PART 7

OTHER REFERENCES

PART 7: OTHER REFERENCES

7.1 GLOSSARY OF TERMS

Abutment	The areas of unmined rock at the edges of a stoping block that carry many large regional loads. Generally a zone of support for ground arching.
Accident	An event which results in, or is likely to result, in injury, illness or damage (this also includes dangerous occurrence and near miss).
Acclimatisation	The physiological adaptation of the human body to increased heat stress resulting in increased tolerance to that stress.
Air cooling power (ACP)	Takes into account the dry bulb and wet bulb temperatures, wind speed, and other factors such as radiant heat, essentially the ability of air to cool the body. This ability is strongly influenced by the clothing and PPE worn, the heavier the clothing, the more difficult it is for air to cool the body. (Brake, Donahue & Bates 1998.)
Arching	The transfer of rock stress or load from an active mining area, eg stope back, to a more stable area or abutment; this may result in the release of rock blocks.
Audit	Systematic examination against defined criteria to determine whether activities have been carried out in line with planned arrangements, whether the arrangements have been implemented effectively, and whether these arrangements are suitable to achieve stated aims and objectives.
Batter slope	The sections of rock mass between catch berms within pit walls - usually excavated to a specific inclination/angle from the horizontal.
Bedding plane slip	Relative movement or slip of continuous bedding planes or foliation planes in response to large areas of stope wall moving into a void, filled or unfilled. May be observed in areas where extensive stoping has been carried out in a well-bedded rock mass.
Bedding planes	Planes of weakness in the rock that usually occur at the interface of parallel beds or laminae of material within the rock mass.
Body Core Temperature	The temperatur of the deep core tissues in the body.
Buttress	A body of material either left unmined or placed against a section of the pit wall to prevent continued movement or propagation of wall failure.
Cable bolts	One or more steel reinforcing strands placed in a hole drilled in rock, with cement or other grout pumped into the hole over the full length of the cable. A steel face-plate, in contact with the excavation perimeter, is usually attached to the cable by a barrel and wedge anchor. The cable(s) may be tensioned or untensioned. The steel rope strand may be plain strand or modified to improve the load transfer between the grout and the steel strand.

Catch berm	The width of lateral ground (bench) separating successive batter slopes. The purpose of the catch berm is to both reduce the overall angle of the pit walls, and to catch any loose material or local scale rock mass failures, thus reducing the risk of injury to the workforce at the base of the pit.
Catch fence	A fence constructed either vertically or at an angle to the vertical at the required off-set distance from the toe of a slope. The purpose of the catch fence is to catch any loose material falling from overlying blocky ground, thus reducing the risk to the workforce at the base of the pit walls.
Checklist	A reminder of what you're looking for and a record of what you found.
Communication	Process of passing on information in a variety of ways so that the receiver understands the same message as the transmitter intended to give.
Competency	Ability to apply appropriate skills and knowledge for the effective and efficient completion of a job or task in a variety of situations.
Compressive stress	A stress or pressure that tends to push or clamp objects together. The state of stress found in the rock mass before mining occurs. Tends to hold the rock mass together.
Consultation	Seeking information or advice from another person taking into account their feelings, interests and expertise.
Contractor	Provider of services to a person or organisation and who is not a direct employee.
Controlled drilling and blasting	The art of minimising rock damage during blasting. It requires the accurate drilling and placement and initiation of appropriate explosive charges in the perimeter holes to achieve efficient rock breakage with least damage to the remaining rock around an excavation.
Cooling power index (W/m^2)	The measure the velocity of air in watts per square metre.
Core risk program	Managed program developed too effectively eliminate/minimise high-risk activities in a specific workplace.
Destressed zone	A zone of rock around the perimeter of an excavation where the rock stress field has exceeded the strength of the rock mass at some time during its mining history. The rock mass is in a post-peak loading condition and it may be capable of carrying significant loads with low levels of lateral confinement being provided by reinforcement.
Dilution	The contamination of ore with barren wall rock during stoping operations.
Dip	The angle a plane makes with the horizontal.
Discontinuity	Any significant mechanical break or fracture of negligible tensile strength in a rock.

Document control	A system of managing, distributing and controlling documents.
Dowel	An untensioned rock bolt, anchored by full column or point anchor grouting, generally with a face plate in contact with the rock surface.
Dry bulb temperature	Is the temperature of the cur, commonly used and referred to in weather reports (Brake Fulker 1999)
Earthquake	The local shaking, trembling or undulation of the ground surface and the radiated seismic energy caused most commonly by sudden fault slip, volcanic activity or other sudden stress changes in the Earth.
Elastic	Capable of sustaining stress without permanent deformation. Tending to return to its original shape or state when the applied stress is removed.
Elastic limit	See yield point.
Emergency	High risk situations that if not controlled could lead to disaster.
Expert	Those who do the job and have particular experience, skills and knowledge.
Fault	A naturally occurring plane or zone of weakness in the rock along which there has been movement. The amount of movement can vary widely.
Fill	Waste sand or rock, cemented or uncemented in any way, used either for support, to fill stope voids underground, or to provide a working platform or floor.
First aid injury/illness	Work related injury/illness requiring first aid treatment on site only.
Foliation	Alignment of minerals into parallel layers; can be planes of weakness in rocks.
Footwall	The rock below the orebody.
Forms	Documentation used to record and support program and procedures.
Friction rock stabilisers	Steel reinforcing elements, typically a “C” shaped shell, that are forced into holes drilled in the rock. Frictional forces between the side of the hole and the element to generate forces to limit rock movement. The anchorage capacity of the device depends on the anchorage length above any plane of weakness and the frictional interference between the bore-hole wall and the outer surface of the shell. Anchorage capacity is dependent on the hole diameter and the effective anchorage length in solid ground.
Geology	The scientific study of the Earth, the rock of which it is composed, and the changes which it has undergone or is undergoing.
Geological structure	A general term that describes the arrangement of rock formations. Also refers to the folds, joints, faults, foliation, schistosity, bedding planes and other planes of weakness in rock.

Geotechnical engineering	The application of engineering geology, hydrogeology, soil mechanics, rock mechanics and mining seismology to the practical solution of ground control challenges.
Ground control	The ability to predict and influence the behaviour of rock in a mining environment, having due regard for the safety of the workforce and the required serviceability and design life of the openings.
Hanging wall	The rock above the orebody.
Hazard	Source of potential harm.
Health assessments	Medical assessments that focus on determining the ability of a person to perform particular tasks/jobs safely.
Health surveillance	Monitoring of individuals for the purpose of identifying changes in health status that may be due to occupational exposure to a hazard.
Heat illness	Debilitating condition brought on by exposure to heHat stress and including heat rash, heat syncope (heat collapse), heat exhaustion, heat stroke, neurological disorders (ie, nausea, loss of coordination, lethargy, concentration lapses) and dehydration.
Heat strain	The physiological response to heat stress that may or may not result in heat illness.
Heat stress	The sum of environmental and metabolic heat loads on the individual (Lyne, B, 1999).
Heat stress index	The index eligible for selection for use in the management procedure/plan that must be a recognised heat stress mangement index that is technically documented. Some of these indicies include; air cooling power, thermal work load, or Wet bulb globe temperature. Indices include: • Effective Temperature (ET) • Corrected Effective Temperature (CET) • Air Cooling Power (ACP) • Thermal Work Limit (TWL) • Wet Bulb Globe Temperature (WBGT)
Heat stroke	A life threatening advanced state of heat illness characterised by a failure of the body's thermo-regulatory system. In essence, the body sends too much blood to the surface of the skin in an attempt to cool itself down. This blood is diverted away from organs (eg, the heart), which then begin to shut down.
Heat Trigger Level	A trigger level may be singular or a combination of measureable factors that, when reached require and specify the action to be taken. Factors such as air velocity, wet bulb, dry bulb, body core temperature, time or other matter as agreed with the workers involved, may be used.

Illness/disease	Usually results from long or repeated exposure to a hazardous agent eg noise-induced hearing loss, silicosis, dermatitis.
Induced stress	The stress that is due to the presence of an excavation. The induced stress depends on the level of the in-situ stress and the shape of the excavation.
Injury management plan	Activities associated with ensuring an early, safe and durable return to work following workplace injury.
Injury	Usually the result of a single, traumatic event where the harm or hurt is immediately obvious such as a cut, burn and strain.
In-situ stress	The stress or pressure that exists within the rock mass before any mining has altered the stress field.
Inspection	Looking for hazards in the workplace using an ordered, scheduled and documented approach.
Instability	Condition resulting from failure of the intact rock material or geological structure in the rock mass.
Job safety analysis (JSA)	Systematic breakdown of a job into tasks/steps in order to identify hazards, assess risks and select the best control.
Joint	A naturally occurring plane of weakness or break in the rock, along which there has been no visible movement parallel to the plane.
Kinematic analysis	Considers the ability or freedom of objects to move without reference to the forces involved.
Knowledge	Ability to obtain and retain theoretical information relating to a specific subject and being able to research further information.
Loose	Rock that should be removed by scaling to make the workplace safe.
Lost time injury/illness	Work related injury/illness where the affected person is unable to complete the next shift.
Medical/hospital injury/illness	Work related injury/illness requiring medical or hospital treatment.
Metabolic Heat	The total sum of heat generated by the activity of working muscles, and by the activity of other body organs and processes.
Mineral resource	An in-situ mineral occurrence quantified on the basis of geological data and an assumed cut-off grade only. More correctly referred to as an Identified Mineral Resource. Strict professional and technical criteria exist for the determination of mineral resources.
Mining induced seismicity	The occurrence of seismic events in close proximity to mining operations. During and following blast times there is usually a significant increase in the amount of seismic activity in a mine. Mining-induced seismicity is commonly associated with volumes of highly-stressed rock, sudden movement on faults or intact failure of the rock mass.

Notifiable accidents/incidents	Categories of accidents/incidents that must be reported to statutory authorities.
Ore	Part of an ore reserve. See ore reserve.
Ore reserve	That part of a mineral resource that is considered to mineable in terms of tonnage and grade following an appropriately detailed study of the technical and economic criteria and data. The plural may also used to refer to a list of known ore zones that a mine has identified as being suitable for mining at some time in the future. Strict professional and technical criteria exist for the determination of ore reserves.
Overhead Work	Work that is carried out above shoulder height, usually with upper body muscle groups. Overhead work requires considerably more effort that work below shoulder height and therefore generates more stress and more metabolic heat.
Overbreak	The excess rock broken outside the design perimeter of an underground excavation. Overbreak increases the amount of rock to be moved and may reduce mining efficiency. It may also increase the amount of barring down and ground support required.
Pillar	An area of ore left to support the overlying rock or hanging wall. There are temporary pillars recovered at sometime in the future and permanent pillars left in place for the life of the mine.
Plane of weakness	A naturally-occurring crack or break in the rock mass along which movement can occur.
Plastic	Capable of deformation at constant stress once the yield point is exceeded. The ability of a material to undergo permanent deformation without returning to its original shape or failing.
Policy	A general statement of an organisation's (or an operation's) aims, commitment, responsibilities and resources necessary to achieve a particular objective.
PPE	Personal Protective Equipment.
Positive performance indicators	Defined measurable outcomes that provide a tool for comparison to actual performance (may also be referred to as health and safety target).
Procedure	Step-by-step description of what's to be done and by whom.
Program	Grouping of various activities or strategies employed to manage a particular function or hazard.
Principal	Person or organisation that purchases the services provided by contractor.

Ravelling	The gradual failure of the rock mass by rock blocks falling/ sliding from the opening perimeter under the action of gravity, blast vibrations or deterioration of rock strength. A gradual failure process that may go unnoticed. The term unravelling is also used to mean the same thing.
Reinforcement	The use of tensioned rock bolts and cable bolts, placed inside the rock, to apply large stabilising forces to the rock surface or across a joint tending to open. The aim of reinforcement is to develop the inherent strength of the rock and make it self-supporting. Reinforcement is primarily applied internally to the rock mass.
Release of load	Excavation of rock during mining removes or releases the load that the rock was carrying. This allows the rock remaining to expand slightly due to the elastic properties of the rock.
Review	Overview of health and safety performance.
Risk	The combination of the likelihood of a specific unwanted event and the potential consequences if it should occur.
Risk assessment	A process that involves measurement of risk to determine priorities and to enable identification of appropriate level of risk treatment (used also to describe the overall process of risk management).
Risk control	Selection/implementation of strategies to prevent/control hazards.
Risk management process	The overall description of the steps taken to manage risk identify, assess and control.
Risk rating	The category or level or risk assigned following risk assessment (such as high, medium and low).
Rock bolt	A tensioned bar or hollow cylinder, usually steel, that is inserted into a drill hole in the rock and anchored by an expansion shell anchor at one end and a steel face plate and a nut at the other end. The steel face plate is in contact with the rock surface.
Rock mass	The sum total of the rock as it exists in place, taking into account the intact rock material, groundwater, as well as joints, faults and other natural planes of weakness that can divide the rock into interlocking blocks of varying sizes and shapes.
Rock mass strength	Refers to the overall physical and mechanical properties of a large volume of rock which is controlled by the intact rock material properties, groundwater and any joints or other planes of weakness present. One of the least well understood aspects of geotechnical engineering.
Rock mechanics	The scientific study of the mechanical behaviour of rock and rock masses under the influence of force fields.
Rock noise	Sounds emitted by the rock during failure, may be described as cracking, popping, tearing and banging.

Rockburst	The instantaneous failure of rock causing a sudden violent expulsion of rock material at the surface of an excavation. Can be a serious hazard to people and equipment. Sometimes used to describe a seismic disturbance to a surface or underground mine where damage results to the mine structure or equipment.
Safe work procedure (SWP)	Step by step description of the safest and most effective way to carry out a particular job. May also be known as: - Safe Operating Instruction - Task Instruction - Work Instruction - Work Method Statement
Scaling	The art and function of making the ground safe using a scaling bar to locate and remove loose rock from the walls, face and backs of the workplace. Loose or potentially unstable rock is prised off the rock surface with a scaling bar. Also referred to as barring down.
Scaling bar	A solid steel bar with a straight chisel point at one end and a heel and toe chisel point at the other end, used to remove loose potentially unstable rock. Hollow aluminium bars, fitted with steel chisel tips at each end, can provide longer reach in high headings.
Seismic event	Earthquakes or vibrations caused by sudden failure of rock releasing stored strain energy. Not all seismic events produce damage to the mine structure, hence all seismic events are not necessarily rockbursts.
Seismicity	The geographic and historical distribution of earthquakes.
Seismology	The scientific study of earthquakes by the analysis of vibrations transmitted through rock and soil materials. The study includes the dynamic analysis of forces, energy, stress, duration, location, orientation, periodicity and other characteristics.
Shear	A mode of failure where two objects or pieces of rock tend to slide past each other.
Shear stress	A stress that tends to cause an object to slide.
Shotcrete	Pneumatically applied cement, water, sand and fine aggregate mix that is sprayed at high velocity on the rock surface and is thus compacted dynamically. Tends to inhibit blocks ravelling from the backs, walls and face of an excavation.
Skills	Practical ability to apply theoretical knowledge to particular situations.
Slabbing	Unstable slabs of rock formed by close spaced foliation or bedding planes in the backs or walls. Can also be caused by high stress levels that produce flat slabs parallel to the walls or backs.
Slope	Any continuous face of rock mass within the overall pit wall (without stepping/berms).
Smooth blasting	The use of closely spaced parallel perimeter holes charged with low strength explosives, fired after the main round. Can be used to reduce blast damage to the rock mass and improve rock stability.

SMP	Safety Management Plan.
Spalling	Stress induced failure of the rock mass that results in small, thin, curved, sharp edged pieces of rock ejected or falling from the backs or walls of an excavation. Generally accompanied by rock noise, usually associated with high rock stress.
Stope	An excavation where ore is extracted on a large scale.
Stope lift	A horizontal slice of ore mined from the back of a stope. Generally applied to cut and fill stoping methods.
Strain	The change in length per unit length of a body resulting from an applied force. Within the elastic limit strain is proportional to stress.
Strength	The largest stress that an object can carry without breaking. Common usage is the stress at failure.
Stress	May be thought of as the internal resistance of an object to an applied load. When an external load is applied to an object, a force inside the object resists the external load. The terms stress and pressure refer to the same thing. Stress is calculated by dividing the force acting by the original area over which it acts. Stress has both magnitude and orientation.
Stress field	A descriptive term to indicate the pattern of the rock stress (magnitude and orientation) in a particular area.
Stress shadow	An area of low stress level due to the flow of stress around a nearby excavation, eg a large stope. May result in joints opening up causing rock falls.
Strike	The bearing of a horizontal line in a plane or a joint.
Subdrill	The length of blast hole which extends beyond the next bench floor level. Subdrill is included in the blast design to provide adequate broken rock subgrade for developing working benches.
Support	The use of steel or timber sets, concrete lining and steel liners, that are placed in contact with the rock surface to limit rock movement. The rock mass has to move on to the support before large stabilising forces are generated. Support is applied externally to the rock mass.
Tensile	The act of stretching of material. Tensile forces can cause joints to open and may release blocks causing rock falls.
Tectonic forces	Forces acting in the Earth's crust over very large areas to produce high horizontal stresses which cause can earthquakes. Tectonic forces are associated with the rock deforming processes in the Earth's crust.
Tensile stress	A stress that tends to cause a material to stretch. Can cause joints to open and may release blocks causing rock falls.

Ultramafic rock	Typically, dark coloured rocks that have been intruded into the Earth or extruded underwater in a marine environment. May have been altered by heat and pressure producing foliation in the rock. They can be low strength, sheared and altered and a potential source of challenging ground conditions.
Wall	A wall can refer to a section of, or the complete profile of, the perimeter of an open pit excavation.
Wedge	A block of rock bounded by joints on three or more sides that can fall or slide out under the action of gravity, unless supported.
Wet bulb globe temperature (WBGT)	Is the temperature at which water evaporates into the air (at a particular Dry bulb temperature) once equilibrium between water and air has occurred. It is very much more important than the dry bulb temperature to physiologist as the evaporation of sweat is released to the partial pressure of water vapour in the air (in effect, the humidity). Knowing any two of dry bulb temperature, wet bulb temperature or humidity (along with barometric pressure) will allow calculation of the third. (Brake fulker 1999). It is not the temperature of water vapour in air.
Windrow	A continuous mound of loose material, of appropriate height, placed at the toe or crest of a slope as a barricade to falling objects or to prevent personnel/mine equipment from falling inadvertently down pit walls. (Can also be referred to as a bund).
Winze	An internal connection between two levels constructed by developing downward.
Yield point	The maximum stress that a material can sustain without permanent deformation or rupture. The limit of proportionality between stress and strain. Also known as the elastic limit.
VRT – Virgin rock temperature	The temperature of undisturbed surrounding rock strata. This temperature increases with depth and is a result of the flow of heat from the earths core to the surface. The Virgin Rock Temperature is modified by the local affects of groundwater and geothermal anomalies.
Yield point	The maximum stress that a material can sustain without permanent deformation or rupture. The limit of proportionality between stress and strain. Also known as the elastic limit.

7.2 JURISDICTIONAL DESCRIPTIONS

Information for this section is sourced from the Chief Inspector of Mines web site, www.agso.gov.au/ccim, at the time of publication.

7.2.1 NEW SOUTH WALES

7.2.1.1 PORTFOLIO ARRANGEMENTS

Minister for Mineral Resources	Hon E O'beid
Director-General, Department of Mineral Resources	A. Coutts
Director, Mine Safety and Environment	G. Terrey
Assistant Director, Safety Operations	R. Regan
Assistant Director, Environment	K. Hollands
Assistant Director, Performance Improvement	R. Morrison

7.2.1.2 LINE RESPONSIBILITY

Director, Mine Safety and Environment reports to Director-General, Department of Mineral Resources.

Chief Inspector of Coal Mines and Assistant Director Safety Operations to Director, Mine Safety and Environment.

Chief Inspector of Mines (Metalliferous) to Director, Mine Safety and Environment.

7.2.1.3 MINISTERIAL COUNCIL ON MINERALS

The Director-General is a member of the Standing Committee of Officials, which supports the Ministerial Council on Minerals with responsibilities for minerals.

7.2.1.4 LEGISLATIVE ARRANGEMENTS

Existing

Occupational Health and Safety Act 2000 No. 40 and Regulations 2001.

Coal Mines Regulation Act 1982 No. 67 and various regulations.*

Mining Act 1992 No. 29.

Mines Inspection Act 1901 No. 75 and General Rule 2000.*

Dangerous Goods Act 1975 No. 68 and various regulations.

Petroleum (Onshore) Act 1991 No. 84 and various regulations.

Petroleum (Submerged Lands) Act 1991 No. 13 and various regulations.

Environmental Planning and Assessment Act 1979 No. 203 and various regulations.

* Associated legislation under the umbrella of the OHS Act 2000.

Proposed

A new regulatory model is being considered.

The Coal Mines Regulation Act and the Mines Inspection Act are currently being reviewed.

Coverage

Coal: Underground and open-cut mines and associated surface operations including environment. Coverage related to activities, equipment and is influenced by mining lease boundaries.

Metalliferous: Underground and open-cut mines and associated surface operations. Coverage related to activities, equipment and is not influenced by mining lease boundaries. Metalliferous includes extractive industries.

Operational Responsibilities

Mines Inspectorate

The Director, Mines Safety and Environment is currently addressing the recommendations from the Mine Safety Review. This includes devolution of environmental issues from inspectors to an environmental unit within the Division. The Division has restructured, setting clear priorities, and is changing its skills profile, reviewing and formalising its process, and computerising its "management information system".

7.2.2 NEW ZEALAND

7.2.2.1 PORTFOLIO ARRANGEMENTS

Department of Labour,
OSH Service

General Manager, Workplace Health and Safety	R. Hill
Business Adviser (Mining)	G. Munro
Acting Chief Inspector of Mines, Quarries and Tunnels	J.Walrond

7.2.2.2 LINE RESPONSIBILITY

Business Adviser (Mining) to National Operations Manager, Operations Policy Unit, Chief Inspector of Mines, Quarries and Tunnels to Branch Manager, OSH Service.

7.2.2.3 LEGISLATIVE ARRANGEMENTS

Existing

Extractives inspectors are appointed under the Health and Safety in Employment Act (HSE Act) 1992 to cover the mining, coal mining, quarrying, tunnelling, geothermal and petroleum industries. All workplace inspectors are appointed under this Act.

Some Extractives inspectors are also appointed as enforcement officers under the Crown Minerals Act 1991. This is the statute under which mining privileges are issued.

Due to the large number of Coal Mining Licences and Mining Licences that were issued prior to the introduction of the Crown Minerals Act, and the subsequent repeal of the Coal Mines Act 1979 and the Mining Act 1981, most inspectors have obligations in a range of environmental matters which form consent conditions.

Regulations administered by the Extractives Inspectors include the HSE Regulations 1995, the HSE (Mining Administration) Regulations 1996, the HSE (Mining - Underground) Regulations 1999, the HSE Petroleum (Exploration and Extraction) Regulations 1999 and the HSE Pipelines Regulations 1999. The Geothermal Regulations remain in place under the now–repealed Geothermal Energy Act.

Operational Responsibilities

The operational responsibilities of extractives inspectors can be broadly described as the administration and enforcement of health and safety in the mining industry. There is a strong emphasis on health and safety education.

Other responsibilities include work program approvals for all operations licensed under the repealed legislation referred to above, legislation reviews, participation in Mines Rescue Trust Board and liaison with local government organisations in respect of work program approvals under the Crown Minerals Act.

The extractives inspectorate is funded from the allocation granted to the OSH Service of the Dept. of Labour.

7.2.3 NORTHERN TERRITORY

7.2.3.1 PORTFOLIO ARRANGEMENTS

Minister for Business, Industry and Resource Development	Paul Henderson
Chief Executive Officer Dept of Business, Industry & Resource Development	Peter Blake
General Manager Minerals & Energy	Brian Ely
Director of Mines	Tony McGill
Manager, Engineering & Technical Support	Tim Gosling
Chief Government Mining Engineer	Kee Hah

7.2.3.2 LINE RESPONSIBILITY

General Manager, Minerals & Energy reports to the Chief Executive Officer.

Director of Mines reports to the General Manager, Minerals & Energy.

Manager-Engineering & Technical Support to Director of Mines.

Chief Government Mining Engineer to Manager-Engineering & Technical Support.

7.2.3.3 MINISTERIAL COUNCIL ON MINERALS

The Chief Executive Officer is a member of the Standing Committee of Officials, which supports the Ministerial Council on Minerals.

7.2.3.4 LEGISLATIVE ARRANGEMENTS

Existing

Mining Act (2001)

Mining Management Act 2001

The Mining Management Act (2001) commenced on 1 January 2002. The new Act repeals the Mine Management Act and the Uranium Mining (Environment Control) Act. It expands the requirement to obtain an Authorisation before carrying out mining activities from uranium mining to all mining and to exploration involving substantial disturbance. The new Act makes no reference to the Chief Government Mining Engineer and mines inspectors are replaced by Mining Officers. Operators for mines are required to submit a mining management plan when applying for the Authorisation and this will require at least annual review.

Coverage

The Mining Management Act (2001) deals with the safety, health and environmental aspects of exploration, mining and rehabilitation activities involving underground and open cut metalliferous mining, mining of barren rock and extractive minerals (eg sand, gravel, soil, etc.) irrespective of tenure. Tenure is granted under the Mining Act, but conditions relating to OHS and environmental management are included in an Authorisation issued under the Mining Management Act. The detail of the OHS and environmental management plans are incorporated into the Mining Management Plans for the mining site.

Operational responsibilities

Mining Officers located within Mines Division monitor and enforce the management, safety, health and environmental requirements for exploration, mining and rehabilitation activities. This is done by inspecting, auditing and educating industry personnel on the standards sought by the government.

7.2.4 QUEENSLAND

7.2.4.1 PORTFOLIO ARRANGEMENTS

Minister for Natural Resources and Minister for Mines	Stephen Robertson
Director-General, Department of Natural Resources and Mines	Terry Hogan
Deputy Director-General, Mines	Bryan Coulter
Executive Director, Safety and Health	Peter Dent
Chief Inspector of Mines	Peter Minahan
Deputy Chief Inspector of Mines (Coal)	Brian Lyne
Deputy Chief Inspector of Mines (Metalliferous)	Roger Billingham

7.2.4.2 LINE RESPONSIBILITY

Deputy Director-General reports to the Director General.

ED Safety and Health Division reports to the Deputy Director-General, Mines.

Chief Inspector reports to the ED Safety and Health Division.

Deputy Chief Inspectors report to the Chief Inspector.

7.2.4.3 MINISTERIAL COUNCIL ON MINERALS

The Deputy Director-General, Mines is a member of the Standing Committee of Officials, which supports the Council, with responsibilities for minerals.

The Natural Resources area of the Department of Natural Resources and Mines has extensive involvement with the Natural Resource Management Ministerial Council, which replaced ANZECC.

7.2.4.4 LEGISLATIVE ARRANGEMENTS

Existing

Coal Mining Safety and Health Act 1999 and Coal Mining Safety and Health Regulation 2001.

Mining and Quarrying Safety and Health Act 1999 and Mining and Quarrying Safety and Health Regulation 2001.

Note:

1. The majority of the elements of the two Acts are identical, but the regulations are different.

2. Workplace Health and Safety Act 1995 specifically excludes mines.

Coverage

Coal: Underground and open-cut mines and associated surface operations. Does not cover railways, ports, environmental or tenure issues.

Metalliferous: Underground and open-cut mines, concentrators, smelters, quarries with blasting and crushing, exploration. Where ports and rail are integral to mine they are covered by the Act. Smelters and refineries remote from minesites are excluded from the Act. Does NOT cover environmental or tenures issues.

Mining tenures covered by Mineral Resources Act, administered by Department of Natural Resources and Mines. Environmental issues are covered by the Environment Protection Agency

Operational responsibilities

Mines Inspectorate works closely with Explosives Inspectorate and Petroleum & Gas Inspectorate (also in Safety and Health Division).

They are not involved in administration of environmental or tenure issues.

They work as one inspectorate covering coal and metalliferous issues.

7.2.5 VICTORIA

7.2.5.1 PORTFOLIO ARRANGEMENTS

Minister for Energy and Resources	C Broad
Secretary - Department of Natural Resources and Environment	C Munro
Executive Director, Minerals and Petroleum, Victoria	S Ashby (A/g)
Manager, Minerals and Petroleum Regulation	R King
Chief Mining Inspector (CMI)	G McLaughlan
Chief Inspector of Quarries (CIQ)	J Mitas

7.2.5.2 LINE RESPONSIBILITY

Executive Director of Minerals and Petroleum, Victoria Reports to the Secretary of Department of Natural Resources and Environment.

Manager of Minerals and Petroleum Regulation to Executive Director of Minerals and Petroleum, Victoria.

CMI & CIQ to Manager of Minerals and Petroleum Regulation.

Ministerial Council on Minerals, Standing Committee of Officials representative S.Ashby (A/g).

7.2.5.3 LEGISLATIVE ARRANGEMENTS

Mineral Resources Development Act 1990 - coal and metalliferous mines.

Extractive Industries Development Act 1995 - quarries.

Occupational Health and Safety Act 1985 - for quarries, offshore petroleum facilities and oil & gas pipelines (currently not mines).

Dangerous Goods Act 1985 - for the manufacture, storage and use of explosives within licensed mining and extractive sites.

Coverage

Mining: The Mineral Resources (Health and Safety) Regulations 1991 and/or the Mineral Resources (Health and Safety in Large Opencut Mines) Regulations 1995 cover all work within a mining licence area.

Extractive: The Extractive Industry Regulations 1996 and Occupational Health and Safety Act 1985 and regulations cover extractive operations within a licensed Work Authority area. Mines Inspectors, by agreement with the Victorian WorkCover Authority (VWA), administer the OHS Act and regulations within the Work Authority area (excluding manufacturing and processing plants).

Officers of the VWA administer the legislation dealing with processing plants such as brick pressing, block making and concrete plants.

Explosives: The Dangerous Goods (Explosives) Regulations 2000 cover the manufacture, storage and use of explosives within the boundaries of the mining licence/Work Authority.

Operational responsibilities

The Minerals and Petroleum Regulation unit is involved in all stages from mining licence/work authority application to mine and/or extractive site closure. Staff includes mining engineers, environmental specialists and generalist technical officers. Work is team based (by region) and all staff cover general OH&S and environmental matters. Mining engineers handle higher level OHS matters, and higher level environmental matters are dealt with by specialist environmental officers.

7.2.6 WESTERN AUSTRALIA

7.2.6.1 PORTFOLIO ARRANGEMENTS

Minister for State Development

Director-General,
Department of Mineral and
Petroleum Resources — Jim Limerick

State Mining Engineer
(General Manager - Mining Safety) — Martin Knee

Director Mining Operations
& Explosives and
Dangerous Goods — Malcolm Russell

7.2.6.2 LINE RESPONSIBILITY

State Mining Engineer reports to Director who reports to Executive Director (Statutory Operations) who, in turn, reports to the Director-General with a separate reporting channel direct to the Minister on certain matters.

7.2.6.3 MINISTERIAL COUNCIL ON MINERALS

The Director-General is a member of the Standing Committee of Officials, which supports the Council.

7.2.6.4 LEGISLATIVE ARRANGEMENTS

Existing

Mines Safety and Inspection Act (1994) covers both metalliferous and coal mining

Proposed

Independent external review (mandated in the statute itself) of the operation of the MSI Act is currently underway.

Regulations are to be reviewed (internally) following the completion of the review of the Act.

Coverage

The Act covers all mining activity, including exploration, construction and development, quarries, and metalliferous mining and processing, refineries and downstream processing, and mineral export facilities and major iron ore railways.

Operational responsibilities

The operational organisation of the Department is under review following the amalgamation of the former Departments of Minerals and Energy and Resources Development.

One significant change is the establishment of a Statutory Operations Group under an Executive Director with a direct reporting line to the Minister as well as via the Director General. This group encompasses mining and petroleum safety and environmental matters, mineral and petroleum titles, land access and native title issues in relation to minerals and petroleum and royalties.

7.3 LEGISLATIVE CROSS-REFERENCE

As mining legislation moves from a prescriptive regime to a systems-based safety management approach, mine sites are required to develop site-specific solutions to health and safety issues. To help develop those solutions it is planned to provide information that links legislative requirements and objectives with this Handbook. This material may be provided in any future update.

As a result, you are encouraged to develop this section by creating your own cross-reference between the regulatory requirements of your State or Territory with this Handbook. This will help in identifying what elements have been considered in the development of the safety management systems adopted by the operation.

7.4 AUSTRALIAN STANDARDS AND OTHER CODES

7.4.1 AUSTRALIAN STANDARDS

The following Australian Standards may provide useful information when seeking specific guidance on occupational health and safety related matters.

PART 1 ADMINISTRATION MANAGEMENT, RESPONSIBILITIES, DOCUMENTATION AND SAFETY SYSTEMS

Management

AS 1470-1986	Health and Safety at Work - Principles and Practices.
AS 1885	Measurement of Occupational Health and Safety Performance.
AS 2124 - 2000	General Conditions of Contract.
AS 4368-1996	Mine Plans - Preparation and Symbols.
AS/NZS 4801:2001	Occupational Health and Safety Management Systems - Specification with guidance for use.
AS/NZS 4804:2001	Occupational Health and Safety Management Systems - General guidelines on principles, systems and supporting techniques.
ISO 9001	Quality Systems - Model for Quality Assurance in Design Development Production, Installation and Servicing.
ISO 9002	Quality Systems - Model for Quality Assurance in Production Installation and Servicing.
ISO 9003	Quality Systems - Model for Quality Assurance in Final Inspection and Test.
ISO 9004	Quality Management and Quality Systems Elements Part 1: Guidelines.

Risk Management

AS/NZS 3931 (Int) - 1995	Risk Analysis of Technological Systems - Applicable Guide.
AS/NZS 4360 - 1999	Risk Management.

Injury/Illness Reporting

AS 1885	Describing and Reporting Occupational Injuries and Diseases Safety Signage Supplement 1 - 1991.
AS 1319-1994	Safety Signs for the Occupational Environments (and Appendices).
AS 1614	Safety Signs for Mines and Tunnels.
AS 2342-1992	Development, Testing and Implementation of Information and Safety. Symbols and Symbolic Signs.
AS 3166	Safety Signs for High Voltage Electricity.
AS 3790	Safety Triangles for Motor Vehicles.
AS 1742, 1743, 1744	Safety Signs for Road Traffic Control.

PART 2 PROCEDURES AND PROCESSES

Emergencies

ISO 3193	Rules for the Design & Use of Safety Signs for the Occupational Environment.
AS 1851 - (Parts 1 - 16)	Maintenance of Fire Protection Equipment.
AS 1851.1 - 1995	Portable Fire Extinguishers and Fire Blankets.
AS 1851.2 - 1995	Fire Hose Reels.
AS 1851.3 - 1995	Automatic Fire Sprinkler Systems.
AS 1851.4 - 1994 (Amdt - 1997)	Fire Hydrant Installations.
AS 1851.5 - 1981	Automatic Smoke/Heat Venting Systems.
AS 2419.1 - 1994 (Amdt - 1996)	System Design, Installation and Commissioning.
AS 2419.2 - 1994	Fire Hydrant Values.
AS 2792 - 1992	Fire Hose - Delivery Layflat.
AS 2444 - 2001	Portable Free Extinguishers and Fire Blankets - Selections and Location.
AS 2441 - 1988	Installation of Fire Hose Reels.
AS 3745 - 2002	Emergency Control Organisation & Procedures for Buildings.
AS 4603-1999	Flashback Arresters - Safety devices for use with Fuel Gases and Oxygen or Compressed Air.

PART 3 PEOPLE

Personal Protective Equipment Workplace Atmosphere

AS/NZS-1715 - 1994	Selection, Use and Maintenance of Respiratory Protective Devices.
AS/NZS-1716 - 1994 (Amdt - 1996)	Respiratory Protection Devices.
AS 3544-1988	Industrial Vacuum Cleaners for Particulates Hazardous to Health.

Safety Helmets

AS 1800-1998	The Selection, Care and Use of Industrial Safety Helmets.
AS 1801-1997	Industrial Safety Helmets (incorporating Amendment 1).

Eye Protection

AS 1336-1997	Recommended Practices for Eye Protection in the Industrial Environment.
AS/NZS 1337-1992 (Amdt - 1997)	Eye Protection for Industrial Applications.
AS/NZS 1338-1992 (Amdt - 1997)	Filters for Eye Protectors.
AS 1607 - 1989	Sunglasses and Fashion Spectacles Part 1 Safety Requirements.

Gloves

AS/NZS 2161-1 to 9 2000/01	Occupational Protective Gloves.
AS 2225 - 1994 (Amdt - 1996)	Insulation Gloves for Electrical Purposes.

Footwear

AS/NZS 2210	Occupation Protective Footwear.
AS/NZS 2210.1 - 1994	Guide to Selection, Care and Use.
AS/NZS 2210.1 - 1994 (Amdt - 1998)	Specification.

Welding

AS 1674 - 1997	Safety in Welding and Allied Processes.
AS 1674-1 - 1997	Fire Precautions.
AS 1674.2 - 1990	Electrical.
AS 1796-2001 (Amdt - 2002)	Certification for Welders and Welding Supervisors.

Body Protection

AS 3765 - 1990	Clothing for Protection Against Hazardous Chemicals.
AS 3765.1 - 1990	Protection Against General of Specific Chemicals.
AS 3765.2 - 1990	Limited Protection Against Specific Chemicals.

PART 4 WORKING ENVIRONMENT

Buildings and Structures

AS 1530 - 1 to 5 - 1989	Methods for Fire Tests on Building Materials, Components and Structures.
AS 1657 - 1992	Fixed Platforms, Walkways, Stairways and Ladders - Design, Construction and Installation.
AS/NZS 1560 - 1999	The Design and Installation of Corrugated Fibre-Reinforced Cement Roofing and Wall Cladding.
AS 1664 - 1997	Aluminium Structures.(also known as the SAA Aluminium Structures Code).
AS 1668 - 1998	The use of Mechanical Ventilation and Air-Conditioning in Buildings.
AS 1680 - 1998	Interior Lighting.
AS 1720 - 1997 (Amdt - 1998)	Timber Structures (also known as the SAA Lift Code).
AS 2208 - 1996 (Amdt - 1999)	Safety Glazing Materials for Use in Buildings (Human Impact Considerations).
AS 2243 - 1990/2002	Safety in Laboratories (10 parts).
AS 2601 - 2001	The Demolition of Structures.
AS 2982 - 1997	Laboratory Construction.
AS 3600 - 2001	Concrete Structures.
AS 4100 - 1998	Steel Structures.
AS/NZS 2002	Air-Handling and Water Wystems of Buildings - Microbial Control .
AS/NZS 3666 4576 - 1995	Guidelines for Scaffolding.
AS/NZS 4801 - 2001	Occupational Health and Safety Management Systems - Specification with Guidance for Use.
AS/NZS 4804 - 2001	Occupational Health and Safety Management Systems - General Guidelines on Principles, Systems and Supporting Techniques.

Height Safety

AS/NZS 1576 - 1995	Scaffolding.
AS/NZS 4576	Guidelines for Scaffolding.
AS/NZS 1891 - 1995/2001	Industrial Fall Arrest Systems and Devices.
AS1170 - 1994	Minimum Design Loads on Structures (also known as the SAA Loading Code).
AS 1170.2 - 1989	Wind Loads.
AS 1418.10 - 1996	Elevating Work Platforms.
AS/NZS 1891.3 - 1983	Industrial Fall - Arrests Systems and Devices.
AS 2210	Industrial Safety Belts and Harness - Selection, Use and Maintenance.

Ladders

AS 1892.1 - 1996	Portable Ladders - Metal.
AS 1892.2 - 1992	Portable Ladders - Timber.

Confined Space

AS 2865 - 1995	Safe Working in a Confined Space.

Vibration

AS 2670 - 2001	Evaluation of Human Exposure to Whole Body Vibration.
AS 2763 - 1988	Vibration and Shock - Hand Transmitted Vibration Guidelines for Measurement and Assessment of Human Exposure (ISO 5349).
AS 2973 - 1987	Vibration and Shock - Human Response Vibration - Measuring Instrumentation.
AS 2993.1 - 1987	Vibration and Shock Dynamic Characteristics of the Human Body - Drawing Point Importance of the Human Body
AS 3658 - 1989	Vibration and Shock - Mechanical Vibration and Shock Affecting Humans - Vocabulary (ISO 5805).

Noise

AS 1259-1990	Acoustics - Sound Level Meters.
AS 1269 - 1998	Occupational Noise Management.
AS 1270 - 2002	Acoustics - Hearing Protectors.
AS 2012.1 & 2-1990	Acoustics - Measurement of Airborne Noise Emitted by Earth-Moving Machinery and Agricultural Tractors - Stationary Test Condition.
AS/NZS 2399 - 1998	Acoustics - Speculation for Personal Sound Exposure Meters

Dust

AS 1715 - 1994	Selection Use and Maintenance of Respiratory Protective Devices.
AS 1716 - 1994	Respiratory Protective Devices.
AS 3640 - 1989	Workplace Atmospheres - Method for Sampling and Gravimetric Determination of Respirable Dust.
AS 2986 - 1987	Workplace Atmospheres - Organic vapours - Sampling by Solid Absorption Techniques.

Ultra Violet Radiation

AS 2604 - 1998	Sunscreen Products - Evaluation and Classification.
AS 1337 - 1992 (Amdt - 1994)	Eye Protectors for Industrial Applications.
AS 1607 - 1990	Sunglasses and Fashion Spectacles Part 1 - Safety Requirements.

Hazardous Substances

AS 1216.1 - 1998	Classification and Class Labels for Dangerous Goods.
AS 1345 - 1995	Identification of the Contents of Piping, Conducts and Dusts.
AS 1940 - 1993	Storage and Handling of Flammable Combustible Liquids.
AS 3544-1988	Industrial Vacuum Cleaners for Particulates Hazardous to Health.
AS 3580 - 1 to 13 1990/2001	Methods for Sampling and Analysis of Ambient Air .
AS/NZS 3580.12.1:2001	Methods for Sampling and Analysis of Ambient Air - Determination of Light Scattering - Integrating Nephelometer Method.

Dangerous Goods

AS 1216 - 1998	Classification, Hazard Identification and Information Systems for Dangerous Goods.
AS 1216.1 - 1984	Classification and Class Labels for Dangerous Goods.
AS 1216.2 - 1981	Hazardous Chemical Emergency Action Code.
AS 1216.3 - 1981	NFPA Hazardous Identification System.
AS 1216.4 - 1981	UN Substance Identification Numbers.
AS 1883-1992	Guide to Maintenance and Supervision of Insulating Oils in Service .
AS 2030 - 1985/1999	The approval, filling, inspection, testing and maintenance of cylinders for the storage and transport of compressed gases (also known as the SAA Gas Cylinders Code).

Hazardous Areas

AS/NZS 1596 - 2002	The Storage and Handling of LP Gas
AS 2337 - 1999	Gas Cylinder Test Stations.
AS/NZS 2430 - 1987/1997	Classification of Hazardous Areas (9 Parts)

Explosives

AS 2187 - 1993/1998	Explosives - Storage, Transport and Use (known as SAA Explosives Code).
AS 2601 - 2001	The Demolition of Structures.

Flammable and Combustible Liquids

AS 1940 - 1993	The Storage and Handling of Flammable and Combustible Liquids.
AS 2106 - 1999	Methods for the Determination of the Flashpoint of Flammable Liquids (closed cup).

Energy Sources

AS 1768 - 1991	Lightning Protection.
AS/NZS 1802 - 1995	Electric cables - Reeling and trailing - For underground coal mining purpose.
AS 1824.1 - 1995	Definitions, Principles and Rules (IEC 71-1 1993).
AS 1824.2 - 1985	Application Guide (IEC 71-2 and IEC 72-3).
AS 2006 - 1986	High Voltage AC Switchgear and Control gear Circuit Breakers for Rated Voltages above 1000v.
AS 2067 - 1984	Switchgear Assemblies and Ancillary Equipment for Alternating Voltages Above 1KV.
AS 2086 - 1996	High Voltage AC Switchgear and Control gear - Metal Enclosed - Rated Voltages above 1KV up to and including 72.5 KV (IEC 298).
AS 2467 - 1981	Maintenance of Electrical Switchgear.
AS 2790 - 1989	Electricity generating sets - Transportable (up to 25kW).
AS 2802 - 2000	Electric Cables - Reeling and Trailing - for Mining and General Use/other than Coal Mines.
AS 3000 - 1998	Electrical Installations - Buildings, Structures and Premises (SAA wiring Rules).
AS 3007 - 1987	Electrical Installation - Surface Mines and Associated Processing Plant.
AS/NZS 3008 - 1998	Electrical Installations - selection of Cables.
AS 3008.1 - 1989	Cables for Alternating Voltages up to and including 0.6/1 KV.
AS 3010 - 1988	Electrical Installations - Supply by Generating Set - Internal Combustion Engine Driven Sets.
AS 3859 - 1991	Effects of Current Passing Through the Human Body.
AS 4242 - 1994	Earth-Moving Machinery and Ancillary Equipment for Use in Mines - Electrical Wiring Systems at Extra-Low Voltage.
AS/NZS 3017 - 2001	Electrical Installations - Testing Guidelines.
AS/NZS 3108 - 2001	Approval and Testing Specifications - Particular Requirements for Isolating.

Transformers and Safety Isolating Transformers

AS 2380 - 1 to 9 - 1987/1994	Electrical equipment for explosive atmospheres - Explosion-protection techniques.
AS/NZS 2381.1 - 1999	Electrical equipment for explosive atmospheres - Selection, installation and maintenance - General requirements.
AS 238 - 2 to 7 1989/1995	Electrical equipment for explosive atmospheres - Selection, installation and maintenance.
AS 3190 - 2002	Approval and Test Specification - Residual Current devices (current - operated Earth Leakage Devices).
AS 3439 - 1993	Low Voltage Switchgear and Controlgear assemblies.
AS 3760 - 1990 - 2001	In Service Safety Inspection and Testing of Electrical Equipment.
AS 3851 - 1991 - 1992	The Calculation of Short - Circuit Currents in Three Phase AC Systems.
AS 3865 - 1991	Calculation of the Effects of Short-Circuit Currents.

Isolation

AS 1755 - 2000	Conveyors - Design, Construction, Installation and Operation - Safety Requirements.
AS 4024.1 - 1996	Safeguarding of Machinery - Part 1 - General Principles.
AS 1319 - 1994	Safety Signs for the Occupational Environment.

PART 5 EQUIPMENT AND MACHINERY

Mobile Equipment

AS/NZS 1125 - 4240 - 1994	Remote Controls for Mining Equipment.
AS 1180 - 1972	Methods of Test for Hose made from Elastomeric Materials.
AS 1636 - 1996	Tractors - Roll–Over Protective Structures - Criteria and Tests - Conventional Tractors.
AS 1851.1 - 1995	Maintenance of Fire Protection Equipment - Portable Fire Extinguishers and Fire Blankets.
AS/NZS 1873.1 - 1994	Powder-Actuated (PA) Hand-Held Fastening Tools - Selection, Operation and Maintenance.
AS 2294 - 1997	Earthmoving Machinery - Protective Structures.
AS 2359 - 1996	Industrial Trucks (SAA Industrial Truck Code).
AS 2359.1 - 1995	Design and Manufacture.
AS 2359.2 - 1985	Operation.
AS 2664 - 1983	Earthmoving Machinery - Seat Belts and Seat Belt Anchorages.
AS 2671-1983	Fluid Power - Hydraulic Systems and Components.
AS 2740-2001	Wedge-Type Sockets.
AS 2955 - 1 to 9 - 1988	Earth-Moving Machinery - Tests and Measurements.
AS 2956 - 1 to 6 - 1988	Earth-Moving Machinery - Instrumentation and Operator's Controls.
AS 2958 - 1988/2000	Earthmoving Machinery - (4 Parts).
AS 2987 to 2988-1987	General Conditions of Contract for the Supply of Equipment with or without Installation.
AS 3584 - 1991	Diesel Engine Systems for Underground Coal Mines.
AS 3791 - 1991	Hydraulic Hose.
AS 3868 - 1991	Earth Moving Machinery - Design Guide for Access Systems.
AS 4457 - 1997	Earth-Moving Machinery - Off-Highway Rims and Wheels - Maintenance and Repair.

Fixed Plant

AS/NZS 1200 - 2000	Pressure Equipment.
AS 1210 - 1997	Unfired Pressure Vessels SAA Unfired Pressure Vessels Code.
AS 1228 - 1997	Pressure Equipment - Boilers

AS 1657 - 1992	Fixed Platforms, Walkways, Stairways and Ladders Design, Construction and Installation.
AS 1697 - 1981	Gas Transmission and Distribution Systems (known as the SAA Gas Pipeline Code).
AS 1755 - 2000	Conveyors - Design, Construction Installation and Operation - Safety Requirements.
AS 2593 - 2001	Boilers - Unattended and Limited Attendance.
AS 2660-1991	Hose and Hose Assemblies - Air/water - For Underground Coal Mines.
AS 2971 - 2002	Serially Produced Pressure Vessels.
AS 3768 - 1990	Boilers and Pressure Vessels - In-Service Inspection.
AS/NZS 3788 - 2001	Pressure Equipment - In-Service Inspections.
AS 4041 - 1998	Pressure Piping.
AS 4297-1995	Underground Mining - Stationary Air Compressorss
AS 4332-1995	The Storage and Handling of Gases in Cylinders.

Dredges

AS 4451-1 to 4-1997	Small Craft - Steering Systems - Wire Rope and Pulley Systems for Sailing Craft.

Cranes and Hoists

AS 1418-1 - 1999/2002	Cranes (including Hoists and Winches - Parts 1 to 18).
AS 1666 - 1995	Wire-Rope Slings.
AS 2549 - 1996	Cranes - A Glossary of Terms.
AS 2550 - 1994/2002	Cranes - Safe Use.

Machine Guarding

AS 4024.1 - 1996	Safeguarding of Machinery Part 1: General Principles.
AS 4024.2 - 1998	Safeguarding of Machinery Part 2: Presence Sensing Systems.

Hot Work

AS 1554 - 1983/2000	Structural Steel Welding (known as the SAA Structural Steel Welding Code - Parts 1 to 3).
AS/NZS 1554 - 1994/2000	Structural Steel Welding (Parts 1 to 6).
AS 1674	Safety in Welding and Allied Processes.
AS 1338 - Part 1 -1994	Filters for the Protection Against Radiation Generated in Welding and Allied Operations.
AS 2430 - 1987	Classification of Hazardous Areas - Part 3.

Abrasive Wheels

AS 1788	Abrasive Wheels.
AS 1788.1 - 1987	Design Construction and Safeguarding.
AS 1788.2 - 1987	Selection Care and Use.

Piping

AS 1345 - 1982	Identification of Contents of Piping, Conduits and Ducts.
AS 1345C - 1982	Wallchart - Pipeline Identification.

PART 6 SHAFTS, WINDING AND HOISTING SYSTEMS

AS 3637	Underground Mining - Winding Suspension Equipment.
AS 3637.1 - 1989	General Requirements.
AS 3637.2 - 1989	Detaching Hooks.
AS 3637.3 - 1989	Rope Cappings.
AS 3637.4 - 1989	Draw Bars and Connecting Links.
AS 3637.5 - 1989	Rope Swivels and Swivel Hooks.
AS 3637.6 - 1991	Shackles and Chains.
AS 3751-1990	Underground Mining - Slope Haulage - Couplings, Drawbars, and Safety Chains .
AS 3785	Underground Mining - Shaft Equipment.
AS 3785.1 - 1990	Drum Winding Overwind Safety Catch Systems.
AS 3785.2 - 1991	Friction Winding Arresting Systems.
AS 3785.3 - 1990	Drum Winding Gripper Systems.
AS 3785.4 - 1992	Conveyances for Vertical Shafts.
AS 3785.5 - 1991	Headframes.
AS 3785.6 - 1992	Guides and Ribbing Ropes for Conveyances.
AS 3785.7 - 1993	Sheaves.
AS 3785.8 - 1994	Personnel Conveyances in other than Vertical Shafts.

For further information refer to the latest catalogue of Australian Standards and complete listing published by:

Standards Australia
Head Office and Administration
286 Sussex Street
Sydney NSW 2000
Mail
GPO Box 5420
Sydney NSW 2001
Telephone: (02) 8206 6000
Facsimile: (02) 8206 6001

Customer Service
Telephone: 1300 654646
Facsimile: 1300 454949
E-mail: sales@standards.com.au
Internet: www.standards.com.au

7.4.2 OTHER CODES

NSW Department of Mineral Resources

Mechanical Design Guidelines - MDG 1 to MDG 9 Series.

Mechanical Design Guidelines - MDG 10 to MDG 31 Series.

Mechanical Design Guidelines - MDG 32 to MDG 39 Series.

Mining Design Guidelines - MDG 1001 to MDG 1009 Series.

Mining Design Guidelines - MDG 1010 to MDG 1029 Series.

Electrical - MDG 2003 to MDG 2004 Series.

General Mining Documents - MDG 3001 Series.

System Safety Accident Investigation - MDG 3002 Series.

Summary of Reportable Accidents & Dangerous Occurrences - MDG 3003 Series.

Special Reports - MDG 3004 Series.

Vibration Related Back Injuries - MDG 3005 Series.

Test Report Criteria - Equipment and Materials - MDG 3006 Series.

Hydraulic Safety - MDG 3007 Series.

List of Coal Mines - MDG 3008 Series.

Safety Alerts - MDG 3009 Series.

Significant Incident Reports - MDG 3010 Series.

List of MDG's - MDG 3011.

Safety Communiqué - MDG 3012 Series.

Case Study - MDG 4001 Series.

Mine Safety Review - MDG 5001 Series.

7.5 USEFUL WEB SITE OH&S LINKS

The following list of internet sites provide statistical reports, guidelines, safety alerts and many other forms of information in relation to health & safety issues.

International

- www.msha.gov-Mine Safety and Health Administration (MSHA) of the United States Department of Labour.
- www.cdc.gov/niosh/ - National Institute for Occupational Safety and Health (NIOSH) US federal agency responsible for conducting research and making recommendations for the prevention of work-related disease and injury.
- www.gov.on.ca/lab/ohs - Ministry of Labour Occupational health and safety - Canada.
- www.hse.gov.uk/- Health and Safety Executive - British government agency.
- www.icmm.com - International Council of Mining and Metals.
- www.osh.dol.govt.nz - New Zealand's Health and Safety Net.
- www.ccohs.ca - Canadian Centre for Occupational Health and Safety.

Australia/National

- www.minerals.org.au - Minerals Council of Australia.
- www.nohsc.gov.au - National Occupational Health and Safety Commission (Worksafe) - Australian Federal Government agency.
- www.workcover.act.gov.au - ACT Workcover.
- www.comcare.gov.au - Comcare Australia.
- www.agso.gov.au/ccim - Conference of Chief Inspectors of Mines.
- www.industry.gov.au - Federal Department of Industry, Tourism & Resources.
- www.miningitab.com.au - National Mining Industry Training Advisory Body (NMITAB) provides a forum for employers and employees to influence the direction of vocational education and training policies.
- www.standards.com.au - Australian Standards.
- www.ausimm.com.au - Australasian Institute of Mining and Metallurgy.
- www.quarry.com.au - Institute of Quarrying Australia.
- www.smenet.org - Society for Mining, Metallurgy and Exploration.
- www.amma.org.au - Australian Mines and Metals Association.
- www.nightshift.com - Night Shift initiative serving the shiftwork community.
- www.austlii.edu.au - Australasian Legal Information Institute.
- www.reflections.com.au/Miningand Exploration/ - Australian Mining and Exploration news and information.

New South Wales

- www.minerals.nsw.gov.au - Department of Mineral Resources.
- www.nswmin.com.au - NSW Minerals Council.
- www.workcover.nsw.gov.au - WorkCover.

Northern Territory

- www.dbird.nt.gov.au - Department of Business, Industry & Resource Development.
- www.ntminerals.org.au - Northern Territory Minerals Council (under construction).
- www.nt.gov.au/wha - Work Health Authority.

Queensland

- www.nrm.qld.gov.au/mines - Queensland Department of Natural Resources and Mines.
- www.qmc.com.au - Queenslands Mining Council.
- www.detir.qld.gov.au - Department of Employment and Training, Department of Industrial Relations.
- www.warden.qld.gov.au - Mining Warden's Court of Queensland.

- www.mishc.uq.edu.au - University of Queensland, Minerals Industry Safety and Health Centre.
- www.qmitab.com.au - Queensland's Mining Industry Training Advisory Board.
- www.mishc.uq.edu.au - Minerals Industry Safety and Health Centre (MISHC), University of Queensland centre.
- www.whs.qld.gov.au - Workplace Health and Safety.
- www.workcover.qld.gov.au- WorkCover.

South Australia

- www.pir.sa.gov.au - Department of Primary Industries & Resources.
- www.resourcessa.org.au - South Australian Chamber of Mines and Energy.
- www.maqohsc.sa.gov.au - Mining and Quarrying Occupational Health and Safety Committee.
- www.workcover.com - WorkCover.

Tasmania

- www.mrt.tas.gov.au - Department of Infrastructure, Energy and Resources.
- www.tasminerals.com.au - Tasmanian Minerals Council.
- www.wsa.tas.gov.au - WorkCover.

Victoria

- www.nre.vic.gov.au - Department of Natural Resources and Environment.
- www.vicmins.com.au - Minerals and Energy Council.
- www.workcover.vic.gov.au - WorkCover.

Western Australia

- www.dme.wa.gov.au - Department of Mineral & Petroleum Resources.
- www.mineralswa.asn.au - Chamber of Mines and Energy.
- www.safetyline.wa.gov.au - Department of Consumer and Employment Protection.
- www.workcover.wa.gov.au - WorkCover.

7.6 WORK IN PROGRESS

This section contains a number of topics under development or to be developed in response to:

- new or recently identified health and safety concerns;
- incidents; and
- developments in other areas/sections of the industry, other industries and other countries.

The table is structured to show the second tier numbering system used in the Handbook and topics listed by bullet points have been identified to be included in any future edition or are under development or to be developed.

Generally, the document type may be classified as a code, standard, guideline, guidance note, recognised standard or applied guideline (legislation based) or an approved code of practice (referenced at law).

Part 1 Administration - Management, Responsibilities, Documentation and Safety Systems

Reference/Topic	Document Type	Comments/ reason for development	Status/Action	Responsibility/Contact
1.1 INFORMATION RESOURCES				
1.2 DOCUMENT CONTROL • Approvals & authorisations	Guideline	Identified health and safety concerns	To be commenced	New South Wales Department Of Mineral Resources – G Terrey terreyg @minerals.nsw.gov.au
1.3 RESPONSIBILITIES AND ACCOUNTABILITIES • Government commitment - Investigations - Boards of inquiry	• Guideline - Guidance note - Guidance note	Identified health and safety concerns	To be commenced	New South Wales Department Of Mineral Resources – G Terrey terreyg @minerals.nsw.gov.au
• Inspection of Underground Coal Mine Workings	Recognised Standard		Drafting ready for approval	Queensland Department of Natural Resources and Mines
1.4 POLICIES AND MANAGEMENT PLANS				
1.5 RISK MANAGEMENT • Control of Formal Risk Management Practices	Recognised Standard	Also guideline	Drafting	Queensland Department of Natural Resources and Mines
1.6 CONTRACTOR MANAGEMENT				
1.7 HAZARD AND WORK INJURY REPORTING SYSTEM	Guideline	Identified health and safety concerns	To be commenced	New South Wales Department Of

2.1 COMMUNICATION AND CONSULTATION				
• Consultation	Guideline	Develop in line with new OH&S Act	Draft	New South Wales Department Of Mineral Resources – G Terrey terreyg @minerals.nsw.gov.au
2.2 SAFE OPERATING PROCEDURES				
2.3 WORKPLACE INSPECTION				
2.4 ACCIDENT INVESTIGATION				
• Learning the lessons	Guideline	Identified health and safety concerns	To be commenced	New South Wales Department Of Mineral Resources – G Terrey terreyg @minerals.nsw.gov.au
2.5 EMERGENCY PLANNING AND RESPONSE				
• Underground Emergency Preparedness Management Plan	MDG 1022 Guideline	Update/revision	last update 24/9/99	New South Wales Department Of Mineral Resources – R Leggett and G McDonald-leggettr@minerals.nsw.gov.au mcdonalg@minerals.nsw.gov.au
• Quality of Stonedust Sampling and analysis of roadway dust in underground coal mines	Recognised Standard		Drafting	Queensland Department of Natural Resources and Mines
2.6 PURCHASING				
Part 3 People				
3.1 ACCESS TO THE MINE				
3.2 PEOPLE WORKING ALONE				
3.3 LABOUR HIRE				
3.4 EMPLOYEE MANAGEMENT				
3.5 TRAINING AND DEVELOPMENT				
3.6 HEALTH AND FACILITIES				
• Fitness for Work - Fatigue - Physical fitness - Psychological fitness	• Guidelines - Guidance note - Guidance note - Guidance note		Draft	New South Wales Department Of

3.7 ERGONOMICS	Guideline	To be a dedicated section	To be commenced	New South Wales Department Of Mineral Resources – G Terrey terreyg @minerals.nsw.gov.au
3.8 MANUAL HANDLING				
3.9 PERSONAL PROTECTION				
Part 4 Working Environment				
4.1 DESIGN AND PLANNING				
4.2 EXPLORATION				
4.3 CONSTRUCTION, BUILDINGS AND STRUCTURES				
4.4 MINE WORKINGS				
• Development activities and associated hazards • Mine closure	• Guideline	Identified health and safety concerns	To be commenced	New South Wales Department Of Mineral Resources – G Terrey terreyg @minerals.nsw.gov.au
• Inrush	• Guideline ~~MDG 1024 Guideline~~	~~Update/revision~~	~~last update 2/8/99~~	~~New South Wales Department Of~~ Mineral Resources - I Anderson andersoi@minerals.nsw.gov.au
4.5 GROUND STABILITY				
• Rock burst	~~Guideline~~	Identified health and ~~safety concerns~~	To be commenced	New South Wales Department Of ~~Mineral Resources – G Terrey terreyg~~ @minerals.nsw.gov.au
4.6 TREATMENT AND PROCESSING PLANTS				
• Crushing and screening plants • Processing plants • Bitumen plant • Concrete batching plant	• Guideline • Guideline • Guideline	Identified health and safety concerns	To be commenced	New South Wales Department Of Mineral Resources – G Terrey terreyg @minerals.nsw.gov.au
4.7 ESSENTIAL SERVICES	• Guideline			
4.8 ENERGY SOURCES				
• Hydraulic and mechanical power • Radiant and thermal				

4.8.2 ELECTRICITY				
• The safe use of electricity in mines	Guideline	Identified health and safety concerns	Under development	Victorian Department of Natural Resources and Environment
4.9 VIBRATION				
4.10 NOISE				
4.11 WORKPLACE TEMPERATURES				
• Heat Management		Different requirements for coal and metal	Under review	Queensland Department of Natural Resources and Mines
4.12 DUST				
4.13 VENTILATION				
• System Components • Risk Assessment • Design aspects • Document Control • Gas Outbursts • Ventilation Training	• Guideline • Guideline • Guideline • Guideline	Identified health and safety concerns	To be commenced	New South Wales Department Of Mineral Resources – G Terrey terreyg @minerals.nsw.gov.au
• Ventilation Control System	• Guideline • Guideline			
• Auxillary Fans in Underground Coal Mines	MDG 1023 Guideline	Update/revision	last update 10/9/99	New South Wales Department Of Mineral Resources - R Regan reganr @minerals.nsw.gov.au
4.14 HAZARDOUS SUBSTANCES				
• Crystalline Silica • Arsenic • Hydrogen Fluoride • Flammable Chemicals • Bitumen • Lead • Diesel, Oils	MDG 1021 Guideline • Guideline • Guideline • Guideline	Update/revision Identified health and safety concerns	last update 3/9/99 To be commenced	New South Wales Department Of Mineral Resources - G Cowan cowan g@minerals.nsw.gov.au New South Wales Department Of Mineral Resources – G Terrey terreyg

4.15 FUMES				
4.16 EXPLOSIVES USE				
• Use of explosives in underground coal mines • Administrative controls • Document control • Flyrock	MDG 1012 Guideline • Guideline • Guideline • Guideline	Identified health and safety concerns	last update 9/8/99 To be commenced	New South Wales Department Of Mineral Resources - A Ryan ryant@minerals.nsw.gov.au New South Wales Department Of Mineral Resources – G Terrey terreyg @minerals.nsw.gov.au
Part 5 Equipment and Machinery				
5.1 HAZARD AWARENESS				
5.2 HAZARDOUS PLANT				
5.3 TOOLS				
• Auger • Band Tool • Concrete mixer	• Guideline • Guideline	Identified health and safety concerns	To be commenced	New South Wales Department Of Mineral Resources – G Terrey terreyg @minerals.nsw.gov.au
• Use of Cutting and Welding Equipment in Underground Coal Mines	• Guideline MDG 1019 Guideline	Update/revision	last update 30/9/99	New South Wales Department Of Mineral Resources - R Regan reganr @minerals.nsw.gov.au
5.4 MAINTENANCE AND REPAIRS				
5.5 CRUSHING, SCREENING AND CONVEYOR MACHINERY				
5.6 ACCESS TO PLANT				
5.7 DREDGES (OPEN AND STILL WATER)				
5.8 ORE-CONVEYING SLURRY PIPELINES				
5.9 LIFTING EQUIPMENT				
5.10 MOBILE PLANT AND MACHINERY				
5.11 MOBILE EQUIPMENT USED ON THE SURFACE				
5.12 MOBILE CRANES				
5.13 MOBILE EQUIPMENT USED UNDERGROUND • Construction and use of non Flameproof vehicles in underground coal mines				
5.14 RAISE BORING				
	Recognised Standard			Queensland Department of Natural Resources and Mines

Part 6 Shafts, Winding and Hoisting Systems

6.1 SHAFTS AND WINDERS GENERAL				
6.2 HEADFRAMES AND WINDERS - SHAFTS + 30M				
6.3 WINDING ENGINES				
6.4 WINDING ROPES				
6.5 SHAFT CONVEYANCES				
6.6 SIGNALLING				
6.7 FRICTION-WINDING				
6.8 DRUM WINDING				
6.9 SHAFT SINKING				