus or other equipment, the mine operator must ensure that there is provided suitable and safe means to communicate and signal, where such means of communication and signalling is necessary to enable the winding apparatus or equipment to be used safely.

Guidance 40

199 Where a mine has equipment to transport people, goods or materials through a shaft or outlet then signalling and communication equipment will be required.

200 Fixed communication equipment should be used in preference to radio equipment, where possible, and this should be provided at key points, including intermediate stations and insets.

201 Intercom systems may be provided in addition to fixed telephones. These should be operated separately from any other communication systems at the mine to minimise confusion.

202 All types of communication systems should be installed and operated so that the people who operate them can use them without leaving their posts.

203 Signalling systems should be provided to give both audible and visual display of the signals given. Arrangements should be made for signals given during winding operations to be stored on an event recorder.

204 Signalling and communication systems should be provided between the conveyance in a shaft and the winding engineman and banksman. For the transport of persons in unwalkable outlets, the same provisions should be made for the guard and engine driver, where appropriate. Portable radio-operated equipment should be used as secondary means of communication, in addition to fixed installations.

Transport systems

Regulation 41 Transport systems

Regulation 41

(1) *The mine operator must ensure that all vehicles, conveyors and traffic routes are designed, installed, operated and maintained in such a way as to ensure, so far as is reasonably practicable, the health and safety of persons below ground at the mine.*

(2) *Without prejudice to the generality of the duty in paragraph (1), the mine operator must ensure that –*

- (a) *vehicles or conveyors do not run in any traffic route unless there is sufficient clearance so that no part of a vehicle or conveyor or of a load on them comes into contact with –*
 - (i) *the roof or sides of the traffic route or anything supporting them; or*
 - (ii) *other equipment;*
- (b) *so far as is reasonably practicable, no pedestrian is present in any traffic route when vehicles are moving on it, unless –*
 - (i) *there is safe and sufficient clearance between pedestrians and vehicles throughout the traffic route; or*
 - (ii) *there are adequate and sufficient places of refuge provided;*

Regulation 41

- (c) *suitable and sufficient devices are provided –*
 - (i) *to prevent the accidental disconnection or movement of vehicles or conveyors below ground; and*
 - (ii) *to arrest runaway vehicles below ground; and*
- (d) *traffic routes are clearly identified.*

(3) *The duty in paragraph (2)(c) extends to all parts of a vehicle that may become uncoupled and move.*

205 Transport systems should be designed, installed, operated and maintained to eliminate or control, so far as is reasonably practicable, risks from hazards that may be common or distinct to particular systems or environments. For example:

Guidance 41

Common

- (a) collision of vehicles or their loads with roadway sides, roof, or other equipment and people in traffic routes;
- (b) loss of control on gradients;
- (c) danger associated with moving machinery;
- (d) fire associated with faults or misuse;
- (e) inadvertent movement of vehicles.

Locomotive- and rope-hauled systems

- (a) derailment of locomotives or vehicles;
- (b) frictional heating from inadvertent rubbing of haulage ropes with fixed equipment;
- (c) failure of rolling stock, draw gear, track or haulage ropes.

Conveyors

- (a) failure of conveyor belting while carrying people;
- (b) lack of safe clearances while carrying people;
- (c) frictional heating from inadvertent rubbing of conveyor belts;
- (d) failure of brakes, sprag clutches or anchorages.

Explosive atmospheres

- (a) ignition of potentially explosive atmospheres from faults on internal combustion engines and electrical and mechanical equipment.

206 The operation and use of transport systems present additional hazards and risks, particularly those used for the transportation of people. In the context of this regulation 'traffic route' is any roadway or working area in which any transport system operates. It does not include pedestrian-only zones.

207 The mine operator should consider each transport system separately due to the variety of physical and environmental conditions in which they operate. In addition, because of the different designs of transport systems the hazard-control preventative and mitigating barriers may be different for each type. Fires on vehicles and conveyors, for example, are a known problem in the industry but the causes are different. Engine cleanliness, oil leaks and electrical faults are typical causes of fire on vehicles; idler failures, tracking problems and debris build-up are typical causes of fire on conveyors. Therefore, the barriers and the SPIs will be different.

208 Where transport systems are likely to be used to provide emergency response the mine operator should make sure that they are designed and maintained accordingly.

209 The operator should ensure that hazard and risks assessments start at the design stage for any particular system. Many risks can be avoided by selecting the most appropriate transport system. The advantages and disadvantages of each

Guidance 41

type of system need careful consideration dependent on the size and gradients of the roadway involved, the duty of carrying persons during different times of the day, and the requirements for transporting materials and other equipment.

210 It may be safer and more efficient to provide, wherever possible, for the transport of people by belt conveyor. This should lead to good standards on belt conveyors, and allow other systems such as locomotive or free-steered vehicles to transport materials and other equipment and reduce risks from transporting large numbers of people.

211 At mines where roadway conditions and clearances are stable, the use of free-steered vehicles may be a better option for the transport of people and equipment.

212 The mine operator should allocate specific health and safety responsibilities to all relevant people associated with the design, installation, operation and maintenance of transport systems. These should form part of their training and competence assessment.

213 In determining a suitable management structure for each system, the mine operator needs to take account of all the hazards present and set out specific responsibilities at each level. For example:

- (a) Who is responsible for the design of the system and the selection of suitable plant and equipment?
- (b) Who is responsible for determining the preventative and mitigating barriers?
- (c) Who is responsible for establishing and monitoring the SPIs?
- (d) How will risk assessments be completed, implemented and reviewed?
- (e) Who defines the plant and equipment inspection, testing and maintenance schedules?
- (f) How is assurance gained that managers, supervisors and operators accept responsibility for controlling risks and have sufficient resources to carry out their duties?
- (g) How does the operator monitor and audit the effectiveness of the arrangements?

214 Adequate clearances should be maintained, monitored and controlled to allow the movement of transport equipment. The size of vehicles and loads that can be taken onto any part of a traffic route should also be taken into account.

215 The mine operator must take into account the risks from vehicle movement. This includes the size and speed of vehicles, a driver's visibility and pedestrians' awareness of the approach of vehicles and ability to reach a safe place.

216 The arrangements for pedestrian safety may include the prevention of people entering traffic routes while vehicles are travelling on them. Pedestrian and vehicle-free zones should be clearly identified.

Regulation 42 Transport rules

Regulation	42
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Rules required by regulation 12 must include rules for the purpose of ensuring the safe operation of vehicles, conveyors and traffic routes.

Guidance	42
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217 The mine operator should provide safe operating rules for each individual transport system to all relevant people associated with the operation of that system. These should form part of their training and competence assessment.

PART 4 Ventilation

Regulation 43 Ventilation

Regulation 43

- (1) *The mine operator must ensure that –*
- (a) *there is a suitable ventilation system below ground at the mine;*
 - (b) *the ventilation system is subject to suitable monitoring; and*
 - (c) *the ventilation system is recorded accurately on the ventilation plan required by regulation 59.*
- (2) *The ventilation must be continuous and sufficient to ensure that, so far as is reasonably practicable –*
- (a) *in the general body of air below ground at the mine, the amount of oxygen is not less than 19% by volume; and*
 - (b) *the temperature and humidity below ground at the mine are reasonable, having regard to the working methods being used.*
- (3) *Nothing in paragraph (2) requires ventilation to be provided in any part of the mine where it is not necessary or practicable to do so.*
- (4) *The mine operator must ensure that no ventilating fan (other than an auxiliary fan) is installed below ground at the mine unless there have been prepared –*
- (a) *a survey of the likely effects of the fan on the ventilation below ground at the mine; and*
 - (b) *a report detailing the type, size and proposed location of the fan.*
- (5) *If the ventilation in any part of the mine is interrupted, the mine operator must ensure that appropriate action is taken to ensure the health and safety of persons at work in that part of the mine.*

Guidance 43

218 Mine atmospheres can be polluted by a variety of contaminants, including dust, gases, vapours and radioactive materials. The relative humidity in a mine atmosphere can be directly linked to the control and use of water. The temperature of the mine atmosphere will be affected by the depth of the workings and from dissipation of heat from machinery or electrical equipment. The effects of the velocity of the air within the mine workings are also important.

219 The suitability of a ventilation system will depend on the type of mine and the potential hazards associated with a mine's activities and the extent to which those underground parts of the mine need ventilating.

220 The hazards mine operators may need to consider when designing the ventilation system include:

- (a) flammable gases;
- (b) toxic or suffocating gases;

Guidance

43

- (c) harmful substances;
- (d) production levels;
- (e) temperature and humidity.

221 Where more than one hazard is present, mine operators should ensure that the ventilation system design takes account of them all so that risks to workers are adequately controlled.

222 Ventilation in a mine can either be natural or mechanically driven. Natural ventilation may not be appropriate in some circumstances due to its susceptibility to rapid fluctuation from outside influences such as wind direction, temperature and barometric changes.

223 Mine operators need to consider contingency arrangements for circumstances where the means of producing continuous ventilation is unavailable. These should include determining if a standby means of ventilating the mine is necessary to protect people working below ground so they can either continue working in safety, or travel to a place where they will be safe.

224 Where multiple fans are required to allow for maintenance and breakdown the fans should normally be of the same capacity. Where the arrangements include fans of differing duty the lowest duty fan should still be able to ventilate the mine workings to allow for safe escape from, or limited work in, the mine.

225 A booster fan is an installation that is sited strategically to affect (boost) the general ventilation of the mine and can be a single fan or a cluster of fans at one location.

226 To ensure that booster fans are installed appropriately, the mine operator should conduct a survey before installation to determine the size, duty and siting of the proposed fan. The likely resultant pressures and flows from the installation should be predicted to confirm that the installation will deliver the changes required.

227 To avoid re-circulation an auxiliary fan should not be installed at a point less than 5 m from the nearer side of the entrance to the place to be ventilated. In the case of two or more fans installed in series, this requirement applies only to one of them. Any forcing fan should be installed on the intake side and any exhaust auxiliary fan on the return side of the place to be ventilated. Every auxiliary fan should have an air duct to conduct air to or from the face of the place to be ventilated and allow for adequate delivery of air to the face of the blind end.

228 If the risk assessment shows the potential for a flammable or irrespirable atmosphere, then an arrangement to allow safe degassing should also be installed. Where necessary, fans should be fitted with a regulator or other means to adjust the flow.

229 Other fans may be used as part of the ventilation system to achieve localised environmental improvements that do not fall within the definitions of main, booster or auxiliary fans. These include overlap fans in blind ends and cooling fans. They should be designed and installed with due regard for their effect, and their duty specified and performance monitored and recorded.

230 The mine operator must make sure that, if the ventilation to the mine or a part of the mine is interrupted, appropriate action is taken to ensure the health and safety of people working in that part of the mine. Work should be suspended except for the purpose of restoring the ventilation.

Guidance

43

231 The mine operator should set out arrangements governing the installation, operation (including starting of a fan), performance, monitoring, and record keeping of the ventilation system. Only authorised people should be permitted to start, stop or alter any fan. Alternatively, an appropriate, automatic system may control the operation of fans.

232 The mine operator must have arrangements in place to undertake suitable monitoring of the ventilation system to ensure that the atmosphere within the mine does not pose a risk to people's health and safety. The extent of the monitoring will depend on the size and complexity of the mine and the potential contaminants present. Routine measurements should be taken at fixed reference points. The frequency of sampling will also depend on the level of contamination and the rate of change being experienced. In the case of mechanised coal faces, online monitoring of air quantity leaving the district should be provided.

233 Periodic monitoring will identify adverse trends or readings and permit corrections to be made. Monitoring the quantity of air passing strategic points will identify contaminants, eg flammable gases, toxic gases such as carbon monoxide, and oxides of nitrogen, diesel particulate matter and radioactive materials, as appropriate.

234 Monitoring may be by hand-held instruments at periodic intervals or by a network of fixed point monitors with information relayed to the surface or a combination of both.

235 In addition to any routine monitoring system in place, the mine operator should assess the need for workers to use personal detectors and provide them where necessary.

236 Any readings obtained should be recorded to allow trends to be identified and to demonstrate that control of the ventilation and of the underground atmosphere is being maintained.

PART 5 The mine environment

Inhalable and respirable dust in coal mines

Regulation 44 Application of COSHH below ground in coal mines

Regulation	44
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In their application below ground in coal mines, COSHH must be read as if the Executive had not approved a workplace exposure limit for respirable crystalline silica.

Regulation 45 Assessment and control of inhalable and respirable dust in coal mines

Regulation	45
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- (1) *This regulation applies below ground in coal mines.*
- (2) *The mine operator must carry out a suitable assessment of the risk to the health of persons at work below ground at the mine created by exposure to inhalable dust.*
- (3) *The mine operator must ensure that the assessment is –*
 - (a) *recorded; and*
 - (b) *reviewed and, where appropriate, revised if there is reason to suspect that there has been a material change in the matters to which it relates.*
- (4) *The mine operator must ensure that the exposure to inhalable dust of persons at work below ground at the mine is either prevented or, where that is not reasonably practicable, reduced to as low a level as is reasonably practicable.*
- (5) *The mine operator must have in place suitable arrangements for sampling the levels of respirable dust and respirable crystalline silica to which persons at work are exposed below ground at the mine.*
- (6) *If a sample exceeds the action level for respirable dust or respirable crystalline silica, the mine operator must –*
 - (a) *determine the reason why the relevant action level was exceeded;*
 - (b) *ensure that appropriate remedial action is taken; and*
 - (c) *ensure that appropriate further sampling is carried out for the purpose of assessing the effectiveness of any remedial action.*
- (7) *The mine operator must ensure that every person who is, or is likely to be, exposed to inhalable dust is placed under suitable health surveillance, unless the exposure is not significant.*

Guidance 45

237 'Inhalable dust' includes the larger particles of dust, normally trapped by the clearance mechanisms in the nose, mouth and throat, and then cleared from the respiratory tract.

238 'Respirable dust' refers to the smaller dust particles, small enough to avoid these clearance mechanisms and reach the gas exchange region of the lungs.

239 The control of both inhalable and respirable dust is important to health protection; however, measuring the level of exposure to respirable dust is the best way of assessing the likely adverse impact on health.

Application of COSHH below ground in coal mines

240 COSHH⁷ has always applied below ground in coal mines apart from regulations 6–13 which were disapplied in respect of inhalable dust. These regulations are no longer disapplied and COSHH now applies in full, apart from the workplace exposure limit (WEL) for respirable crystalline silica (RCS) which is not approved below ground at coal mines.

241 COSHH requires an assessment to be carried out of the risk to health created by work involving substances hazardous to health. The mine operator must follow the same procedures to assess the risk to people's health from exposure to inhalable dust.

Assessment of risk from inhalable dust

242 The risk assessment required by this regulation provides coal mine operators with the basis for designing their dust control measures and sampling arrangements. It also enables the mine operator to demonstrate that they have:

- (a) considered all the factors likely to contribute to exposure to inhalable dust;
- (b) reached an informed and valid judgement about the risks;
- (c) considered situations where prevention of exposure to inhalable dust is possible;
- (d) considered the steps needed to achieve and maintain adequate control of exposure, where prevention is not reasonably practicable;
- (e) considered what exposure sampling and health surveillance is required;
- (f) identified other relevant action, such as instruction and training.

Exposure to inhalable dust

243 Regulation 7 of COSHH requires exposure to substances hazardous to health to be prevented or controlled and the mine operator should follow the same hierarchy of control measures to prevent or control exposure to inhalable dust below ground at coal mines.

244 Under COSHH, inhalable dust is deemed a substance hazardous to health when present at a concentration in air equal to or greater than 10mg/m³, as a time-weighted average over an eight-hour period. That means that the duties in COSHH do not apply in relation to inhalable dust until it is present in the air at that concentration. The Mines Regulations place a stricter duty on the mine operator in respect of inhalable dust, requiring them to ensure that workers' exposure to inhalable dust is prevented or, where that is not reasonably practicable, reduced to as low a level as is reasonably practicable.

245 As well as the general duty in respect of inhalable dust, the Regulations require the levels of workers' exposure below ground to respirable dust and RCS to be measured by way of sampling.

Guidance

45

Prevention or control of exposure

246 A mine operator's first priority is to consider what they can do to prevent workers being exposed to sources of inhalable dust. This might be achieved by:

- (a) eliminating the work activity causing exposure;
- (b) moving people upstream of the dust producing activity, eg by providing dust producing machinery with controls that allow the machine operator to stay on the intake side.

247 Where exposure to inhalable dust cannot be prevented, the mine operator must have control measures in place to ensure that the level of exposure is reduced to as low a level as is reasonably practicable. These measures will include:

- (a) reducing dust production by the application of appropriate systems and engineering controls;
- (b) controlling exposure at source, eg by arranging the ventilation system so that return air is not used to series ventilate another place of work;
- (c) applying appropriate work processes, eg organising activities in face return gate roads, such as materials transport and flammable gas drainage boring, at times when there is no coal cutting on the face.

248 Where it is not possible to control exposure to as low a level as is reasonably practicable through engineering and organisational controls, additional controls relying on respiratory protective equipment (RPE) will be needed. RPE must only be used as a complement to engineering controls and never as a substitute.

Action levels

249 Mine operators should aim to control exposure to respirable dust and RCS in coal mines to below 3 mg/m³ and 0.3 mg/m³, respectively, averaged over a 40-hour working week (referred to in the Regulations as the 'action levels'), and should take action if exposure exceeds these levels.

Action to be taken in the event of excessive dust

250 If sampling results indicate that the levels of respirable dust or RCS to which people are exposed have exceeded the relevant action level, the mine operator must take and record appropriate measures to reduce the levels to as low as is reasonably practicable below the action level. They should:

- (a) check the control measures to ensure they are working as intended and continue to meet the design specification;
- (b) discuss possible reasons for the rise in respirable dust concentration with appropriate colleagues (including other members of the management structure, safety representatives and employees, including contractors' employees where appropriate);
- (c) devise and implement a programme of immediate action to improve and maintain the control measures;
- (d) consider whether workers, who may not previously have been required to wear suitable RPE, need to do so temporarily until adequate control is re-established. In making this judgement the mine operator should take into account the working environment, particularly in hot or humid conditions;
- (e) consider if working hours can be reduced, the method of working can be changed or further, more effective, engineering controls introduced;
- (f) be satisfied that they have in place adequate arrangements to ensure that necessary control measures remain in place.

251 The mine operator will also need to arrange for further investigational samples to be taken to assess the effectiveness of any remedial action taken. This should be

Guidance 45

as soon as possible after receipt of the adverse results and be representative of the levels of respirable dust and RCS to which people working below ground are exposed. Several samples should be taken to give a representative picture of the mine environment.

Health surveillance

252 Mine operators must ensure that every person who is, or is likely to be significantly exposed to inhalable dust is placed under health surveillance. This includes all employees, including contractors' employees, that regularly work below ground at mines. Mine operators should follow the requirements for health surveillance set out in regulation 11 of COSHH, which will also apply.

Continuing health surveillance after exposure has stopped.

253 Since pneumoconiosis is a disease where an adverse effect on health may be anticipated after a latent period, and it can be reliably detected at a sufficiently early stage, it may be appropriate for a mine operator to continue health surveillance of his or her employees (at least while they remain his or her employees) after exposure to inhalable dust has stopped.

Lighting and personal lamps

Regulation 46 Lighting

Regulation 46

(1) *The mine operator must ensure that suitable and sufficient artificial lighting is provided in every part of the mine below ground where persons work or pass.*

(2) *The duty in paragraph (1) does not apply in any part of the mine where artificial lighting is unnecessary because of the amount of light emitted by personal lamps or for any other reason.*

(3) *The mine operator must ensure that suitable and sufficient emergency lighting is provided in every place above ground at a mine where a person is likely to be exposed to significant risk in the event of a failure of artificial lighting.*

(4) *If it is not reasonably practicable to comply with the duty in paragraph (3), the mine operator must ensure that persons at work in that place are provided with a personal lamp.*

Guidance 46

254 The mine operator must provide adequate lighting in all circumstances to allow persons to travel and work safely within the mine. This includes in times of emergency that could be accompanied by power supply failure.

255 Where artificial lighting is provided but personal lamps are not, for example at some tourist mines, then the artificial lighting arrangements should include emergency supplementary lighting and/or emergency power supplies to cater for main power supply failure. The duration of these emergency systems should exceed the evacuation time from the furthest point in the mine.

256 At high-hazard permanent installations or zones artificial lighting should be installed. These may include:

- (a) conveyor alighting and boarding platforms;
- (b) shaft sides and insets;
- (c) locomotive stations;
- (d) regular vehicle coupling points;
- (e) materials transfer stations.

Regulation 47 Personal lamps

Regulation 47

The mine operator must –

- (a) provide a suitable personal lamp to each person who goes to work below ground at a mine; or*
- (b) where a person provides his or her own lamp, ensure that it is suitable.*

Guidance 47

257 The mine operator must ensure lamps used are suitable. Lamps used below ground, or at the surface in zones classified under regulation 7(1) of DSEAR, must be certified as safe for use in those zones.

258 In selecting a suitable lamp the mine operator must consider the required duration of the lamp battery and the level of illumination required.

259 The mine operator should also consider ergonomic aspects when selecting the most appropriate lamp, for example mobile plant operators may find a cordless headpiece lamp more appropriate than a corded lamp with a belt-worn battery.

PART 6 Safe exit, escape and rescue

Regulation 48 Exits from the mine

Regulation 48

(1) *The mine operator must ensure that there are at least two shafts or outlets providing at least two separate exits to the surface.*

(2) *The shafts or outlets required by paragraph (1) must be –*

- (a) of sound construction;*
- (b) readily accessible to persons below ground at the mine; and*
- (c) sufficiently separated so that, so far as is reasonably practicable, anything that happens in one of them will not affect the safety of the other or others.*

(3) *The mine operator must ensure that, so far as is reasonably practicable, two exits from the mine are available for use at any time by persons below ground at the mine.*

(4) *The mine operator must prepare a suitable written plan of the action to be taken to secure the safety of persons when, due to an unforeseen event or planned maintenance, only one exit is available for use.*

(5) *If only one exit is available for use, the mine operator must ensure that –*

- (a) the plan required by paragraph (4) is implemented; and*
- (b) the persons below ground are restricted, so far as is reasonably practicable, to those who will not be exposed to danger by reason that only one exit is available for use and who –*
 - (i) are needed to carry out work essential for securing the safety of the mine;*
 - (ii) are involved in work relating to the unforeseen event or planned maintenance;*
 - (iii) at the time the exit became unavailable, were already working below ground, provided they do not remain below ground after their normal period of work has ended; or*
 - (iv) are needed to secure the health or safety of any person.*

Guidance 48

260 When only one exit is available due to planned maintenance your written plan should include the arrangements to ensure that:

- (a) the exit is reserved for transporting people in and out of the mine;
- (b) only those people essential for securing the safety of the mine go below ground.

261 Those people required to secure the safety of the mine may include those working to:

- (a) restore the second exit, or maintain the single exit;
- (b) maintain risk-control systems;

Guidance 48

- (c) complete any specific risk-control measures, eg:
 - (i) time-dependent ground control measures;
 - (ii) flammable gas drainage holes.

Also:

- (d) those required to supervise these activities;
- (e) those whose duties include the inspection of the risk-control measures.

Routine maintenance and installation work is not securing the safety of the mine and such activities should be suspended

262 When only one exit is available due to a breakdown or unplanned incident your written plan should also assess the level of risk arising from people remaining below ground and the measures necessary to minimise any risk, including cessation of production and withdrawal of people from underground.

Regulation 49 Ways out from places of work

Regulation 49

(1) *Subject to paragraph (3), the mine operator must ensure that every place where a person works has at least two ways out.*

(2) *At least two of the ways out required by paragraph (1) must –*

- (a) *be clearly identified;*
- (b) *be passable with reasonable convenience;*
- (c) *be separate from each other; and*
- (d) *lead to a different exit from the mine.*

(3) *The requirements in paragraphs (1) and (2) do not apply in relation to a heading or other place from which it is not reasonably practicable to provide at least two ways out that comply with paragraph (2), provided that the mine operator ensures that the following conditions are met –*

- (a) *there are in place suitable procedures to ensure that all persons can leave the place safely;*
- (b) *the activities carried out in the place are limited to those that are required to be carried out there; and*
- (c) *the persons present at the place at any time are limited to those necessary for the activity or activities being carried out there.*

Guidance 49

Ways out of the mine (escape routes)

263 Escape routes should be high enough to allow people to walk and they should be kept free from obstruction. They should be inspected and adequately maintained to allow for the safe passage of a casualty on a stretcher.

264 Escape routes must be properly signposted and all workers in the mine should be made and kept familiar with the escape routes from where they work.

265 Where an escape route is temporarily unavailable, and there is only one other escape route, only work to re-establish the second escape route must take place. Other work must be suspended until the second escape route is restored.

Single entries

266 Hazards in single entries, including shafts and outlets in the process of being constructed, can pose higher risks than the same hazards in places from which

Guidance 49

there is more than one way out. For example, a fire in a single entry might both burn through the auxiliary ventilation duct and, at the same time, prevent people passing the fire site to escape. Where there is a danger of such a fire, then an automatic detection and alarm system should be installed to warn people in the single entry.

267 The number of people within single-entry places should be limited to those who are necessary to carry out the activities to work that place. The mine operator should first consider what activities need to be carried out and what can be done to keep them to a minimum. For example, it may be possible to schedule intermittent tasks across different shifts rather than have them all take place on the same shift.

268 Arrangements should be in place to ensure that this number is not exceeded and also to indicate the numbers present within the single entry. If this system is electronic, back-up power arrangements should be provided to ensure information is retained and available during any emergency.

269 A single entry also includes places where there are two or more single entries beyond a common junction. In such cases, the mine operator should set a maximum number of people that may be beyond the common junction, and the maximum number in each of the single-entry places beyond it, at any time.

Regulation 50 Emergency routes and emergency doors

Regulation 50

(1) *Emergency routes and exits must remain clear at all times and lead by the most direct and safe route to the open air or a safe area.*

(2) *Doors that may form part of an emergency route or exit must be capable of being opened easily at all times.*

Regulation 51 Auxiliary equipment

Regulation 51

The mine operator must ensure that suitable auxiliary equipment is available for use when any equipment that is required to be used by persons to leave the mine becomes unavailable or breaks down.

Guidance 51

270 The choice of auxiliary equipment to achieve safe egress will depend on the risks identified.

271 At mines with shafts or unwalkable outlets, the mine operator should consider auxiliary equipment to address a number of potential situations, eg:

- (a) a power failure of a magnitude and duration that it becomes necessary to evacuate people from underground;
- (b) a failure of winding apparatus which makes it necessary to complete the wind by alternative means;
- (c) a hold-fast or immobilisation of a conveyance;
- (d) people working in or travelling through a shaft or outlet for a safe means of egress;
- (e) repair and recovery work arising from an emergency.

Regulation 52 Intake airways

Regulation 52

The mine operator must ensure, so far as is reasonably practicable, that the intake airways for the mine are constructed of suitable fire resistant materials.

Regulation 53 Duties of the mine operator with regard to escape and rescue

Regulation 53

(1) *The mine operator must –*

- (a) *ensure that suitable arrangements are in place so that persons below ground at the mine can reach a safe place promptly in the event of an emergency; and*
- (b) *provide and operate the necessary warning and other communication systems to enable assistance, escape and rescue operations to be launched immediately if the need arises.*

(2) *A mine may not be worked unless the operator has made suitable arrangements –*

- (a) *for the rescue of persons from the mine; and*
- (b) *for the carrying out of work necessary to secure the health and safety of persons below ground at the mine in the event of an emergency.*

Guidance 53

Duties of the mine operator

272 The duties of the mine operator with regard to escape and rescue from the mine are the same for all types of mine. Coal mines are no longer required to belong to a Secretary of State-approved mine rescue scheme.

Suitable arrangements for escape

273 To determine what constitutes suitable arrangements mine operators must consider the situations that could arise where people may need to evacuate the mine, or part of a mine, safely and promptly to the surface or to a place of safety below ground. Emergencies in mines include:

- (a) fires;
- (b) explosions;
- (c) major rock falls and consequent entrapment;
- (d) inrushes of gas, water or material that flows when wet;
- (e) outbursts of suffocating or harmful gases from the strata;
- (f) failure of apparatus in shafts or unwalkable outlets.

274 Arrangements should include:

- (a) means of raising an alarm;
- (b) clear but simple instructions on the action to be taken in the event of an alarm;
- (c) the muster point on the surface;
- (d) access to emergency medical and scientific services if needed.

275 Mine operators should ensure that appropriate arrangements are in place for warning people in an emergency. These include ensuring that there are sufficient telephones, radios or intercoms that are kept in working order.

276 At larger mines the telephone and loud hailer systems used for communication between working places below ground, and between those places and the surface,

Guidance

53

usually incorporate mine-wide warning or alert systems for use in emergencies. Mine operators still need to consider whether additional equipment needs to be installed in places where it might not be needed for the normal running of the mine but might be critical in some emergencies. For example, at a place designated as an escape route or fresh air base for rescue operations in an irrespirable atmosphere.

277 At mines where there is no one on the surface at times while people are below ground, and particularly where there is a sole worker, mine operators must put in place arrangements to raise an alarm in the event of an emergency. For example, someone returns to the surface periodically during the day to call a pre-arranged contact at or before a certain time.

278 The operator of a mine where an escape route is steep or involves stairways should consider whether the arrangements are suitable for everyone below ground to escape having regard to their age or physical ability.

279 Mine operators will need to consider that a place of safety, and the route to reach it, may vary depending on the type and location of the incident giving rise to the emergency. Most of the hazards listed above can affect large parts of the mine workings and emergency planning will need to determine for each of those hazards present:

- (a) the likely extent of the affected areas;
- (b) the time taken for those areas to be affected;
- (c) where would be a place of safety;
- (d) escape routes to those places or to the surface;
- (e) what aids might be necessary to help people escape to safety, particularly in limited visibility situations.

Example 1: A significant fire in a single main intake

280 This could give rise to harmful levels of carbon monoxide and other dangerous products of combustion in large areas of the mine downstream of the fire. Visibility might also be restricted by smoke, fume or dust.

281 If there is a finite fuel source, such as in a diesel vehicle fire, then people can be evacuated to safe havens close to their workplace and remain there safely until the fire has extinguished and any harmful fumes have dispersed.

282 If the fuel source was very large and a fire could burn indefinitely, such as within a mine roadway in a coal seam, then almost everyone below ground would need to be able to evacuate quickly to the surface.

283 Safe havens are unlikely to be appropriate in this scenario, as a harmful atmosphere could persist around them indefinitely. In this case self-rescuer exchange stations spaced at intervals along escape routes are a more appropriate response.

284 In the event of a fire or explosion mine operators need to take into account a number of key issues in formulating appropriate arrangements, including:

- (a) how quickly smoke and harmful substances would spread through the mine workings;
- (b) the possibility that the smoke and harmful substances can back-up against, or reverse the airflow;
- (c) what levels they might reach;
- (d) how long those levels could endure;

- (e) the extent to which the oxygen level might be depleted;
- (f) escape distances;
- (g) travelling times, taking into account any effects from reduced visibility.

Example 2: Large-scale ground movement or a major rock fall

285 The area of the mine affected by ground movement and rock falls is likely to be geographically small with limited effects elsewhere. People might need to be evacuated only a short distance into a stable area of the mine to be safe.

Suitable arrangements for escape at tourist mines

286 Tourist mine escape arrangements will vary depending on the length and type of the tourist route below ground, and whether the tour is guided or self-guided.

287 If the tour is self-guided mine operators will need to consider the needs of visitors who, for example, speak little or no English or whose physical capabilities could hinder their prompt escape.

Suitable arrangements for rescue at mines

288 Suitable rescue provision is an absolute necessity. No matter what the extent or number of measures a mine operator has in place to remove or mitigate risk arising from major mining hazards there will always be a degree of residual risk of people being trapped below ground at a mine. The mine operator must therefore have in place suitable arrangements for the rescue of people from the mine. This does not just mean the mine operator's mineworkers; it includes, for example, contractors, tour guides and members of the public.

289 The mine operator's rescue arrangements must be suitable for the type of mine. The following guidance describes the arrangements that should be made for the various types of mine that exist.

290 There is no legal requirement for local authority fire and rescue services to rescue people trapped below ground in mines so operators will need to make suitable arrangements for their rescue either:

- (a) themselves; or
- (b) with other mine operators; or
- (c) with a specialist rescue services provider; or
- (d) any combination of the above.

291 Mine operators must consider the various circumstances in which people might not be able to escape to the surface or other place of safety following an incident and then put in place suitable arrangements for their rescue. To be suitable, these arrangements should ensure access to sufficient numbers of competent people and equipment to be able to undertake rescue operations without exposing rescuers themselves to undue risk.

292 At mines where there is a likelihood of an irrespirable atmosphere the arrangements should include access to sufficient numbers of people who are competent to carry out rescue operations using breathing apparatus. Arrangements are therefore likely to include access to a specialist mines rescue service provider and sufficient numbers of full- or part-time rescue personnel trained to conduct rescue operations using breathing apparatus.

Guidance

53

293 The arrangements should include details of how the rescue operation will be commanded and controlled and include the role and functions of the person:

- (a) designated to be in overall command of the rescue operations (the 'Incident Controller') – this will normally be the person appointed by the mine operator to be the mine manager;
- (b) who is responsible for the organisation and deployment of rescue personnel – this will normally be either a manager from the mines rescue provider, or someone employed by the mine operator who has the competence to undertake the role;
- (c) controlling rescue operations at the fresh air base – this will normally be a competent person from the mines rescue provider.

294 Before taking any decision to deploy rescue personnel in breathing apparatus the incident controller should seek advice from the mines rescue provider.

295 At mines where the likelihood of an irrespirable atmosphere is nil or negligible the most likely rescue scenario is entrapment. In this case mine operators will need access to sufficient numbers of competent people experienced in working in mine environments or similar, and be able to provide the equipment they will need to carry out the rescue operation.

296 For all mines there are National Occupational Standards (NOS) for rescue workers which are the minimum requirements for their training and competency levels.

297 The number of people that mine operators need will depend on the assessment of the nature of the incidents possible at each mine and how long they might last. For example, a manual dig-out could easily last for several shifts, so the things to be considered include:

- (a) numbers of and competence of people needed to break and remove the debris and to support the roof and sides;
- (b) the environment they are working in and how long they might work before becoming exhausted;
- (c) management and supervision requirements.

298 If the rescue operation involves sending teams of five into the affected area using breathing apparatus then mine operators will need to factor in that:

- (a) each team may not be able to work to the specified duration of the breathing apparatus, depending on the environment;
- (b) there could be four teams (20 people) at the mine at any one time:
 - (i) one team working;
 - (ii) one team on standby at the fresh air base;
 - (iii) one team on the surface or travelling to the fresh air base;
 - (iv) one team travelling out of the mine.

Additionally, there may be teams travelling to and from the mine.

299 Mine operators will also need to consider where the rescuer personnel will come from. If it is intended to cover rescue provision entirely from within your own resources you should take account of sickness, holidays and other absences and that a proportion of your workforce may be affected by the incident.

300 If the numbers required are high mine operators should enter into a mutual arrangement with other mine operators to release people to undertake rescue

Guidance 53

operations at a mine in an emergency situation. A specialist mines rescue provider will help co-ordinate this.

301 Tourist mine operators should consider what rescue arrangements are appropriate to their circumstances.

302 Whilst local authority fire and rescue services are not obliged to rescue people from below ground in producing mines they may be prepared to assist in recovering casualties or people who are ill or in distress. Mine operators should determine what assistance is available, for example from local fire and rescue service or cave and mountain rescue organisations, and what, if any, help they could provide.

303 Where the emergency services or voluntary organisations are unable or unwilling to provide rescue assistance then you will need to make arrangements with other mines or with a rescue services provider.

Regulation 54 Escape and rescue plan

Regulation 54

(1) *The mine operator must prepare and maintain a written plan (in these Regulations referred to as the "escape and rescue plan") which sets out the action to be taken to effect safely and promptly the evacuation and rescue of persons to a safe place in the event of an emergency.*

(2) *In preparing the escape and rescue plan, the mine operator must have regard to every relevant risk assessment carried out in accordance with these Regulations and regulation 3 of the Management Regulations.*

(3) *The mine operator must review the escape and rescue plan regularly at suitable intervals and whenever –*

- (a) *there has been a significant change in the matters to which the plan relates; or*
- (b) *the plan has been put into use.*

(4) *The mine operator must keep an up to date copy of the escape and rescue plan in a suitable place and make it available to appropriate persons promptly in the event of an emergency.*

Guidance 54

304 The escape and rescue plan is a written plan that summarises the suitable arrangements for escape and rescue and should set out the actions to be taken in an emergency. It should contain sufficient information to guide decision-making and help those managing the emergency situation. It should include:

- (a) evacuation schemes for the various emergency situations that may occur;
- (b) accounting for people below ground at the time of the incident as well as accounting for those going underground to assist in evacuation or rescue;
- (c) alerting, where necessary, a mines rescue service provider and other essential personnel.

305 The plan should also set out the allocation of essential functions. These will vary with the circumstances of the mine and the outcomes of the relevant risk assessment. These functions will include:

- (a) an overview of the emergency arrangements;
- (b) emergency management organisation;

Guidance 54

- (c) responsibilities of those with designated roles in an emergency and the people currently designated to those roles;
- (d) places designated for particular emergency functions, eg incident control room;
- (e) a sufficient number of up-to-date mine plans for use by rescuers if needed;
- (f) provision and maintenance of accommodation for rescue purposes if not already permanently available on site;
- (g) maintaining an emergency logbook.

Regulation 55 Emergency equipment and communication systems

Regulation 55

- (1) *The mine operator must ensure that suitable equipment is available for use at all times where it is necessary in any operation involving escape or rescue.*
- (2) *The mine operator must ensure that the emergency equipment is –*
 - (a) *maintained in good condition; and*
 - (b) *stored in easily accessible places.*
- (3) *The mine operator must ensure that in the event of an emergency the warning and other communication systems referred to in regulation 53(1)(b) are put into operation immediately.*

Regulation 56 Training and information

Regulation 56

- (1) *The mine operator must ensure that –*
 - (a) *all persons who work at the mine are trained in the appropriate actions to be taken in the event of an emergency at the mine; and*
 - (b) *appropriate persons are trained in the use of emergency equipment.*
- (2) *The mine operator must ensure that written instructions are prepared on –*
 - (a) *the appropriate actions to be taken in the event of an emergency at the mine; and*
 - (b) *the use, handling and operation of emergency equipment.*
- (3) *The mine operator must ensure that safety drills are held at regular intervals for the purpose of ensuring that persons who work at the mine are familiar with the matters specified in paragraph (2).*

Guidance 56

306 Mine operators must ensure that all persons who routinely work below ground are made familiar with all procedures in place to address any anticipated emergency underground at a mine, and especially with the escape routes from their place of work to a place of safety. Such training and familiarisation should be carried out at the induction of new starters and for all people at appropriate intervals commensurate with changing circumstances.

307 Practical safety drills should be arranged periodically to ensure people are familiar with emergency and escape procedures. The escape and rescue plan should be reviewed and updated, where necessary, following each exercise.

308 Visitors unfamiliar with escape and emergency procedures must be accompanied by competent people.

Regulation 57 Self-rescuers

Regulation 57

(1) *In any mine in which the risk assessment carried out in accordance with regulation 3 of the Management Regulations has identified the likelihood of an irrespirable atmosphere, the mine operator must provide –*

- (a) *suitable self-rescuers for all persons going below ground at the mine; and*
- (b) *where necessary, safe havens or facilities below ground for the exchange and recharge of self-rescuers.*

(2) *The mine operator must ensure that every person who has been issued with a self-rescuer –*

- (a) *has been instructed how to use it; and*
- (b) *does not go below ground without it.*

(3) *The mine operator must ensure that, so far as is reasonably practicable, every person who has been issued with a self-rescuer keeps it within the person's reach at all times when below ground.*

(4) *The mine operator must ensure that all self-rescuers are checked regularly and stored in a suitable place at the mine.*

(5) *In this regulation, "safe haven" means a place below ground at a mine which is provided with facilities such that persons may wait there in safety to be rescued or until it is safe to leave.*

Guidance 57

309 The purpose of a self-rescuer is to ensure that people are adequately protected while they escape to a place of safety in circumstances where the mine atmosphere may:

- (a) contain harmful levels of carbon monoxide, for example following a fire or explosion;
- (b) be low in oxygen, for example following an outburst, or inrush of suffocating gases from old mine workings.

310 Self-rescuers fall into two types:

- (a) filter self-rescuers protect against carbon monoxide but not oxygen-deficient atmospheres, so would not be appropriate if your assessment indicated that an oxygen-deficient atmosphere could occur as a result of a fire or other event;
- (b) self-contained self-rescuers contain an oxygen supply and therefore provide protection in all atmospheres. Their duration can be significantly shorter than that of filter self-rescuers.

311 Regulation 13 of the Management Regulations requires any employer, including a mine operator, to provide employees with adequate health and safety training and, where appropriate, to repeat it periodically. This applies to the provision and training in the use of self-rescuers.

312 Annual refresher training in the use of self-rescuers should be undertaken and include simulated operational use.

313 Self-rescuers are work equipment and must be regularly inspected, tested and maintained.

Guidance

57

314 Where the escape distances, and therefore escape times, are longer than the duration of the self-rescuers provided, facilities should be provided so that they can be safely exchanged or recharged.

315 In calculating the distance to and between changeover facilities account should be taken of factors that might reduce walking speed or reduce the duration of the self-rescuer, including:

- (a) reduced visibility;
- (b) escape route height;
- (c) escape route gradients;
- (d) heat and humidity;
- (e) age and fitness of wearers.

316 Safe havens should be provided with two separate means of communication to the surface, and sufficient welfare facilities to enable people to wait in reasonable comfort.

PART 7 Surveyors and plans

Regulation 58 Surveyor

Regulation 58

(1) *The mine operator must ensure that there is appointed a suitably qualified and competent person as surveyor of the mine at all times during any period when –*

- (a) *mineral is being extracted from the mine, or such extraction is proposed; or*
- (b) *there is significant excavation at the mine, or such excavation is proposed.*

(2) *Where for any reason a person appointed under paragraph (1) ceases to be the surveyor of the mine during any period mentioned in that paragraph, within a reasonable time after the appointment ceases the mine operator must appoint another suitably qualified and competent person to be surveyor of the mine.*

(3) *If, for any reason, no appointment has been made under paragraph (2) within a reasonable time, the only work that may be carried out below ground at the mine is work that is essential to the maintenance of the safety of the mine.*

Guidance 58

317 Examples of significant excavation may include:

- (a) driving roadways;
- (b) construction of underground bunkers, workshops or storage facilities;
- (c) excavation work on shafts or adits.

318 What is considered to be a 'reasonable time' will depend, for example, on the hazards at the mine and the amount of mineral extraction or significant excavation taking place.

Regulation 59 Working plans, sections, ventilation plans and geological map

Regulation 59

(1) *The mine operator must ensure that –*

- (a) *there are –*
 - (i) *plans of all the workings in a mine from which any mineral is being extracted and of the mine's boundaries and, so far as is practicable, of any other workings which may affect the safety of the mine (whether or not the workings are discontinued or abandoned); and*
 - (ii) *accurate sections of the seams or vein-systems currently being worked in the mine and of the surrounding strata;*
- (b) *the plans required by sub-paragraph (a) include a plan of the system of ventilation at the mine (in this regulation referred to as the "ventilation plan");*

Regulation 59

- (c) *the plans and sections required by sub-paragraph (a) are –*
- (i) *kept for as long as necessary at the mine or (if that is not practicable) at some other convenient place;*
 - (ii) *prepared and revised at suitable intervals by the surveyor of the mine or a suitably qualified and competent person working under the surveyor's supervision;*
 - (iii) *prepared in such form and in such quantity as is necessary to enable the mine to be worked safely;*
 - (iv) *prepared on such a scale and marked with such features as are necessary for –*
 - (aa) *the provision of accurate information relevant to the safe working of the mine; and*
 - (bb) *the provision of accurate information on the position and conditions of existing workings and, so far as practicable, workings that have been discontinued or abandoned;*
 - (v) *marked with the date on which the plan or section was commenced, prepared or revised;*
 - (vi) *permanently and clearly drawn or printed on suitable and durable material; and*
 - (vii) *maintained in good condition.*

(2) *The mine operator must retain all relevant information relating to the plans and sections referred to in paragraph (1).*

(3) *The mine operator must ensure that the ventilation plan shows in particular the general direction of the flow of ventilation, the points at which the quantity of air passing is assessed and the location of the principal devices for regulating the flow of ventilation.*

(4) *The mine operator must ensure that –*

- (a) *a suitable geological map of the district in which the mine is situated is kept at the mine; and*
- (b) *the geological map shows the boundaries of superficial and drift deposits.*

(5) *If a person ceases to be surveyor of the mine, the mine operator must ensure that –*

- (a) *any plans, sections and relevant information relating to the plans and sections referred to in this regulation that are held by the surveyor are delivered to the mine operator as soon as is reasonably practicable; and*
- (b) *where practicable, the person ceasing to be the surveyor prepares a report in writing of the condition of those plans and sections and sends it to the mine operator.*

Guidance 59

319 Copies of all working plans should be kept at the mine and should be available for immediate use at all times. Working plans of the mine should be updated at suitable intervals. The suitable interval between plan revisions will be dependent on the rate of advance and/or extraction. In addition to the plan revision date being shown, the new or revised positions of the workings should be annotated with the date of revision. More frequent revision should be undertaken where necessary. For example, when the thirling of roadways may significantly affect ventilation or means of egress, or when the absence of up-to-date information could present a potential hazard to further working.

320 A plan must be available to show the ventilation system at the mine. The colour scheme commonly used to avoid confusion is for airways that are solely

Guidance

59

intake airways to be coloured blue, while airways which are solely return airways and do not serve any working face as an intake airway are coloured red.

321 Working plans of the mine should be on a scale of not less than 1:2500.

322 All plans should be orientated to and correlated with the OS National Grid. They should be marked with numbered squares which correspond to the full kilometre grid reference system adopted by Ordnance Survey. The direction of National Grid North should be shown on the plan.

323 A separate plan should be made and kept at the mine for each seam or vein being worked in the mine. It should show clearly and accurately all the workings – together with all shafts, outlets, drifts, staple-pits or boreholes driven from or to it – which are inside the boundaries of the mine. The extent and position of any abandoned or disused workings should also be shown.

324 Every working plan of a mine should show, as far as is practicable, the position, direction, extent and vertical throw of a fault or other displacement in each seam, together with any washout, roll, or igneous intrusion which affects the seam or vein.

325 When information is gathered relating to inrush hazards it should be shown on the working plan to the extent that it is practical to do so. In particular, but without prejudice to other requirements, cautionary zones should be shown on the working plan.

326 Working plans should show the position of any water dam which may affect the workings and, as far as can be ascertained, the dimensions, date, method of construction and pressure of water being retained.

327 So far as is reasonably practicable, every working plan should show the position and level of the top and bottom of every shaft, outlet, drift or staple-pit which gives access to the workings to which the plan relates, together with the level of every entrance giving access to the workings.

328 Similar information should be shown for every borehole sunk from, or driven to, the surface, or from one seam to another. The location and reference number of boreholes may be sufficient unless there is a need for more detail, eg where there may be the risk of an inrush.

329 Working plans should show the datum for levels and the variations in level at horizontal intervals of up to 100 m and at as many intermediate points as may be necessary to show any variations in level or changes in gradient:

- (a) on every length of roadway, including intake or return airways;
- (b) so far as possible, on the outline of any disused or abandoned workings shown on the plan.

PART 8 Tips and tipping

Regulation 60 General duty to ensure safety of tips

Regulation 60

The mine operator must ensure that tips are designed, constructed, operated and maintained so as to ensure that –

- (a) instability; or
- (b) movement,

which is likely to give rise to a risk to the health and safety of any person is avoided.

Guidance 60

General duty

330 The effort expended should be proportionate to the danger the tip poses and, in the case of very small tips, this will usually be minimal. While a full geotechnical assessment will only be required on certain tips, the mine operator must ensure that all tips are properly designed. This involves considering issues such as drainage and the method of construction.

331 It is important to ensure that the design, construction, operation, inspection, appraisal and assessment work are not carried out in isolation from each other. Information gained from any of these activities needs to be communicated and taken into account. For example, if a geotechnical specialist has been involved in the design or appraisal, their advice should help to draw up the inspection scheme.

Design of tips

332 The design should conform to good engineering practice and relevant standards set out in Schedule 2. Slopes should be designed to provide stability throughout their life and the risk of failure of the tip should be assessed to ensure the design provides an adequate margin of safety.

333 Modification of the design may be necessary as a result of information obtained during routine working, inspection, appraisal or geotechnical assessment.

334 The limits of where it is safe to tip should be determined on the basis of the information collected in the site investigation and survey.

335 Where a proposed tip may constitute a significant hazard and would require a geotechnical assessment, it is strongly recommended that a geotechnical specialist is involved at the design stage. In such cases, the initial design, appraisal and geotechnical assessment may be amalgamated and the design documentation may form the assessment report, provided it addresses all of the relevant matters.

Working tips

336 Tips should be developed in accordance with the design, and procedures to ensure control of any design modifications are essential. These must be explained in the tips rules.

Guidance 60

337 Any tip which moves is potentially unsafe. Immediately any movement is detected procedures should be implemented to determine the risk and appropriate remedial action required. This will involve reappraisal or reassessment as soon as possible in accordance with regulations 61 and 62.

338 Reprofilling or removing material from a tip needs particular care since it may lead to instability. Working methods must not result in high vertical faces or overhangs.

Stockpiles

339 It is important to remember that the legal term 'tip' includes stockpiles. These can be as dangerous as other tips, and so they too need to be properly designed and operated.

340 Additional precautions may be required to prevent risks arising where tipping and removal from a stockpile take place simultaneously.

341 Walls or other supports provided to contain stockpiles should be designed to ensure their stability.

342 Stockpiles that are not free-draining will require adequate drainage.

343 Adjacent stockpiles can have an effect on each other, for example stability may be altered where they overlap. The adequacy of traffic routes for vehicles should also be considered when planning the position and size of stockpiles.

Regulation 61 Appraisal of tips

Regulation 61

(1) *The mine operator must ensure that –*

- (a) *a suitable appraisal of all existing or proposed tips at the mine is undertaken by a competent person in order to determine whether any such tip is or, in the case of a proposed tip, would be, a significant hazard;*
- (b) *any significant findings made during the appraisal are recorded; and*
- (c) *the record is made available to each employer of persons at the mine.*

(2) *Where the person undertaking the appraisal concludes that the tip presents no significant hazard, the mine operator must ensure that a competent person carries out further appraisals –*

- (a) *at appropriate intervals;*
- (b) *whenever there is any reason to suspect that there has been or will be a significant change to –*
 - (i) *the matters to which the appraisal relates; or*
 - (ii) *any neighbouring land which may be affected by movement by or instability of the tip to which the appraisal relates; and*
- (c) *whenever there is any reason to doubt the validity of the conclusion of the current appraisal.*

(3) *Where the person undertaking the appraisal concludes that the tip represents a significant hazard, the mine operator must ensure that a geotechnical assessment is carried out in accordance with the requirements of regulation 62 as soon as is reasonably practicable.*

Guidance 61

344 An appraisal is intended to be a straightforward exercise to determine which tips, proposed or existing, would pose a significant danger if they failed, and so merit an assessment by a geotechnical specialist.

345 The appraisal should be carried out in sufficient detail to determine if a tip poses a hazard from collapse or movement. If the level of hazard is unclear from the appraisal, you should seek advice from a geotechnical specialist.

346 When carrying out an appraisal there is no need to duplicate work already carried out, for example under the Management Regulations.

347 A geotechnical assessment by a geotechnical specialist will be needed where it is apparent that failure of a tip could seriously injure or kill people, eg a tip near a public roadway, house or in close proximity to workplaces.

348 Areas where no one is directly at risk from a collapse of part of a tip should be included in the appraisal. Failure in such areas could affect the stability of the remainder of the tip.

349 The appraisal should take account of the material to be tipped, its structure, water content / drainage, the proximity of water courses, railways, roads, workplaces, residential accommodation, or abandoned workings, and any evidence or history of failures. The matters covered in inspections are also relevant. Table 2 provides a model inspection checklist which can be tailored to the needs of a particular mine.

Table 2 Information that could be included in tip inspection reports

<p>Crests</p> <ul style="list-style-type: none"> Lowering of ground surface Cracking Water overflow Water entering cracks New accumulations of water Surcharging of ground
<p>Lagoons</p> <ul style="list-style-type: none"> Wave erosion of embankment / bank erosion Inflow, outflow or storm overflow impeded Freeboard Signs of damage due to animals Escape of material in suspension or solution Indications of silting Impending or partial blockages Cracking Seepage
<p>Toe</p> <ul style="list-style-type: none"> Ground movements at or in front Water issuing from or in front New accumulation of water Excavations not as current design

Guidance 61

Table 2 Information that could be included in tip inspection reports *Cont'd*

<p>Others</p> <p>Adverse drainage</p> <p>Indications of recent ground movements</p> <p>Construction varying from plan or tipping rules</p> <p>Damage to monitoring equipment</p> <p>Indications from monitoring</p> <p>Recent or active slope failure</p> <p>Unexpected geological conditions appeared since last inspection</p> <p>Other changes in slope condition or features of note</p> <p>Indications of burning</p> <p>Variations from design</p> <p>Seepage</p>
<p>Haul roads</p> <p>Stability</p> <p>Geological changes</p> <p>Width and gradient</p> <p>Condition of road surface</p> <p>Edge protection</p>

350 It is likely that tips that were classified under the 1971 Regulations will need to be subject to routine assessment under these Regulations. In most cases, appraisals should conclude that they pose a significant hazard. Where this is not the case, the conclusion needs clear justification.

Significant hazard

351 To determine if the hazard is significant it is necessary to consider how a tip might feasibly fail, and the likely consequences of any such failure. The probability of such a failure actually happening is not relevant in this context.

352 The consequences depend on the likely scale of the failure (ie the size of the failure and the area affected by it) and whether people are likely to be put at risk.

353 The hazard should be considered significant if such a failure would, directly or indirectly, be:

- (a) liable to endanger premises, roadways or other places where people are likely to be;
- (b) likely to kill or seriously injure anyone.

354 If the degree of hazard is not clear, you should seek the advice of a geotechnical specialist.

355 The hazard should also be treated as significant and the tip subject to a geotechnical assessment if it is, or will be:

- (a) in a wholly or mainly solid state and not in solution or suspension (ie not likely to flow if not contained) and:
 - (i) the area of the land covered exceeds 10 000 sq m; or
 - (ii) the height of the tip exceeds 15 m; or
 - (iii) the average gradient of the land covered by the tip exceeds 1 in 12;
- (b) a lagoon containing any liquid or material wholly or mainly in solution or suspension (ie likely to flow if not contained) and:
 - (i) the contents of the lagoon are more than 4 m above the level of any land which is within 50 m of its perimeter; or
 - (ii) the contents of the lagoon exceed 10 000 cubic metres; or

Guidance 61

- (c) irrespective of the size of the tip, other factors, eg the geology, location or proximity to mine workings, could result in a significant hazard.

356 The conclusions of the appraisal should be included in the health and safety document. If the appraisal concludes that the tip is unsafe or likely to become unsafe, an appropriate action remediation plan should be included.

357 Where the appraisal concludes there is no significant hazard, the justification should be sufficiently explained.

358 The appraisal should be reviewed at appropriate intervals and, in particular, in response to:

- (a) changes to working methods;
- (b) experience of the geology of the site;
- (c) changes outside the site, eg the construction of houses or roads near the boundary;
- (d) evidence of failure or movement;
- (e) discovery of incorrect assumptions or errors in the appraisal.

Regulation 62 Geotechnical assessments

Regulation 62

(1) *For the purposes of this Part –*

- (a) *“geotechnical assessment” means an assessment carried out by a geotechnical specialist identifying and assessing all factors liable to affect the stability and safety of a proposed or existing tip; and*
- (b) *“geotechnical specialist” means a person who is suitably qualified and competent to perform a geotechnical analysis to determine the hazard and risk arising from the tip being assessed.*

(2) *As part of the geotechnical assessment, the geotechnical specialist must –*

- (a) *prepare or consider (as appropriate) the documents and particulars specified in Schedule 2; and*
- (b) *consider the tips rules.*

(3) *A geotechnical assessment must include the geotechnical specialist’s conclusions on the following, together with reasons –*

- (a) *the safety and stability of the tip, including whether the tip represents a significant hazard by way of instability or movement;*
- (b) *where appropriate, whether any remedial work is required in relation to the tip and the date by which such work must be completed; and*
- (c) *where appropriate, the date by which the next geotechnical assessment should take place, provided that, in the case of a tip that represents a significant hazard by way of instability or movement, that date is not more than two years after the date of the assessment.*

(4) *The geotechnical assessment must be recorded.*

(5) *The mine operator must ensure that any information available to the mine operator which may be relevant for the purposes of a geotechnical assessment is made available to the geotechnical specialist.*

(6) *The mine operator must ensure that any remedial works identified during the geotechnical assessment in accordance with paragraph (3)(b) are completed by the date specified.*

Guidance 62

359 The geotechnical assessment should cover similar topics to the appraisal, but in greater depth and in more detail.

360 The appraisal concentrates on the hazard posed by a tip; the assessment should also pay particular attention to the risk of failure.

361 The assessment record needs to be in a form that will help the mine operator to manage the safe development of the tip, and to organise appropriate inspections.

362 The level of expertise required to carry out a geotechnical assessment depends on the complexity of the site and properties of the material being tipped. The geotechnical specialist must have sufficient expertise and practical experience of similar conditions to adequately assess the safety of the tip, and the precautions required to make and keep it safe.

Regulation 63 Tips which are a significant hazard (notifiable tips)

Regulation 63

(1) *Where the geotechnical specialist concludes under regulation 62(3)(a) that a tip represents a significant hazard by way of instability or movement (in these Regulations referred to as a “notifiable tip”), the mine operator must ensure that the tip is subject to a further geotechnical assessment at least every two years.*

(2) *The mine operator must ensure that a geotechnical assessment is undertaken as soon as is reasonably practicable where, in relation to a notifiable tip, there is –*

- (a) *any reason to suspect that there has been or will be a significant change to –*
 - (i) *the matters to which the geotechnical assessment relates; or*
 - (ii) *any neighbouring land which may be affected by movement by or instability of the tip; or*
- (b) *any reason to doubt the validity of the conclusion of the current assessment.*

Guidance 63

363 The date by which the next geotechnical assessment is to be carried out must be specified in the geotechnical specialist’s report.

Review

364 Examples of circumstances where, in accordance with regulation 63(2)(a) and (b), further geotechnical assessments must be carried out are:

- (a) changes to working methods;
- (b) experience of the geology of the site;
- (c) changes outside the site, eg the construction of houses or roads near the boundary;
- (d) evidence of failure or movement;
- (e) discovery of incorrect assumptions or errors in the appraisal.

365 Wherever possible, such assessments should be undertaken before any significant change but, where this is not possible, they must take place as soon as reasonably practicable.

Guidance 63

366 A new development on land adjacent to a tip, eg the construction of a school, housing estate or road, could significantly increase the hazard. Such changes are likely to be known well in advance and should be planned.

Regulation 64 Records of substances tipped

Regulation 64

The mine operator must ensure that sufficient records are kept of the nature, quantity and location of all substances accumulated or deposited at a notifiable tip to enable an accurate assessment of the stability of that tip to be made.

Guidance 64

367 This information is needed throughout the life of a notifiable tip and should be kept until there is no prospect of further tipping on or near the tip. The mine owner may also require the information after this time, to meet the requirements in Part II of the Mines and Quarries (Tips) Act 1969.

Regulation 65 Notification of tips

Regulation 65

(1) Subject to paragraph (2), the mine operator must give not less than 30 days' notice in writing to the Executive (or such other period as the Executive may permit) of the mine operator's intention to commence or continue (as appropriate) operations in relation to any –

- (a) proposed tip which it is reasonable to expect will be a significant hazard; or*
- (b) notifiable tip other than a notifiable tip which was a classified tip within the meaning of the 1971 Regulations and in respect of which notice has been given in accordance with regulation 8(1) of those Regulations.*

(2) Paragraph (1)(b) does not apply to a tip in relation to which notice of intention to commence operations has been given previously.

(3) The notice referred to in paragraph (1) must be given –

- (a) in the case of tips falling within paragraph (1)(a), before the commencement of operations; and*
- (b) in the case of tips falling within paragraph (1)(b), as soon as possible after the date on which the mine operator receives the geotechnical assessment.*

(4) The following information must be included in any notice given under paragraph (1) –

- (a) a brief description of the tip, including its location, size and the material to be excavated or tipped; and*
- (b) in relation to a tip falling within paragraph (1)(b), the geotechnical specialist's conclusions under regulation 62(3).*

(5) Where a geotechnical specialist concludes during the geotechnical assessment of a notifiable tip that the tip no longer presents a significant hazard by way of instability or movement, the mine operator must give notice in writing of that conclusion and the reasons for that conclusion to the Executive within two months of the geotechnical assessment.

Guidance 65

368 Notification is not required where HSE has already been notified of a classified tip under regulation 8(1) of the 1971 Regulations.

369 In the case of an existing tip which was not previously classified, the mine operator must inform HSE as soon as possible after their receipt of the geotechnical assessment which concludes that the tip is a significant hazard.

370 Where there are several notifiable tips on the same site, a single, combined notification for all of them is sufficient.

Regulation 66 Tips rules

Regulation 66

(1) *Rules required by regulation 12 must include rules (in these Regulations referred to as "tips rules") for the purpose of ensuring the safe construction and operation of tips.*

(2) *Tips rules must in particular specify the following matters –*

- (a) *the manner in which the activities referred to in paragraph (1) are to be carried out;*
- (b) *the nature and extent of supervision of such activities; and*
- (c) *the precautions to be taken during such activities to ensure the health and safety of any person and the safety and stability of a tip.*

Guidance 66

371 Tips rules are the practical measures, or operating procedures, required to keep tips, and people on and around them, safe. They should provide straightforward practical guidance to those building the tip and, where appropriate, removing material from a tip.

372 If a geotechnical specialist has been involved in the design, or has carried out a geotechnical assessment, they should be involved in the preparation of the rules to ensure that the rules adequately cover all relevant measures.

373 Inspection of tips is covered by the requirements under regulation 14 and the inspection arrangements should be incorporated into the rules.

374 Rules are required for all tips, but the amount of detail included should be proportionate to the risk posed by the tip.

375 The rules should specify the way in which the tip will be constructed and managed to ensure safety. Examples of items to be covered include:

- (a) the maximum depth / height;
- (b) the preparation necessary (eg the standard of foundations required for a tip);
- (c) the provision, installation, maintenance and inspection of drainage;
- (d) the thickness and any compaction of the layers from which a tip is constructed;
- (e) the type of plant and machinery used;
- (f) the construction and maintenance standards for roadways and arrangements to prevent vehicles driving or reversing over edges, including the size and shape of edge protection;
- (g) the supervision needed to ensure that work is carried out in accordance with the design and rules;
- (h) suitable arrangements to notify people in the management structure if particular defects are found, including the actions they should take;
- (i) the way material may be removed from the tip, if relevant.

Guidance 66

376 In the case of lagoons, examples include:

- (a) the provision of emergency overflows;
- (b) minimising wave erosion;
- (c) minimum free-fall of infill liquid material;
- (d) minimum freeboard heights;
- (e) the operation or maintenance of pumps;
- (f) procedures to allow material to be recovered safely from lagoons;
- (g) procedures when covering lagoons;
- (h) provision of life-saving equipment.

Regulation 67 Abandoned tips

Regulation 67

(1) Subject to regulation 4(8), from the date of a notice of abandonment of a mine any tip that is deemed to form part of that mine (in this regulation referred to as an "abandoned tip") ceases to be a tip to which these Regulations apply.

(2) Despite paragraph (1), regulation 68 continues to apply in relation to every report or record made in relation to an abandoned tip.

Guidance 67

377 Although these Regulations do not apply to abandoned tips, under Part II of the Mines and Quarries (Tips) Act 1969 the owner of a disused tip at an abandoned mine is responsible for its safety. To carry out these responsibilities, he/she will need certain information after the mine is abandoned, eg reports of geotechnical assessment.

PART 9 General

Regulation 68 Record keeping

Regulation 68

(1) *The mine operator must ensure that –*

- (a) *every report or record which is required to be made under these Regulations is in a suitable form and is kept at the mine or at some other suitable place for at least three years from the date on which the report or record was made unless the provision concerned expressly imposes some other requirement; and*
- (b) *a copy of the written statement of duties of all persons appointed at the mine under these Regulations is kept at the mine or at some other suitable place for at least 12 months after the date on which the appointment ceased to have effect.*

(2) *Paragraph (1)(a) applies to copies of information notified to the Executive under these Regulations but does not apply to the record made in accordance with regulation 5(3) by the owner.*

Guidance 68

378 The mine operator should decide how best the reports or records are made and stored on the basis that the information is to be stored accurately and can be easily retrievable. The information may be kept electronically (with suitable back-up arrangements) or on paper and may be kept anywhere, provided that anyone who has a right to see it can do so easily, eg by electronic transmission.

379 Records relating to appointments, including the written statement of the duties of persons at the mine under these Regulations should be retained at the mine until 12 months after the ending of the relevant appointment. The records should show the person's full name, date of birth, details of relevant qualifications held and dates when they were obtained, date of appointment, information on previous employment or experience, where this is relevant, and a copy of the written statement of the extent of their authority and responsibility.

Guidance 68

Table 3 Reports and records required under these Regulations

Task	Regulation
Recording of rules in the health and safety document	9(1)(d)
Recording of the management structure	10(1)(b)
Appointment of competent individual(s)	10(1)(c) & (f)
Appointment of competent person to inspect the mine	14(1)(d)
Inspection reports of the mine	14(1)(e)
Inspection reports of equipment	15(1)(b)
Record of persons below ground at a mine	16
An assessment of the risk of ground movement	32(4)(a)
Report confirming that winding apparatus is safe to use	39(2)(c)
Ventilation system recorded in the ventilation plan	43(1)(c)
Report of the type, size and location of a ventilating fan	43(4)(b)
Recording of the assessment of risk to inhalable dust	45(3)(a)
Appointment of a surveyor	58(1) & (2)
Written report when person ceases to be surveyor	59(5)(b)
Recording of significant findings of tip appraisals	61(1)(b)
Geotechnical assessments recorded	62(4)
Sufficient recording of deposits at notifiable tips	64
Record of site investigation of a tip	Schedule 2 para 2
Record of assumptions of a tip	Schedule 2 para 5
Record of calculations of a tip	Schedule 2 para 6
Record of design of a tip	Schedule 2 para 7
Record of safety measures of a tip	Schedule 2 para 8

Regulation 69 Plans of abandoned mines

Regulation 69

(1) *Where the mine operator gives a notice of abandonment, the mine operator must, within three months of the date on which the mine is abandoned or the tip is closed, send to the Executive, or a body approved by it, an accurate plan of that mine or tip (as the case may be).*

(2) *Where a plan has been sent to the Executive or a body approved by it under paragraph (1), that plan must be retained by the Executive or that body in accordance with arrangements approved by the Executive.*

Guidance 69

380 When a mine is abandoned, any tip associated with it becomes an abandoned tip and the mine operator must, within three months of the date of abandonment send an accurate plan of the mine or tip to the Executive or other body approved by it.

Regulation 70 Exemptions

Regulation 70

(1) *Subject to paragraph (4), the Executive may, by a certificate in writing, exempt any mine, part of a mine or class of mines, any person or class of persons, any plant or equipment or class of plant or equipment, or any operation or class of operations from all or any of the requirements and prohibitions in these Regulations.*

(2) *An exemption granted under paragraph (1) may be –*

- (a) subject to conditions; and*
- (b) subject to a time limit.*

(3) *An exemption granted under paragraph (1) may be revoked at any time by a certificate in writing.*

(4) *The Executive may not grant an exemption under paragraph (1) unless it is satisfied that the health and safety of persons who are likely to be affected by the exemption will not be prejudiced in consequence of it, having regard to the circumstances of the case and in particular to –*

- (a) the conditions (if any) it proposes to attach to the exemption; and*
- (b) any other requirements imposed by or under any enactment which apply to the case.*

PART 10 Transitional provisions, repeals, revocations and modifications

Regulation 71 Transitional provisions: General

Regulation 71

(1) Where enforcement action has been initiated against an owner, manager or employer in relation to a mine by the Executive before the commencement date, that action continues as if the action had been commenced against the mine operator on that date.

(2) Any action taken by the Executive or an inspector with respect to a mine in relation to any of the relevant statutory provisions in force before the commencement date continues to have effect in relation to the mine operator so that it is the duty of the mine operator to carry out any remedial actions or operations that the owner, manager or principal employer of employees at the mine was under an obligation to carry out or achieve immediately before the commencement date.

(3) A document prepared by the owner, manager or an employer at a mine and sufficient for the purposes of the provision in column 1 of table 1 in force immediately before the commencement date may be relied upon by the mine operator as evidence that an assessment, process, procedure or scheme required by the corresponding provision of these Regulations in column 2 of table 1 has been made or is in place.

Table 1

Column 1	Column 2
Regulation 11(2) of MASHAM	regulation 15(1)(a)
Regulation 4(5)(a) of the Mines Miscellaneous Health and Safety Provisions Regulations 1995	regulation 20(1)
Regulation 5 of the Mines (Control of Ground Movement) Regulations 1999	regulation 32(3)
Regulation 6(5)(a) of the Mines (Precautions Against Inrushes) Regulations 1979	regulation 35(2)(a)
Section 37(1) of the 1954 Act	regulation 42
Regulation 4(1) of the Coal Mines (Control of Inhalable Dust) Regulations 2007	regulation 45(2)
Regulation 27(1) of MASHAM	regulation 58(1)
Regulation 10 of the 1971 Regulations	regulation 66(1)

(4) Where, immediately before the commencement date, anything is kept at a place other than a mine in accordance with the relevant statutory provisions, that place shall be deemed to be suitable for the purposes of these Regulations.

Regulation 71

(5) *In this regulation, references to enforcement action are to steps taken by an inspector under sections 20 to 22 and 25 of the 1974 Act in relation to a particular mine or to proceedings instituted under the 1974 Act in any court and requiring the owner, manager, employer or mine operator to do or not to do anything.*

Regulation 72 Transitional provisions: Tips

Regulation 72

(1) *A mine operator must carry out by 5th April 2016 the first appraisal of a tip that, immediately before the commencement date, was not classified within the meaning of regulation 2(1) of the 1971 Regulations.*

(2) *Where, before the commencement date, a report has been obtained in accordance with regulation 9(2)(a), 12(1) or 18(1) of the 1971 Regulations and is less than two years old, that report –*

- (a) *must be treated as a geotechnical assessment for the purpose of regulation 62; and*
- (b) *remains valid for two years from the date on which it was made.*

Regulation 73 Transitional provision: Winsford mine

Regulation 73

(1) *Where explosives were being stored below ground at Winsford mine in accordance with the Winsford Regulations immediately before the commencement date, the mine operator of that mine on the commencement date is deemed to hold a licence granted by the Executive under regulation 13 of the 2014 Regulations (the “deemed licence”).*

(2) *The requirements set out in regulations 4(2) to (4), 6, 7, 7(a) and 9(1) to (5) and (7) of the Winsford Regulations have effect as if they were conditions of the deemed licence and as if references to the mine manager in those regulations were references to the mine operator.*

(3) *The deemed licence remains in force until 6th April 2020 unless it is revoked before that date under regulation 23 of the 2014 Regulations.*

(4) *In this regulation –*

- (a) *“Winsford mine” means the Winsford Rock Salt Mine, Winsford, Cheshire (formerly known as the Meadow Bank Mine); and*
- (b) *“Winsford Regulations” means the Meadow Bank Mine (Explosives) Special Regulations 1963.*

Regulation 74 Repeals and revocations

Regulation 74

(1) *The provisions of the Acts specified in column 1 of Schedule 3 are repealed to the extent set out in the corresponding entry in column 2.*

(2) *The instruments specified in Part 1 of Schedule 4 are revoked in full.*

(3) *The instruments specified in column 1 of Part 2 of Schedule 4 are revoked to the extent specified in the corresponding entry in column 2.*

Guidance 74

381 This regulation brings Schedules 3 and 4 into force. These Schedules list earlier pieces of legislation that are fully or partly repealed or revoked by these Regulations.

Regulation 75 Modifications

Regulation 75

The modifications specified in Schedule 5 have effect.

Guidance 75

382 This regulation brings Schedule 5 into force. This contains amendments to other legislation concerning mines.

Regulation 76 Review

Regulation 76

(1) *Before the end of the review period, the Secretary of State must –*

- (a) *carry out a review of these Regulations;*
- (b) *set out the conclusions of the review in a report; and*
- (c) *publish the report.*

(2) *In carrying out the review, the Secretary of State must, so far as is reasonably practicable, have regard to how other member States have implemented Council Directive 1992/104/EEC on the minimum requirements for improving the safety and health protection of workers in surface and underground mineral-extracting industries, which regulations 7, 9 to 17, 19, 20, 22, 23, 25, 26, 28, 29, 32 to 34, 37, 39, 41 to 43, 45 to 50, 53, 55 to 57, 59, 60 and 69 implement.*

(3) *The report must, in particular, –*

- (a) *set out the objectives intended to be achieved by the regulatory system established by these Regulations;*
- (b) *assess the extent to which those objectives are achieved; and*
- (c) *assess whether those objectives remain appropriate and, if so, the extent to which they could be achieved with a system that imposes less regulation.*

(4) *In this regulation, “review period” means the period of five years beginning with the commencement date.*

SCHEDULES

Schedule

1

Schedule 1 Support system standards for coal mines (regulation 32(7))

1. *In the case of face workings where props are used –*
 - (a) *the maximum distance between props in the same row must be 1.2 metres;*
 - (b) *the maximum distance between adjacent rows of props must be 1.2 metres;*
 - (c) *the sum of the distances between the props in the same row and between adjacent rows of props must not exceed 2.1 metres;*
 - (d) *the bars must always be used above the props where the extracted height exceeds 0.6 metres; and*
 - (e) *the maximum distance between the row of props closest to the face and the face must be –*
 - (i) *where an armoured conveyor is used and persons do not normally work on the face side of the conveyor, 2 metres; and*
 - (ii) *in all other cases when filling or loading at the face has been completed, 0.9 metres.*
2. *In the case of face workings where bars are used –*
 - (a) *the maximum distance between adjacent bars in the same row must be 1.2 metres; and*
 - (b) *bars must be advanced as soon as practicable after extraction and set so that the maximum distance between the end of the bar closest to the face and the face is 0.4 metres.*
3. *In the case of workings where powered supports are used –*
 - (a) *such supports must be advanced as soon as practicable after extraction and set so that the maximum distance between the end of the beam closest to the face and the face is 0.5 metres;*
 - (b) *during normal production at any place where a machine is used which shears mineral to a depth exceeding 0.4 metres, the machine must not be permitted to approach within 27 metres of any powered support which has not been advanced from the previous cut; and*
 - (c) *where an immediate forward support system is used, the supports must be advanced –*
 - (i) *as close as practicable behind the coal-getting machine; and*
 - (ii) *in any event, no more than 10 metres behind the coal-getting machine.*

Schedule

1

- 4.** For the purpose of paragraph 3 –
 - (a) “powered support” means a support which is advanced and set to the roof by mechanical energy;
 - (b) “beam” means that part of a powered support system designed to be set to the roof; and
 - (c) “immediate forward support system” means a system of supports designed to be advanced and set to the roof immediately after extraction by a coal-getting machine.
- 5.** In the case of face workings where packs are used –
 - (a) the maximum width of roof exposed by the working of mineral since the completion of the last pack must be 2.1 metres; and
 - (b) the waste edge parallel to the face must be no more than 1.5 metres in advance of the front line of pack bounding that waste.
- 6.** In the case of face workings where persons work or pass more than 0.9 metres beyond the front row of props or other supports, temporary supports must be used and no person may work more than 0.9 metres from a temporary support.
- 7.** In this Schedule, “face working” –
 - (a) in relation to a working face at which supports are systematically withdrawn, means all that part of the mine between the face and the front line of the packs, if any, or the last row of supports for the time being maintained, whichever is the further from the face; and
 - (b) in relation to a working face at which supports are not systematically withdrawn, means all that part of the mine between the face and a line parallel to it and 3.7 metres from it.
- 8.** In the case of roadways where props and bars are used as the principal support –
 - (a) the maximum distance between adjacent bars must be 1.2 metres;
 - (b) the minimum number of props per bar must be 2; and
 - (c) the maximum distance from the last bar to the face must be 3.5 metres.
- 9.** In the case of roadways where steel arches are used as the principal support –
 - (a) the maximum distance between adjacent arches must be 1.2 metres; and
 - (b) the maximum distance between the last arch before the face and the face must be 3.5 metres.
- 10.** In the case of roadways where rockbolts are used as the principal support –
 - (a) the minimum density of rockbolts in the roof must be 1 bolt per square metre;
 - (b) the minimum length of rockbolt in the roof must be 1.8 metres; and
 - (c) the maximum distance between the last completed row of rockbolts and the face must be 3.5 metres.

Schedule 1

- 11.** *In the case of roadways where machines are used to cut and simultaneously load, the maximum advance per cycle of any such machine must be 1.2 metres.*
- 12.** *In the case of roadways where persons work or pass in front of the last permanent support –*
 - (a) temporary supports must be used; and*
 - (b) the maximum distance between the last permanent support and the first line of temporary supports must be 1.2 metres, except where props are used, when that distance must be 0.9 metres.*
- 13.** *For the purpose of this Schedule, “bar” means a support designed to be set between a prop and the roof.*

Schedule 2

**Schedule 2 Content of geotechnical assessments
(regulation 62(2))**

Site survey

- 1.** *An accurate plan, which should be prepared on a scale not less detailed than 1:2500, showing –*
 - (a) the boundaries of the mine or premises on which the mine or tip, or proposed mine or tip, is or is to be situated;*
 - (b) the site of the mine or tip, or proposed mine or tip;*
 - (c) any contiguous land or structures which might be affected by the mine or the tip or proposed mine or tip; and*
 - (d) all mine workings (whether abandoned or not), buried quarry workings, known cave systems, active or former landslips, springs, artesian wells, watercourses and other natural or manmade features including tunnel pipes or culverts which might affect the safety of the mine or tip, or proposed mine or tip, or which might be relevant for the purpose of determining whether mining or tipping operations can be carried out safely,*

which plan must be contoured to Ordnance Datum Newlyn at a vertical interval not greater than 5 metres and orientated to and correlated with the Ordnance Survey National Grid and marked with squares corresponding to the 100 metre squares shown on Ordnance Survey sheets on the scale of 1:2500.

Site investigation

- 2.** *A record of all relevant site investigation information including surveys, tests, boreholes and groundwater measurements made for the purpose of the geotechnical assessment together with the results of any testing including the strength of materials within and beneath the tip or within the excavated slope. The record must include any known historical information relevant to the site investigation.*

Cross-sections based on site investigations

- 3.** *Sufficient accurate cross sections on a scale not less detailed than 1:1250 of the site of the tip or proposed tip showing the existing ground surface and all relevant superficial materials and bedrock underlying the site and –*

Schedule 2

- (a) any variation in the thickness, level or character of the superficial deposits and bedrock materials based on the site investigation; and
- (b) the position of any surface whether natural or manmade which may affect the safety of the tip or proposed tip.

Plans based on site investigation

- 4. Plans showing the position of all boreholes, wells and trial pits used in the site investigation and the location and levels of all materials and surfaces which may affect the safety of the tip or proposed tip.

Assumptions made before analysis

- 5. A record of any assumptions relevant to the assessment of ground conditions relating to the safety of the tip made by the geotechnical specialist, including a record of any relevant information which was not available when undertaking the assessment.

Findings of analysis

- 6. A record of the calculations carried out in order to determine the safety of the tip, including any variables or parameters used in those calculations and the reasons for using them, and the findings of those calculations expressed as the factor of safety or the probability of failure or other recognised basis of assessing stability.

Design coming out of analysis

- 7. An accurate plan on a scale not less detailed than 1:2500 recording, in relation to tips or proposed tips, the design of the tip, including the area of land covered or to be covered, the gradients of that land, the designed contours at vertical intervals of not more than 2 metres, the side slopes and boundaries of the tip and the designed position and nature of construction of any wall or other structure retaining or confining the tip.

Requirements during and after construction

- 8. A record of –
 - (a) the nature and extent of the inspection, supervision and safety measures necessary to ensure the safety of the tip;
 - (b) a specification of necessary engineering works and safety measures; and
 - (c) the action to be taken regarding defects specified in the report.

Schedule 3

**Schedule 3 Repeals
(regulation 74(1))**

PART 1

Enactment

Mines and Quarries Act 1954

Section 19

Section 28

Section 30

Sections 36 and 37

Sections 39 to 46

Sections 55 and 56

Sections 58 and 59

Sections 61 and 62

Sections 64 to 67

Section 69

Sections 73 and 74

Section 79

Sections 83 and 84

Sections 86 and 87

Sections 94 and 95

Section 97

Section 123

Section 137

Section 141

Section 143

Section 150

Section 170

Section 171

Section 174

Schedule 3

Mines and Quarries (Tips) Act 1969

Sections 1 to 7

Section 10

Schedule 1

Health and Safety at Work etc. Act 1974

Extent of repeal

In full

Subsection (5)

In full

The entry relating to the Mines and Quarries (Tips) Act 1969 in Schedule 1

PART 2

Enactment

Tribunals and Inquiries Act 1992

Judicial Pensions and Retirement Act 1993

Constitutional Reform Act 2005

Tribunals, Courts and Enforcement Act 2007

Extent of repeal

The entry relating to mines and quarries in Part 1 of Schedule 1

Section 26(8)(b)

The entries relating to section 150 of the Mines and Quarries Act 1954 in Table 1 of Part 3 of Schedule 14

The entry relating to section 150 of the Mines and Quarries Act 1954 in Part 4 of Schedule 6

Schedule 4

**Schedule 4 Revocations and partial revocations
(regulation 74(2) and (3))**

PART 1

Revocations

- The Mines and Quarries Acts 1954 to 1971 (Repeals and Modifications) Regulations 1975*
- The Mines and Quarries (Metrication) Regulations 1976*
- The Coal Mines (Precautions against Inflammable Dust) Amendment Regulations 1977*
- The Coal and Other Mines (Metrication) Regulations 1978*
- The Daw Mill Mine (Refuge Holes) Regulations 1978*
- The Mines (Precautions against Inrushes) Regulations 1979*
- The Coal and Other Mines (Fire and Rescue) (Amendment) Regulations 1980*
- The Miscellaneous Mines (Metrication) Regulations 1983*
- The Mines (Safety of Exit) Regulations 1988*
- The Coal and Other Safety-Lamp Mines (Explosives) Regulations 1993*
- The Coal Mines (Owner's Operating Rules) Regulations 1993*
- The Management and Administration of Safety and Health at Mines Regulations 1993*
- The Mines (Shafts and Winding) Regulations 1993*
- The Escape and Rescue from Mines Regulations 1995*
- The Mines Miscellaneous Health and Safety Provisions Regulations 1995*
- The Mines (Control of Ground Movement) Regulations 1999*
- The Coal Mines (Control of Inhalable Dust) Regulations 2007*

PART 2

Partial revocations

Instrument

Extent of revocation

- | | |
|--|--|
| <i>The Mines and Quarries Acts 1954 to 1971 (Repeals and Modifications) Regulations 1974</i> | <i>regulations 2(1)(a), (2) and (3), 3, 4 and 7, Schedule 1 and paragraphs 1, 2, 4 to 11, 12(b), 16 and 19 to 23 of Schedule 2</i> |
| <i>The Electricity at Work Regulations 1989</i> | <i>regulation 2(1), the definitions of "firedamp" and "safety-lamp mine" regulations 17 to 28 and Schedule 1</i> |
| <i>The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 1996</i> | <i>regulation 20(2)(a)</i> |
| <i>COSHH</i> | <i>regulation 5(1)(a)(i)</i> |
| <i>DSEAR</i> | <i>regulation 3(2)(e)</i> |
| <i>The Supply of Machinery (Safety) Regulations 2008</i> | <i>regulation 27(2)(a), (c), (d), (e), (h) and (j)</i> |
| <i>The Health and Safety (Fees) Regulations 2012</i> | <i>regulation 1(3), the definition of "the mines and quarries provisions" regulation 2 and Schedule 1</i> |
| <i>The Explosives Regulations 2014</i> | <i>regulation 3(8)(f)</i> |

Guidance

Schedule

4

383 Although not listed in Part 1, above, a further 28 legislative instruments will also cease to be law from 6 April 2015. This is either because the Regulations repeal the legal powers under which they were made, or because the provision that saved them (ie carried them forward from previous legislation) is being revoked. A full list of instruments being revoked is at Appendix 1 of the Explanatory Memorandum to the Mines Regulations 2014 (www.legislation.gov.uk/ukxi/2014/3248/memorandum/contents).

Schedule 5 Modifications (regulation 75)

Schedule

5

PART 1

Modifications to primary legislation

1. *In the 1954 Act, for section 180 substitute the following –*

“Meaning of “mine”

180. *(1) This section defines “mine” for the purposes of this Act.*

(2) “Mine” means an excavation or system of excavations (including all excavations to which a common system of ventilation is provided) made for the purpose of, or in connection with, the extraction, wholly or substantially by means involving persons working below ground, of –

- (a) minerals (in their natural state or in solution or suspension), or*
- (b) mineral products.*

(3) A mine is deemed to include so much of the surface (including buildings, structures or works on it) surrounding or adjacent to the shafts or outlets of the mine as is occupied with the mine for the purpose of, or in connection with –

- (a) working the mine,*
- (b) the storage, treatment or preparation for sale, consumption or use of minerals or mineral products extracted from the mine, or*
- (c) the removal from the mine of minerals or mineral products extracted from it or of refuse from it.*

(4) But a mine is not deemed to include premises in which a manufacturing process is carried on for a purpose other than –

- (a) working the mine, or*
- (b) the preparation for sale of minerals extracted from the mine.*

(5) Premises used to deposit refuse from a single mine and occupied exclusively by the owner of the mine are deemed to form part of the mine.

(6) Premises used to deposit refuse from two or more mines and occupied by the owner of one of the mines (either exclusively or jointly with the owner of the other or any of the others) are deemed to form part of whichever of the mines the Health and Safety Executive directs.

(7) A railway line serving one or more mines, other than a line falling within subsection (3) or belonging to a railway company, is deemed to form part of the mine or (if more than one) of whichever of the mines the Health and Safety Executive directs.

Schedule

5

(8) *A conveyor or aerial ropeway provided for the removal from a mine of minerals extracted from it, or of refuse from it, is deemed to form part of the mine.*"

2. (1) *Despite the revocation of the Management and Administration of Safety and Health at Mines Regulations 1993 by regulation 74(2), subsection (3) of section 182 of the 1954 Act continues to have effect subject to the modification in subparagraph (2).*

(2) *For paragraph (a) of that section, substitute –*

"(a) *a mine shall be treated as being worked at any time when there are persons at work below ground or plant or equipment is in operation at the mine to maintain the safety of that mine or of any other mine or the operation of driving a shaft or outlet is being undertaken at the mine.*"

3. *In the Mines and Quarries (Tips) Act 1969 –*

(a) *in section 11, for subsection (2) substitute –*

"(2) *For the purposes of this Part of this Act a disused tip is a tip other than one to which the Quarries Regulations 1999 or the Mines Regulations 2014 apply.*";

(b) *in section 11, after subsection (3) insert –*

"(3A) *In this Part of this Act, "tip" means an accumulation or deposit of refuse from a mine or quarry (whether in a solid state or in solution or suspension) other than an accumulation or deposit situated underground, and where any wall or other structure retains or confines a tip then, whether or not that wall or structure is itself composed of refuse, it is deemed to form part of the tip for the purposes of this Part.*"

PART 2

Modifications to secondary legislation

4. *In the Safety Representatives and Safety Committees Regulations 1977, in regulation 5(4), omit "section 123 of the Mines and Quarries Act 1954 or".*

5. *In the Health and Safety (First Aid) Regulations 1981 –*

(a) *in regulation 2(1), in the definition of "mine", for "section 180 of the Mines and Quarries Act 1954" substitute "regulation 3 of the Mines Regulations 2014";*

(b) *for regulation 8 substitute –*

"Application to mines

8. (1) *Subject to paragraph (2), these Regulations (except regulation 3(3) and (4) and regulation 5) apply to mines.*

(2) *In their application to mines –*

(a) *regulation 3(1), (2) and (5) and regulation 4 have effect as if the mine operator were the employer and as if all persons for the time being at work in the mine were the mine operator's employees; and*

Schedule

5

(b) regulation 3(2) must be read as if the words "Subject to paragraphs (3) and (4)" were omitted.

(3) In this regulation, "mine operator" has the meaning given by regulation 2(1) of the Mines Regulations 2014."

6. In the Electricity at Work Regulations 1989 –

(a) in regulation 3(1) –

(i) for sub-paragraph (b)(i), substitute –

"(i) mine operator, in relation to a mine within the meaning of regulation 3 of the Mines Regulations 2014, and"; and

(ii) for "of which he is the manager" substitute "of which he is the mine operator";

(b) after regulation 3(2), insert –

(3) In this regulation, "mine operator" has the meaning given by regulation 2(1) of the Mines Regulations 2014.";

(c) in regulation 29, for "15, 16 or 25" substitute "15 or 16".

7. In the Workplace (Health, Safety and Welfare) Regulations 1992, for regulation 3 substitute –

"Application of these Regulations

3. (1) These Regulations apply to every workplace but shall not apply to –

(a) a workplace which is or is in or on a ship, save that regulations 8(1) and (3) and 12(1) and (3) apply to such a workplace where the work involves any of the relevant operations in –

(i) a shipyard, whether or not the shipyard forms part of a harbour or wet dock; or

(ii) dock premises, not being work done –

(aa) by the master or crew of a ship;

(bb) on board a ship during a trial run;

(cc) for the purpose of raising or removing a ship which is sunk or stranded; or

(dd) on a ship which is not under command, for the purpose of bringing it under command;

(b) a workplace which is a construction site within the meaning of the Construction (Design and Management) Regulations 2007, and in which the only activity being undertaken is construction work within the meaning of those Regulations, save that –

(i) regulations 18 and 25A apply to such a workplace; and

(ii) regulations 7(1A), 12, 14, 15, 16, 18, 19 and 26(1) apply to such a workplace which is indoors; or

(c) a workplace located below ground at a mine, except that regulation 20 applies to such a workplace subject to the modification in paragraph (7).

(2) Regulation 12 does not apply to a workplace located above ground at a mine that is a tip (within the meaning of regulation 2(1) of the Mines Regulations 2014).

Schedule

5

(3) *In their application to temporary work sites, any requirement to ensure a workplace complies with any of regulations 20 to 25 shall have effect as a requirement to so ensure so far as is reasonably practicable.*

(4) *As respects any workplace which is or is in or on an aircraft, locomotive or rolling stock, trailer or semi-trailer used as a means of transport or a vehicle for which a licence is in force under the Vehicles (Excise) Act 1971 or a vehicle exempted from duty under that Act –*

- (a) *regulations 5 to 12 and 14 to 25 shall not apply to any such workplace; and*
- (b) *regulation 13 shall apply to any such workplace only when the aircraft, locomotive or rolling stock, trailer or semi-trailer or vehicle is stationary inside a workplace and, in the case of a vehicle for which a licence is in force under the Vehicles (Excise) Act 1971, is not on a public road.*

(5) *As respects any workplace which is in fields, woods or other land forming part of an agricultural or forestry undertaking but which is not inside a building and is situated away from the undertaking's main buildings –*

- (a) *regulations 5 to 19 and 23 to 25 shall not apply to any such workplace; and*
- (b) *any requirement to ensure that any such workplace complies with any of regulations 20 to 22 shall have effect as a requirement to so ensure so far as is reasonably practicable.*

(6) *As respects any workplace that is a quarry –*

- (a) *regulation 12 only applies to a floor or traffic route that is located inside a building; and*
- (b) *regulation 20 applies to such a workplace subject to the modification in paragraph (7).*

(7) *In relation to any workplace that is a quarry or located below ground at a mine, the requirement that sanitary conveniences provided under regulation 20 must be at readily accessible places has effect as a requirement that such sanitary conveniences must be, so far as is reasonably practicable, at readily accessible places.*

(8) *For the purposes of this regulation –*

- (a) *“dock premises” means any dock, wharf, quay, jetty or other place at which ships load or unload goods or embark or disembark passengers, together with neighbouring land or water which is used or occupied, or intended to be used or occupied, for those or incidental activities, and any part of a ship when used for those or incidental activities;*
- (b) *“mine” means a mine within the meaning of regulation 3 of the Mines Regulations 2014;*
- (c) *“relevant operations” means, in relation to a ship, its repairing, refitting, painting and finishing, the scaling, scurfing or cleaning of its boilers (including combustion chambers or smoke boxes) and the cleaning of its bilges or oil-fuel tanks or any of its tanks last used for carrying oil;*
- (d) *“ship” includes all vessels and hovercraft which operate on water or land and water;*
- (e) *“shipyard” means any yard or dry dock (including the precincts thereof) in which ships or vessels are constructed, reconstructed, repaired, refitted or finished; and*

Schedule

5

(f) "vessel" means any description of craft used for the transport of goods or passengers or the storage of goods or the accommodation of passengers on water, whether used in navigation or not."

8. In the Health and Safety (Enforcing Authority) Regulations 1998, in regulation 2(1), in the definition of "mine", for "subsection (5)" substitute "subsection (7)".

9. In the Lifting Operations and Lifting Equipment Regulations 1998, in regulation 9(5), for "Mines (Shafts and Winding) Regulations 1993" substitute "Mines Regulations 2014".

10. In the Ionising Radiations Regulations 1999, in regulation 4 –

- (a) in paragraph (2) –
(i) for sub-paragraph (a) substitute –

"(a) the mine operator of a mine (within the meaning of regulation 3 of the Mines Regulations 2014); and"; and

- (ii) for "of which he is the manager" substitute "of which he is the mine operator";

(b) after paragraph (3) insert –

"(4) In this regulation, "mine operator" has the meaning given by regulation 2(1) of the Mines Regulations 2014."

11. In PUWER, in regulation 6(5)(d), for "Mines (Shafts and Winding) Regulations 1993" substitute "Mines Regulations 2014".

12. In the Quarries Regulations 1999, in regulation 3(1)(c), for "regulation 2(3) of the Management and Administration of Safety and Health at Mines Regulations 1993" substitute "regulation 2(2) of the Mines Regulations 2014".

13. In the Pressure Systems Safety Regulations 2000, in regulation 2(1), in the definition of "user", for paragraph (a) substitute –

"(a) a mine within the meaning of regulation 3 of the Mines Regulations 2014 it means the mine operator (within the meaning of regulation 2(1) of those Regulations) for the time being of that mine;"

14. In the Health and Safety (Enforcing Authority for Railways and Other Guided Transport Systems) Regulations 2006, in regulation 2, in the definition of "mine", for "subsection (5)" substitute "subsection (7)".

15. In the REACH Enforcement Regulations 2008, in Part 1 of Schedule 3, in paragraph 1(m)(i), for "subsection (5)" substitute "subsection (7)".

16. In the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 –

- (a) in regulation 2(1), for the definition of "mine" substitute –

"mine" has the meaning given by regulation 3 of the Mines Regulations 2014 and for the purposes of these Regulations includes a tip within the meaning of regulation 4(3)(b) of those Regulations which is associated with such a mine;"

Schedule

5

- (b) in regulation 2(1), in the definition of “workmen’s inspectors”, for “section 123 of the 1954 Act” substitute “regulation 5 of the Safety Representatives and Safety Committees Regulations 1977 in relation to a mine”;
- (c) in regulation 3(2)(a), for “the manager of that mine” substitute “the mine operator (within the meaning of regulation 2(1) of the Mines Regulations 2014) of that mine”;
- (d) in regulation 13(4)(a), for “regulation 10(1) of the Management and Administration of Safety and Health at Mines Regulations 1993” substitute “regulation 10(1) of the Mines Regulations 2014”;
- (e) in Part 3 of Schedule 2 –
 - (i) in paragraph 29, for “regulation 11(1) of the Coal and Other Mines (Fire and Rescue) Regulations 1956 or section 79 of the 1954 Act” substitute “an escape and rescue plan within the meaning of regulation 54 of the Mines Regulations 2014”;
 - (ii) in paragraph 40, for “regulation 4 of the Mines (Safety of Exit) Regulations 1988” substitute “regulation 51 of the Mines Regulations 2014”; and
 - (iii) in paragraph 43, for “Part 1 of the 1969 Act applies” substitute “the Mines Regulations 2014 apply”.

17. In the Reservoirs Act 1975 (Exemptions, Appeals and Inspections) (England) Regulations 2013, in regulation 3(1)(a), for “Part 1” substitute “Part 2”.

18. In the 2014 Regulations –

- (a) in regulation 2(1) –
 - (i) in the definition of “police force”, for “regulations 3(9)(e) and (8)(b)”, substitute “regulations 3(10)(b) and (11)(e)”; and
 - (ii) in the definition of “small arms”, for the letters (c), (d) and (e) which introduce the paragraphs within that definition, substitute, respectively, (a), (b) and (c);
- (b) in regulation 3(10), after “23” insert “, 27”;
- (c) in regulation 16(6), for “paragraph (1)”, substitute “paragraph (5)”;
- (d) in regulation 31(1)(c), insert “relevant” before “explosive”;
- (e) in regulation 47(11), after “the 2005 Regulations” insert “as if those Regulations had not been revoked by these Regulations”;
- (f) for paragraph 1(b) of Schedule 1, substitute –
 - “(b) the Executive where the explosives are to be stored –
 - (i) on the surface at a mine, whether in a building or not;
 - (ii) below ground at a mine; or
 - (iii) within a harbour;”
- (g) in Table 2 of Schedule 5, for the last entry in column 1, namely “90000 – 10000”, substitute “90000 – 100000”; and
- (h) in paragraph 1(2) of Schedule 11, for “paragraphs 2 to 12 or 14”, substitute “paragraphs 2 to 14 or, to the extent that it relates to regulation 8, paragraph 15”.

References and further reading

References

- 1 *Safe use of work equipment. Provision and Use of Work Equipment Regulations 1998. Approved Code of Practice and guidance L22* (Fourth edition) HSE Books 2014 ISBN 978 0 7176 6619 5 www.hse.gov.uk/pubns/books/L22.htm
- 2 *Consulting workers on health and safety. Safety Representatives and Safety Committees Regulations 1977 (as amended) and Health and Safety (Consultation with Employees) Regulations 1996 (as amended). Approved Codes of Practice and guidance L146* (Second edition) HSE Books 2012 ISBN 978 0 7176 6461 0 www.hse.gov.uk/pubns/books/L146.htm
- 3 *Dangerous substances and explosive atmospheres: Dangerous Substances and Explosive Atmospheres Regulations 2002. Approved Code of Practice and guidance L138* (Second edition) HSE Books 2013 ISBN 978 0 7176 6616 4 www.hse.gov.uk/pubns/books/L138.htm
- 4 *ATEX and explosive atmospheres* www.hse.gov.uk/fireandexplosion/atex.htm
- 5 *Explosives Regulations 2014 – Safety provisions: Guidance on Regulations L150* HSE Books 2014 ISBN 978 0 7176 6551 8 www.hse.gov.uk/pubns/books/L150.htm
- 6 *Explosives Regulations 2014 – Security provisions: Guidance on Regulations L151* HSE Books 2014 ISBN 978 0 7176 6638 6 www.hse.gov.uk/pubns/books/L151.htm
- 7 *Control of substances hazardous to health (COSHH). The Control of Substances Hazardous to Health Regulations 2002 (as amended). Approved Code of Practice and guidance L5* (Sixth edition) HSE Books 2013 ISBN 978 0 7176 6582 2 www.hse.gov.uk/pubns/books/L5.htm

Further reading

Bagged stonedust barriers – specification for a bagged stonedust barrier to the extension of flame www.hse.gov.uk/mining/information.htm

Underground locomotive haulage www.hse.gov.uk/mining/information.htm

Pitworthiness considerations for manufacturers of ignition protected electrical equipment intended for use in potentially explosive atmospheres in UK mines www.hse.gov.uk/mining/information.htm

The health and safety toolbox: How to control risks at work
www.hse.gov.uk/toolbox/index.htm

Managing for health and safety www.hse.gov.uk/managing/index.htm

Further information

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