



Risk management

Mine and Occupational Health and Safety 2010

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1 The common law

The common law requires an employer to take reasonable steps for the safety of employees. In general, the duty of care means that the employer, acting personally or through its employees or agents, must take reasonable care for the safety of its employees (**Van Deventer v Workmen's Compensation Commissioner**; 1962 (4) SA 28 T; **Oosthuizen v Homegas (Pty) Ltd** 1992 (3) SA 463 T). The duty of care includes the provision of safe premises, safe machinery and tools and a safe system of work. The obligation is not an absolute one, but is restricted by the concept of reasonableness. The common law duty may, in certain cases, include the assessment of hazards and risks.

2 International law

Great emphasis has been placed in the Western world on the prevention of occupational diseases and injuries. Detailed statutes and regulations govern specific industries in many countries. See, e.g. the Control of Substances Hazardous to Health Regulations of the United Kingdom and various regulations applicable to the use of asbestos and lead, fire protection, mines and quarries, petroleum, etc. Risk management is an important part of managing health and safety. In the United Kingdom, the Management of Health and Safety at Work Regulations, 1999, require every employer to make a "*suitable and sufficient assessment of the risks to health and safety of his employees to which they are exposed whilst they are at work*". The particularity of the assessment is determined by the risk in question.

3 The Mine Health and Safety Act, no. 29 of 1996: Risk assessment

3.1 The prevention of accidents and diseases and the improvement of health and safety form the core of the obligations contained in the Mine Health and Safety Act, No. 29 of 1996 ("the MHSA"). Risk assessment is nothing more than a careful examination of what could cause harm to people, so that one can weigh up whether enough precautions have been taken to prevent or minimise harm. The MHSA contains extensive provisions dealing with risk assessment. Section 11 provides as follows: -

"(1) Every employer must -

- (a) identify the hazards to health or safety to which employees may be exposed while they are at work;
- (b) assess the risk to health or safety to which employees may be exposed while they are at work;
- (c) record the significant hazards identified and risks assessed; and
- (d) make those records available for inspection by employees.

(2) Every employer, after consulting the health and safety committee at the mine, must determine all measures, including changing the organisation of work and the design of safe systems of work necessary to -

- (a) eliminate any recorded risk;
- (b) control the risk at source;
- (c) minimise the risk; and
- (d) insofar as the risk remains -
 - (i) provide for personal protective equipment; and
 - (ii) institute a programme to monitor the risk to which employees may be exposed.

(3) Every employer must, as far as reasonably practicable, implement the measures determined necessary in terms of subsection (2), in the order in which the measures are listed in the paragraphs of that subsection.

(4) Every employer must -

- (a) periodically review the hazards identified and risks assessed, including the results of occupational hygiene measurements and medical surveillance, to determine whether further elimination, control and minimisation of risk is possible; and
- (b) consult with the health and safety committee on the review.

(5) Every employer must -

- (a) conduct an investigation into every -
 - (i) accident that must be reported in terms of this Act;
 - (ii) serious illness; and
 - (iii) health-threatening occurrence;
- (b) consult the health and safety committee on investigations in terms of this section;
- (c) conduct an investigation in co-operation with the health and safety representative responsible for the working place in which the investigation takes place;
- (d) on completion of each investigation, prepare a report that -
 - (i) identifies the causes and the underlying causes of the accident, serious illness or health-threatening occurrence;
 - (ii) identifies any unsafe conditions, acts or procedures that contributed in any manner to the accident, serious illness or health-threatening occurrence; and
 - (iii) makes recommendations to prevent a similar accident, serious illness or health-threatening occurrence; and
- (e) deliver a copy of the report referred to in paragraph (d) within 30 days from the date of the accident, serious illness or health-threatening occurrence being investigated to the Principal Inspector of Mines and the health and safety committee. If there is no health and safety committee the employer must deliver a copy of the report to the health and safety representative responsible for the working place.

- (5A) An investigation in terms of subsection (5) must be completed within 30 days after the accident, serious illness or health-threatening occurrence being investigated or such longer period as the Principal Inspector of Mines may permit.
- (5B) The employer must notify the Principal Inspector of Mines of any accident or occurrence at a mine that results in –
- (a) the serious injury;
 - (b) illness; or
 - (c) death,
- of any person in order to allow the Principal Inspector of Mines to instruct an Inspector to conduct an investigation simultaneously with the employer as required in section 11(5)(a).
- (6) An investigation referred to in subsection (5) may be held jointly with an investigation conducted by an inspector in terms of section 60.
- (7) If there is no health and safety committee at a mine, the consultations required in this section must be held with-
- (a) the health and safety representatives; or
 - (b) if there is no health and safety representative at the mine, with the employees."
- 3.2 A "**hazard**" is defined as the "source of or exposure to danger" and "**risk**" as "the likelihood that occupational injury or harm to persons will occur".
See section 102 of the MHSA.
- 3.3 Section 11 therefore envisages a three-pronged approach in dealing with health and safety hazards:-
- First, the health and safety hazards and the risks to health and safety must, as far as is reasonably practicable, be identified and assessed;
 - Thereafter the employer must, as far as is reasonably practicable, eliminate, control or minimise the risk of the hazard occurring;
 - Lastly, insofar as the risk remains, the employer is required to provide the necessary personal protective equipment and to institute a programme to monitor the hazard to which employees may be exposed.
- In this process the employer must, by virtue of the requirement of "*reasonably practicable*" have regard to:-
- the severity and scope of the hazard or risk;
 - the state of available knowledge concerning the risk or hazard and the means of removing or mitigating the same;
 - the availability and suitability of means to remove or mitigate that hazard or risk; and
 - the costs and benefits of removing or mitigating that hazard or risk.
- See section 11(2) of the MHSA.

4 The Occupational Health and Safety Act, No. 85 of 1993 ("the OHASA") and the obligation to conduct risk assessments

Section 8(2)(b), (c) and (d) of the OHASA provides as follows:

"Without derogating for the generality of an employer's duties under subsection (1), the matters to which those duties refer include in particular –

- (a) ...
- (b) taking such steps as may be reasonably practicable to eliminate or mitigate any hazard or potential hazard to the safety or health of employees, before resorting to personal protective equipment;
- (c) making arrangements for ensuring, as far as is reasonably practicable, the safety and absence of risks to health in connection with the production, processing, use, handling, storage or transport of articles or substances;
- (d) establishing, as far as is reasonably practicable, what hazards to the health or safety of persons are attached to any work which is performed, any article or substance which is produced, processed, used, handled, stored or transported and any plant or machinery which is used in his business, and he shall, as far as is reasonably practicable, further establish what precautionary measures should be taken with respect to such work, article, substance, plant or machinery in order to protect the health and safety of persons, and he shall provide the necessary means to apply such precautionary measures."

4.1 The risk assessment provisions of the OHASA and MHSA are therefore similar.

5 The relationship between "risk" and "hazard"

The relationship between "*risk*" and "*hazard*" must always be kept in mind during any risk assessment. The risk that an incident will occur may not be significant but the hazard, on the other hand, may be a major one, in which event greater attempts should be made to remove the hazard or risk, and if that is not "*reasonably practicable*", the "*risk*" of the hazard occurring must be mitigated and personal protective equipment must be used (where appropriate).

Risk ratings are compiled to integrate values allocated to "*hazards*" and "*risks*". Such risk ratings are used to establish the relevant importance of a particular hazardous situation. See e.g. W.A. Naismith, **Hazard Identification for Rock Engineering** (SIMRAC project GAP 339, July 1998) p 27 sqq. It is important to bear in mind that the actual risk of a hazard occurring must be established. This must be done as far as possible in an objective manner by referring to the history of the workplace and similar workplaces. It is obvious that any reference to a safety objective (e.g. zero harm) is irrelevant for this purpose.

6 Methods of risk assessment

Risk assessment can be done by way of a number of techniques, which includes physical inspections; management and employee discussions; safety audits; job safety analyses; hazard and operability studies; and accidents statistics.

7 Baseline, issue based and continuous risk assessment

- 7.1 The MHSA and OHASA do not distinguish between different types of risk assessment. See section 11(1) of the MHSA and section 8(2) of the OHASA. The MHSA does, however, require the employer to record “*significant hazards*” and “*significant risks*” (section 11(1)(c)). In practice, a distinction is drawn between baseline, issue based and continuous risk assessments.
- 7.2 A baseline risk assessment is a generic identification of hazards and assessment of the associated risks. The hazards should be classified in order of priority (e.g. hazards which require immediate, short-term, medium-term or long-term attention). In this process the elements contained in the definition of “*reasonably practicable*” should be taken into account. A baseline risk assessment usually precedes an issue based risk assessment.
- 7.3 An issue based risk assessment comprises of the consideration of a particular situation or activities and the identification of the hazards and associated risks, e.g. the particular hazards associated with the movement of machinery and the likelihood that such hazards may occur. Flowing from such an identification and assessment, reasonably practicable measures must be taken to eliminate the hazards, alternatively if this is not reasonably practicable, to reduce the likelihood of such hazards occurring. Lastly, the employer may resort to the use of personal protective equipment.
- 7.4 Continuous risk assessment normally comprises of an informal procedure, usually in the form of regular inspections by, e.g. supervisors or safety representatives.

8 Hazard identification

Hazard identification is a type of informal risk assessment which usually comprises of inspections and the recording of certain relevant risks and hazards. In certain cases risk ratings are recorded.

9 Ergonomics

Ergonomics is defined as “*the study of the relationship between man, the equipment with which he works, and the physical environment in which this “man-machine system” operates*”. The basic disciplines of psychology, physiology and anatomy are used to define and optimise the relationships between various aspects of the working environment. See J Ridley **Safety at Work** (Butterworths, 1994) 486.

According to **Ridley** (at 487) the goals of the application of ergonomics are two-pronged: first, to design equipment and environments which fit the individual’s capacities and needs and, by doing so, allow him to perform effectively, and second, to ensure that design or work systems and environments do not violate requirements for physical and mental well-being, including the acceptability of the system to the operator and his level of general comfort whilst working.

Section 21(1)(c) of the MHSA, requires “*any person, who designs, manufactures, erects or installs any article for use at a mine (to) ensure, as far as reasonably practicable, that ergonomic principles are considered and implemented during design, manufacture, erection or installation*”. It is therefore clear that, in the event of design, manufacture, erection and installation, the risk assessment process must address the consideration and implementation of ergonomic principles.

10 The legal responsibility of risk management

- 10.1 Risk management is the legal responsibility of the “*employer*”. The word “*employer*” is defined in section 102 of the MHSA as meaning the “*owner*”. The “*owner*” is on its part defined as:

- “(a) in relation to a mine,
- (i) the owner of a prospecting permit or mining authorisation issued under the Mineral and Petroleum Resources Development Act;
- (ii) if a prospecting permit or mining authorisation does not exist, the person for whom the activities contemplated in par (b) of the definition of a mine are undertaken, but excluding an independent contractor; or
- (iii) if neither (i) or (ii) is applicable, the last person who worked the mine or that person’s successor-in-title; and
- (b) in relation to a works, means the person who is undertaking the activities contemplated in the definition of “*works*”, but excluding an independent contractor”.

The person who carries the obligations of the employer will be legally responsible to ensure compliance with the provisions of section 11. Such person is usually the person appointed in terms of section 4(1) or 7(2) of the MHSA. Ultimately, the obligation rests upon the chief executive officer in terms of section 2A(1) of the MHSA. A breach of section 11 constitutes a criminal transgression on the part of the employer (section 91(1)(a)). The fine may amount to a maximum of R1 million (Schedule 8). In the event of a natural person an imprisonment sentence of a maximum of 5 years imprisonment may be imposed.

- 10.2 In terms of the OHASA the obligation to perform risk assessment rests ultimately on the Chief Executive Officer (“CEO”), who must ensure on behalf of the employer that risk assessment is performed. See sections 8 read with section 16(1). The CEO may delegate such obligation in terms of section 16(2) to a person acting under his “*control and direction*”.
- 10.3 A breach of the provisions of section 8 is a criminal offence. The maximum penalty which may be imposed is a fine of R50,000.00 or imprisonment of one year or both.

11 Investigation and report in terms of section 11(5)(a) and 11(5)(d) of the MHSA

Section 11(5) of the MHSA is aimed at the prevention of accidents. The investigation in terms of section 11(5) may take place jointly with the investigation in terms of section 60 or separately. At this stage, it is important to note that the report to be furnished in terms of section 11(5) is not legally privileged. For that reason, it may be relied upon in any proceedings.

The MHSA does, however, lose sight of the other interest of the employer and employees, viz. not to expose themselves unduly to legal liability. Due to the current omission in the MHSA, the two interests, being one of prevention and the other of not being unduly exposed to legal liability, become competing interests. Employees are reluctant to disclose facts which incriminate them. For that reason the MHSA itself undermines the objective of prevention by not extending legal privilege to such reports.

The current omission in the MHSA to extend legal privilege to a report prepared in terms of section 11(5), is probably unconstitutional. The failure to grant the employer and employees the privilege against self-incrimination constitutes an infringement of the right to a fair trial and the right to remain silent thereat (section 35(3) of the Constitution of the Republic of South Africa, Act No. 108 of 1996). The mere fact that the infringement takes place at a time when the person is not an “*accused*” is irrelevant. The fact of the matter is that the section 11(5) report may be relied upon in a criminal case. If the report contains incriminating statements, it encroaches upon the constitutional rights of the person concerned. Although a constitutional right may be limited, the limitations must be “*reasonable and justifiable in an open and democratic society based on human dignity, equality and freedom, taking into account all relevant factors including –*

- (a) the nature of the right;
- (b) the importance of the purpose of the limitation;
- (c) the nature and extent of the limitation;
- (d) the relation between the limitation and its purpose; and
- (e) less restrictive means to achieve the purpose.”

(Section 36(1) of the Constitution)

These criteria have probably been exceeded where the privilege to self-incrimination has been completely taken away. The objective of section 11(5), viz prevention of accidents can very easily be achieved by less restrictive means, if such reports are regarded as legally privileged from disclosure in legal and disciplinary proceedings.