RISK ASSESSMENT FOR MINES

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INTRODUCTION

This paper provides an overview of the risk assessment process and how to practically apply it at the mine. The objectives of this paper are to:

1. Provide an understanding of the risk assessment process;
2. Show the importance of risk assessment as an integral part of the mine's management system;
3. Introduce an effective, systematic way of developing and implementing a risk management program at the mine; and
4. Demonstrate some of the benefits of risk assessment and how it can be used as a tool for cultural change.

To achieve this, four main topics will be covered:

- What is "Risk Assessment" ?
- Risk Assessment and the Safety Management System
- Implementing a Risk Assessment Program; and
- Risk Assessment as a tool for Cultural Change

Risk Assessment is a basic management tool and a fundamental process in meeting the employer's "Duty of Care" obligation to provide safe systems of work and a working environment where employees are not exposed to hazards. Risk assessment is the process that forms the foundation of a mine's risk management system can be integrated into all parts of the business.

The type of risk assessment described is primarily "team-based" and intended to be an integral part of an effective management system to control the risks encountered in day-to day operations. Other types of risk assessment (eg HAZOP, HAZAN, JSA) will be mentioned but not discussed in detail.

The development of an effective risk assessment program should be viewed as a practical way of creating awareness, understanding, motivation and commitment of all site personnel to effectively managing safety, while at the same time actively identifying and controlling risks at the mine.

DEFINITIONS

Relevant definitions under current Australian Standards used in this paper are:

"**Hazard** – a source or a situation with a potential for harm in terms of human injury or ill-health, damage to property, damage to the environment, or a combination of these." *(AS 4804: 1997)*

"**Risk** – the combination of the frequency, or probability of occurrence, and consequence of a specified hazardous event." *(AS 4804: 1997)*

"**Risk Assessment** – the process used to determine risk management priorities by evaluating and comparing levels of risk against pre-determined standards, targets, risk levels or other criteria". *(AS 4360: 1995)*

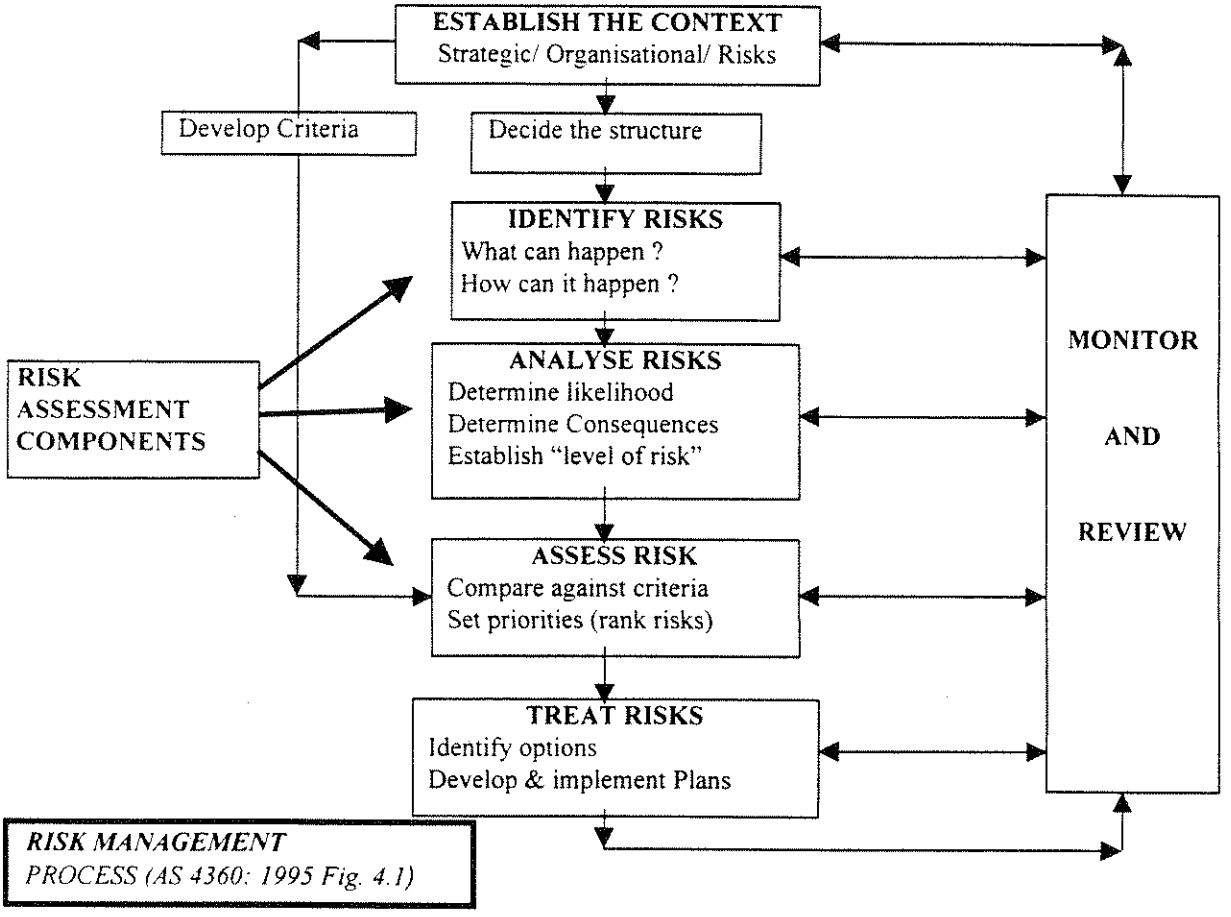
"**Risk Management** – the systematic application of management policies, procedures and practices to the tasks of identifying, analysing, assessing, treating and monitoring risk." *(AS 4360: 1995)*

WHAT IS RISK ASSESSMENT ?

Risk Assessment

Risk Assessment is essentially a process for identifying, assessing and controlling risks in the workplace. ***Risk*** is defined as the combination of the likelihood or probability an incident event (ie the "manifestation" of a hazard) will occur, and the maximum reasonable consequences if it should.

Risk Assessment is the foundation of the Risk Management process as defined in *AS 4360: 1995 "Risk Management" (Standards Australia, 1995)* as follows:



RISK MANAGEMENT
PROCESS (AS 4360: 1995 Fig. 4.1)

Risk Assessment therefore involves a detailed and systematic review of a particular work practice/ method, process, equipment or work environment and identifying the various hazards involved. The likelihood and potential consequences of unwanted events associated with the hazards are then determined, followed by ranking of risks using a "risk matrix" to determine priorities.

Existing controls are then reviewed and new controls recommended (eg re-designing or modifying the task/ process/ equipment) to eliminate or control the identified hazards. Risk Assessment therefore not only contributes to safety and health but also helps to improve productivity by identifying problems and correcting them before they occur.

Statutory Requirements for Risk Assessment

Risk assessment is an integral part of the forthcoming Queensland *Mining and Quarrying Safety and Health* and *Coal Mining Safety and Health* legislations. It is also a mandatory requirement of the *WA Mines Safety And Inspection Act 1994* ("the Act") and *WA Mines Safety And Inspection Regulations 1995.*

Under Section 9 of the *WA Mines Safety And Inspection Act 1994*, employers have a "duty of care" to provide and maintain a working environment in which employees are not exposed to hazards. Certain regulations also contain specific requirements for employers to identify and assess risks as follows. Employers must ensure that:

- appropriate first-aid equipment/ facilities based on the nature of hazards and level of risk.
- an emergency plan is prepared at the mine based on identification of the hazards that might cause an emergency and assessment of risks.
- adequate mines rescue equipment is provided based on nature of hazards associated with mining operations and degree of risk.
- systems are in place to identify hazards associated with plant and asses and control the risks of exposure to employees.

The above examples relate specifically to ***the employer***. Several regulations under Division 2 (General duties relating to items of plant) of the *WA Mines Safety And Inspection Regulations 1995* also impose similar requirements on designers, manufacturers, suppliers and installers. The general intent of this part of the Regulations is to require ***all*** parties involved in the manufacture, supply, installation, use, maintenance and disposal of "plant" (virtually any piece of equipment on the mine) to adopt a risk management approach to control hazards.

When to Conduct a Risk Assessment

Using statutory obligations as a minimum requirement, risk assessments should be conducted at the mine in the following situations:

- for all safety-critical processes, plant/ equipment, tasks or for working environments likely to be hazardous;
- whenever any new plant/ equipment, processes or work methods/ systems are introduced;
- whenever existing plant/ equipment is used in a substantially different manner;
- whenever existing plant/ equipment is substantially modified or changed; and
- whenever any other changes occur in the workplace which are reasonably likely to impact employee safety.

Risk assessment can also be used as a pro-active management tool and be conducted regularly as part of the mine's hazard or risk management system. It can also be used as the foundation of the mine's safety management system by adopting it as a "core" process and applying across all aspects of operations through a well coordinates, effective risk management program.

Types of Risk Assessment

There are several different methods for conducting risk assessments. Generally the more serious the perceived hazard, the more formal and more "process driven" the method.

Risk assessment can vary from a formal, documented, team-based exercise for developing detailed hazard management plans, to an individual, informal process at the start of each job. There are several types of risk assessments that can be conducted at the mine as part of day-to-day operations as follows:

	Individual	***Team***
Informal	• Mental hazard id & risk assessment before start of job • "Stop & Think" • Safety "SAM" (**S**pot the hazard, **A**ssess the risk, **M**ake the change)	• Pre-shift safety briefs discussing on-the-job hazards/ risks
Formal	• Workplace Job Inspection using hazard check-list • Risk-based check-lists or templates requiring hazard analysis	• Simple (task) risk assessments (Job Safety Analysis) • Team-based risk assessment using formal methodology (eg WRAC, HAZOP, HAZAN etc)

Individual, informal risk assessments (commonly called "mental" risk assessments) can be conducted at the start of any job or task to check for hazards. This can be supported and promoted by simple slogans (eg "Stop & Think", "Safety SAM") to remind people of the process.

Individual risk assessments can also be formalised by the use hazard check-lists or templates. Examples are:

- Workplace job inspection check-lists that require persons to follow the risk assessment process by checking the workplace or job for particular hazards and then acting to control any risk.
- Mine planning/ design templates or check-lists that require persons to include a hazard analysis as part of the planning/ design process.

Informal team risk assessments can be conducted by a work group at the start of a shift (eg Pre-shift Safety Brief) where hazards

or incidents reported during previous shifts can be discussed, analysed and corrective action implemented. Such actions may be included as part of the Shift Plan.

Formal team risk assessments usually involve the use of a formal process or methodology to systematically identify hazards, assess risk and determine appropriate. These can be done in small groups and on the job to assess risks associated with tasks or use of equipment using Job Safety Analysis (JSA).

They can also undertaken by a team of appropriately experienced persons and conducted by a trained facilitator using a process such as Error Analysis, Failure Mode Analysis, Fault Tree Analysis, HAZOP or WRAC (Workplace Risk Assessment and Control). These are usually undertaken for more complex situations such as for new processes, major plant or equipment.

This paper will primarily address the more formal, team-based risk assessment which are used to assess more complex situations such as:

- reviewing an entire work area (eg processing plant, crusher, entire mine etc),
- assessing a new process (eg change from benching to long-hole stoping) or
- the introduction of major new equipment (eg box-hole bore, Alimak miner etc).
- the first stage in implementing a risk management program (eg a "mine-wide" risk assessment to identify major risks).

A balanced site risk management program should however include a combination of the above types of risk assessment to ensure active identification, assessment and control of risk at all levels of mine operations.

RISK ASSESSMENT AND THE SAFETY MANAGEMENT SYSTEM

Safety Management System Model

AS 4804: 1997 "Occupational health and safety management systems – General guidelines on principles, systems and supporting techniques" (or "AS 4804") provides guidance on the development and implementation of safety management systems.

This standard encapsulates the essential elements of good management based on the continuous improvement cycle contained within other international standards such as ISO 9001 (Quality Systems) and ISO 14000 (Environmental Management).

The AS 4804 Safety Management System ("SMS") framework is broadly based around 5 key elements:

1. Policy & Commitment
2. Planning & Organising
3. Implementation
4. Measurement & Evaluation
5. Review & Improvement

Where Risk Assessment fits in the SMS

AS 4804 clearly identifies risk assessment as a core safety management process in two areas:

Planning (4.2.2) - "hazard identification and risk assessment and control should be taken into account when plans are formulated to meet an organisation's OHS policy. Procedures should be established and maintained to identify hazards and assess risks related to the activities, products and services over which it has control or influence"

Effective planning is essential to ensure mine safety. The risk assessment process should be integrated into mine planning and design system to ensure that hazards associated with mining excavations (eg rock falls) and mining operations (eg drill and blast) are identified and assessed. Appropriate controls can then be included at the design stage to eliminate potential hazards rather than rely on procedural controls.

Implementation (4.3.4.3) - "risk assessment is the process used to determine the level of risk of injury or illness associated with each identified hazard"

Risk assessment is a pro-active management tool that provides the foundation for the core SMS process of hazard control. It is an essential part of both planning and implementation, and provides management with the ability to determine risk and prioritise risks using a systematic process. This ability to prioritise risks is critical where only limited resources are available (eg at small or medium- sized mines) and operational viability depends on efficient hazard management.

IMPLEMENTING A RISK ASSESSMENT PROGRAM

Site-based Risk Assessments

Developing and implementing a site-based ***Risk Assessment Program*** requires a systematic approach to ensure the effectiveness of the program. This systematic approach requires considerable consideration of the likely outcomes of the program and an understanding of the various factors that can influence success.

In order to develop and implement an effective program, consideration should be given to the following:

Increase Awareness – to clearly identify why a risk management program is required at the mine (eg statutory requirement, likely benefits etc) and raise management awareness. This is essential in order to gain management support for the program. Management should also be aware of the likely outcomes of conducting risk assessments ie some action (including expenditure) is likely to address some of the identified risks.

Identify Needs – it is important to determine where risk assessment can be used at the mine and the types of risk assessment applicable (refer Section 3.4). This will assist in identifying the benefits of the program, those site persons that need to be involved and what additional external assistance might be required.

Plan – proper planning of the program is absolutely essential to ensure it will deliver effective results. This includes identifying who will have responsibility for coordinating the program and what resources (eg money for training, personnel availability for involvement, site facilities, follow-up action monitoring process etc) are available. Planning will also include consideration of some of the aspects below.

Establish Standards – performance standards need to be developed and incorporated into other systems (eg HR or Administration) to ensure the program is maintained. Examples are:

- Managers shall be responsible for ensuring that a risk assessment is conducted within all areas under their control at least once per year.
- Managers shall promote risk assessment assessments by conducting a tool-box session on the site program at least every six months.
- Supervisors shall ensure all new employees are provided with an overview of the site risk assessment program during induction or on-the-job orientation.

The requirements of these standards should be incorporated into position descriptions or duty statements and be conformance assessed as part of the site's on-going performance management process.

Standards may also be developed which state when risk assessments should be conducted eg formal risk assessments shall be conducted whenever any new equipment or processes are introduced at the mine. These standards should then be incorporated into the operating procedures of the respective area (eg Purchasing Procedure).

Develop Procedures – a formal procedure should be developed that clearly defines the process to be followed when conducting risk assessments. Each type of risk assessment used at the mine should have a documented procedure for communication and training purposes. A well-documented procedure also helps ensure a quality risk assessment, particularly for the more complex ones where it is important to rigidly follow the process to get consistent outcomes.

Conduct Training – procedures can be used as a basis for training those who will be part of a risk assessment team and those who will conduct or facilitate the assessments. Awareness training of the workforce in general should also be conducted (eg via tool-box sessions) so they are aware of the objectives of the program and the importance of their involvement in the process.

Trial – a trial run should be conducted, particularly for the more complex, formal team-based risk assessment. This will help iron out any problems in the procedure and help identify any small administrative items that may have been overlooked. This could also be a useful promotion exercise, particularly if some senior managers are involved, as it should enable participants to understand the benefits of an effective risk assessment program.

Document – all risk assessments have some legal importance as they demonstrate the

employer is actively identifying and assessing risks according to general "duty of care" obligations. All assessments should be properly documented (including sign-off from those involved) and filed so that they are easily retrievable. Such documents should be kept for a minimum period of 7 years.

Identify and Manage Actions – a comprehensive risk assessment program is likely to generate a number of (prioritised) actions for management to consider. Some form of simple action management system which assigns actions, responsible persons and completion dates (eg an "action register" data-base) should be in place to help ensure timely implementation. This will also enhance the credibility of the program in the eyes of the workforce. These actions can then be used to form the basis of a Hazard or Risk Management Plan.

Monitor and Review – once the program is up and running, the resultant risk assessments (ie results, recommendations, documentation etc) should be reviewed by a competent person (eg program coordinator) and any changes made to ensure continuous improvement. A formal review involving senior site management should also be conducted at least annually to determine the effectiveness of the program (ie is it delivering any benefits).

Risk Assessment Process

This section provides an overview of the process for conducting a formal, team-based risk assessment. This process generally involves 10 steps:

1. select the process, area, equipment or operation to be assessed;
2. select the team based on experience/ knowledge/ ability to work in a team;
3. determine the objective and scope of the assessment;
4. analyse the process, area, equipment, operation etc to determine steps/ components/ life cycle stages etc (to break it down into manageable, 'bite-size' chunks);
5. identify the unwanted events (ie incidents) that could result from the hazards or potential hazards at each step/ stage or in each component;
6. determine probability/ consequences (ie "risk") of each unwanted event;
7. rank each risk using a ranking matrix (to determine priorities for remaining steps);
8. identify current or planned controls;
9. identify any new controls based on adequacy of existing/ planned controls; and
10. fully record/ document assessment, including recommendations to management (if required)

This process is based on the ALARA "Workplace Risk Assessment and Control" (or "WRAC") model. Further detail on this process can be found in *"The CCH/ ALARA Workplace Risk Assessment & Control Manual"* (CCH Publications, 1994).

Management should then review the results of the assessment and implement appropriate control actions. For critical or high-risk hazards, a "Hazard" or "Risk Management Plan" should be developed. Further detail on the development of these plans can be found the *"Risk Management Handbook For The Mining Industry – MDG 1010"* (NSW Mineral Resources, 1997) and *"Safe Mining"* (CCH Publications, 1996).

Key Success Factors

The described methodology requires a trained facilitator (either internal or external) to conduct the risk assessment using a formal, documented procedure. The facilitator leads a team of experienced personnel through the process and ensures that the team meets its objectives.

Prior to the formal risk assessment commencing, a planning meeting should be carried out in order to determine the context, boundaries and objectives of the assessment. This will give the what, who, how, why, when and where. This is the **scope** of the assessment and it will vary in accordance to the size and scale of the risk assessment.

This "scoping" session should be attended by the facilitator or site-based coordinator and area management. The person who has responsibility for the area (usually a senior manager) should be designated as the "client" for the assessment.

A team of suitable personnel (based on knowledge, experience and ability to work as part of an effective team) is picked, a team leader appointed and the assessment conducted using the 10- step process above.

Recommendations from the risk assessment (ie proposed controls) are then presented to

management for consideration and implementation, if appropriate.

Key success factors are:

- use of a trained and experienced facilitator;
- use of a team with the relevant knowledge, experience and motivation;
- appointment of an appropriately qualified and skilled team leader;
- proper scoping of the risk assessment, including:
- definition of the key questions/ problems to be addressed by the assessment;
- the definition of the system, equipment, operation, nature and source of the risks (to clearly define the "boundaries" of the risk assessment);
- definition of the level of "acceptable" risk (ie what risks will **NOT** be analysed to determine controls);
- consideration of likely outcomes;
- identification of likely/ significant hazards;
- whether or not a detailed action plan is required as part of the risk assessment;
- required time-lines; and
- reporting format (ie how results are to be recorded and reported)
- developing an "action plan" as part of the risk assessment that clearly identifies actions and assigns responsibilities and time-frames for completion.

Other factors worthy of consideration are:

- there should be no perceived pressure on the team to come up with a pre-determined outcome (eg to justify a decision already made) ie must be seen as objective and done with integrity;
- use a detailed and systematic approach for hazard identification to ensure that no **significant** hazards are overlooked ;
- undertake an inspection of the site/ equipment/ area with the Team to identify hazards prior to the formal assessment (use a check-list to help guide identification process);
- adhere to the adopted risk assessment procedure/ process (eg using AS 4360 Risk Matrix);
- properly document and report the assessment;
- ensure adequate review of the assessment results by management; and
- ensure feed-back is provided by management to the risk assessment team on subsequent actions.

Wherever possible, a trained facilitator should be used to guide the Team through the risk assessment process. One member of the Team should also be selected as Team Leader. This person will act as the liaison between the Client and the Team and be responsible for ensuring the final report is provided on time.

All Team Members should be given appropriate notification to allow adequate preparation before the risk assessment. Members should be notified in writing, and receive a copy of the scope document. All Team Members will also be required to commit full time to the risk assessment timetable.

The factors described above are critical to successful completion of a risk assessment exercise. Further detail on these factors can be found in *"The CCH/ ALARA Workplace Risk Assessment & Control Manual"* (CCH Publications, 1994) and *"Guide To Reviewing A Risk Assessment Of Mine Equipment And Operations"* (NSW Mineral Resources, 1997).

Determining and Ranking Risk

"Risk" is the combination of the likelihood or probability of a specific unwanted event (ie an incident) resulting from a hazard and the potential consequences if it occurs. Determining the level of risk for each event in a consistent manner is crucial to a quality assessment. Some considerations are as follows:

Consequence

The consequence can be considered as the "worst case scenario" or outcome that can be **reasonably** expected should an incident occur (ie maximum reasonable consequence).
Consequences can generally occur in two areas: personal injury and property/ process damage or loss. To assist in determining consequences, a commonly accepted basis is the risk classification guideline contained in AS 4360: 1995 "Risk Management" (Standards Australia).
Likelihood

The likelihood (often called "probability") of an incident occurring is largely dependent on the frequency of exposure. The following aspects should be considered when making this decision:

- the number of times tasks/ cycles/ situations occur;

- the number of people performing the tasks or exposed; and
- what has happened in the past here or elsewhere in similar situations (ie have incidents occurred previously, how often have they occurred etc).

Once again, AS 4360 provides a guide in helping to determine likelihood.

Risk

Once the consequence and likelihood of each potential incident has been determined, the corresponding number (for consequence) and letter (for likelihood) from the respective tables can be used to determine the "level of risk". The **risk** of each potential incident is then simply determined by using the AS 4360 "Level of Risk" Matrix. Here, there are 4 categories of risk, namely:

H = High risk
S = Significant risk
M = Moderate risk; and
L = Low risk

For example, a potential incident with *fatal* injury as a *consequence* (level 5) and a *moderate likelihood* (level C) will have a *High* risk. A sample table showing levels of risk is shown in Appendix 1 (Table D).

Ranking the Risks

To assist in prioritising the order in which risks are addressed a risk "ranking" exercise should be conducted. This is done using a "Risk Ranking Matrix". Such a matrix, based on AS 4360, is given in Table D of Appendix 1. This matrix simply provides a number from 1 to 25 for each risk; the lower the number, the higher the risk. Note that there may be several risks with the same risk rank.
The risk ranking is then used to determine which risks have an "acceptable" level of risk and will not be further evaluated as part of the risk assessment. This decision is usually done at the scoping phase eg it may be decided not to deal with any risks with a ranking of 19 to 25 (ie all the "Low" risks).

The ranking of the High risks with individual numbers also helps provide an indication as to where to start the next step (ie. Step 8) of the 10- step process (refer Section 5.2). This is important as it provides additional focus and assists in knowing which high risks require most effort. The risks numbered 1,2 or 3 are the "high priority" high risks !

Client Review

The Client should review the risk assessment report (including recommendations) and decide which of the recommended actions should be accepted for implementation. It is important that even recommendations not considered for implementation be considered and the reasons for this be recorded.

The Client should provide formal feed-back to the Team regarding what actions are to be taken as a result of the risk assessment. The Client should be prepared to provide reasons why any recommendations of the Team are not being considered for implementation.

RISK ASSESSMENT AS A TOOL FOR CULTURAL CHANGE

Safety Culture

According to *Cooper:1998* (Page 17):

> *"...an organisation's prevailing safety culture is reflected in the dynamic inter-relationships between members' perceptions about, and attitudes towards, organisational safety goals; members' day-to-day goal-directed safety behaviour; and the presence and quality of organisational safety systems to support goal-directed behaviour".*

This statement recognises the ability of the organisation to impact safety culture by directing and supporting individual behaviours using safety systems and the importance of individual perception of how the organisation (ie management) views safety. That is, the organisational culture is often manifested by management behaviour, which shapes this perception of the importance placed on safety.

As demonstrated by companies such as DuPont, a positive Safety Culture can be developed within an organisation, provided suitable processes are in place to modify or change behaviours at all levels. Senior management particularly must be part of the culture and can influence the direction of change by positively reinforcing behaviours through the introduction of processes that drive change.

Risk Assessment and Cultural Change

Risk assessment is an ideal involvement activity as it requires input from those people who can most readily identify the hazards

associated with the workplace ie the workers themselves. Not only does risk assessment provide a pro-active tool for identifying risks, but it also fosters ownership of safety by having employees on the risk assessment teams.

The risk assessment process itself empowers employees to make an active contribution to safety by helping them to implement change in the workplace.

Safety and Health Representatives, as well as Supervisors and Managers, can also be actively involved and assist by promoting the risk assessment process in the workplace.

As mentioned earlier, management support of the site risk assessment program is essential to ensure the risk management objectives are achieved. This support also demonstrates that management is interested in the safety of its workforce and is prepared to involve people actively in managing risks.

Management action in addressing recommendations that arise from risk assessments also plays an important role in demonstrating commitment to safety.

The development of an effective risk assessment program should therefore be viewed as a practical way of creating awareness, understanding, motivation and commitment of all site personnel while at the same time actively identifying and controlling risks at the mine.

REFERENCES

AS 4360: 1995 "Risk Management" (Standards Australia, 1995)

AS 4804: 1997 "Occupational health and safety management systems – General guidelines on principles, systems and supporting techniques" (Standards Australia, 1997)

"Guide To Reviewing A Risk Assessment Of Mine Equipment And Operations" (NSW Mineral Resources, 1997)

"Improving Safety Culture – A Practical Guide" by Dominic Cooper (Wiley, 1998)

"Risk Management Handbook For The Mining Industry MDG 1010" (NSW Mineral resources, 1997)

"Safe Mining" (CCH Publications, 1996)

"The CCH / ALARA Workplace Risk Assessment & Control Manual" (CCH Publications, 1994)

WA Mines Safety And Inspection Act 1994

WA Mines Safety And Inspection Regulations 1995

APPENDICES

Appendix 1 - Sample Risk Determination & Ranking Tables for Mining

ACKNOWLEDGMENT

The author acknowledges the assistance and cooperation of WMC Resources in the development and presentation of this paper.

APPENDIX 1

SAMPLE TABLES FOR DETERMINING & RANKING RISK IN MINING

(Based on AS 4360)

Table A – Injury Consequences of Incident

Consequence	Level	Injury /Illness Classification
Very Low	1	Minor Injury
Minor	2	Medically Treated Injury
Moderate	3	Lost Time Injury (< 2 weeks)
Major	4	Lost Time Injury (> 2 weeks)
Catastrophic	5	Fatality(s) or Permanent Serious Disability(s)

Table B – Damage Consequences of Incident

Consequence	Level	Damage/ Process Loss
Very Low	1	< $ 5,000
Minor	2	$ 5,000 - $ 50,000
Moderate	3	$ 50,000 - $ 500,000
Major	4	$ 500,000 - $ 1,000,000
Catastrophic	5	> $ 1,000,000

Table C – Likelihood of Incident Occurring

Likelihood	Level	Description
Almost Certain	A	Expected to occur in most circumstances (eg more than once per day)
Likely	B	Probably occur in most circumstances (eg less than once per day, but more than once per month)
Moderate	C	Should occur at some time (eg less than once per month, but more than once per year)
Unlikely	D	Could occur at some time (eg less than once per year)
Rare	E	Only in exceptional circumstances (ie unlikely to ever occur)

Table D: Combined "Level of Risk" & "Risk Ranking" Matrix

	CONSEQUENCES				
LIKELIHOOD	Very Low 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
A (Almost Certain)	**15** *(Significant)*	**10** *(Significant)*	**6** *(High)*	**3** *(High)*	**1** *(High)*
B (Likely)	**19** *(Moderate)*	**14** *(Significant)*	**9** *(Significant)*	**5** *(High)*	**2** *(High)*
C (Moderate)	**22** *(Low)*	**18** *(Moderate)*	**13** *(Significant)*	**8** *(High)*	**4** *(High)*
D (Unlikely)	**24** *(Low)*	**21** *(Low)*	**17** *(Moderate)*	**12** *(Significant)*	**7** *(High)*
E (Rare)	**25** *(Low)*	**23** *(Low)*	**20** *(Moderate)*	**16** *(Significant)*	**11** *(Significant)*

Risk rank shown as **number** *Level of risk shown in italic & brackets*