



**NAME:** Kaoxiong SONGZACHENG

**ID:** UD69026SSA78160

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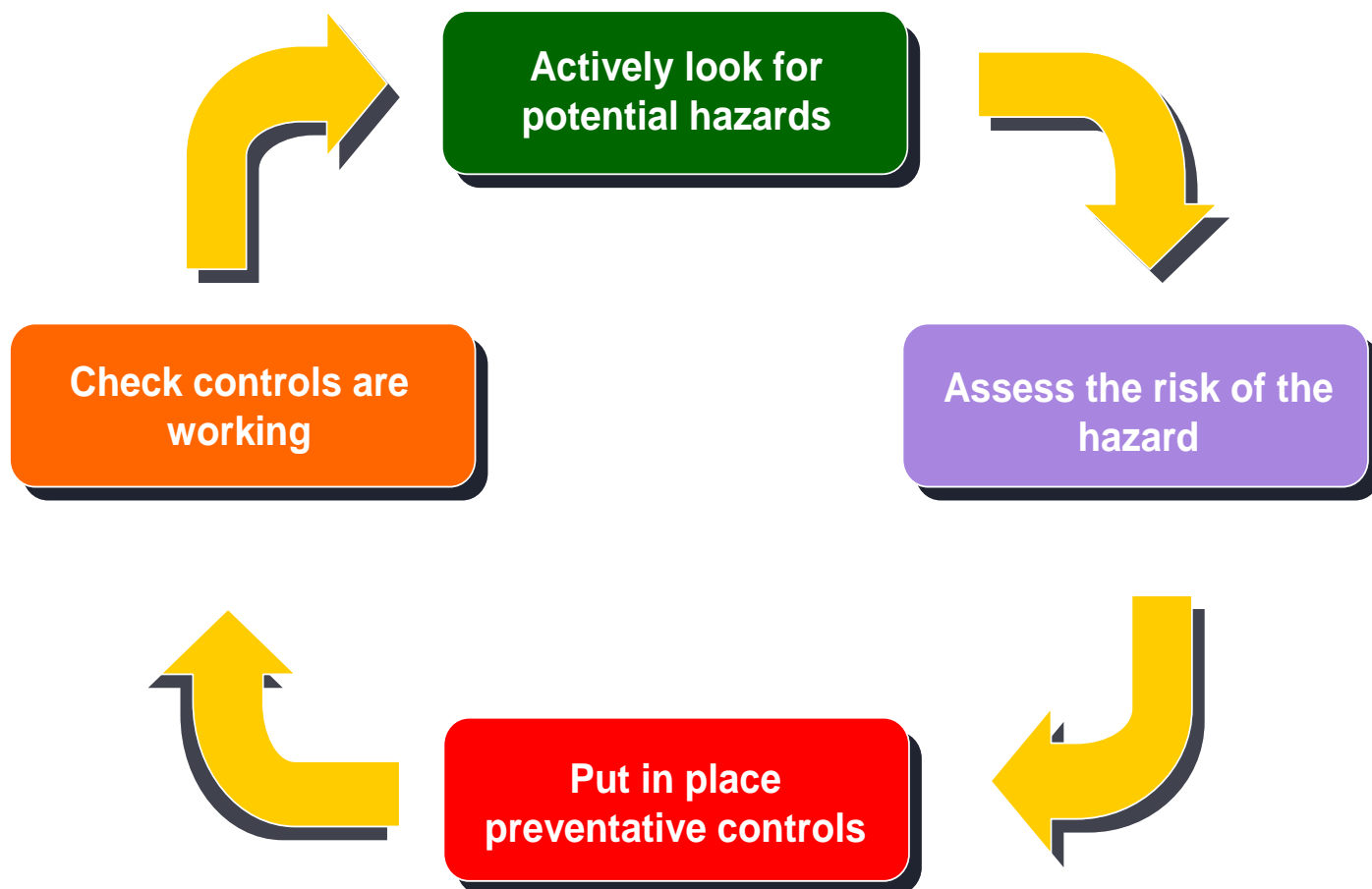
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# Risk Management





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### 1. Introduction the Risk Management Procedure

A risk management procedure is a systematic approach to identifying hazards and assessing and controlling the associated risks. This risk management procedure outline how to identify hazards in your workplace as well as how to assess the risks by determining the consequences and likelihood of a potential incident or injury. Assessing the risks will determine the order of priority needed to treat or control the risks. This risk management procedure also includes the hierarchy of risk control, responsibilities and a risk assessment table or risk matrix for the risk rating.

The risk management procedure should be used when crating all workplace procedures and Safety Work Method Statements.

### 2. Purpose and Scope

The objective of this procedure is to provide a consistent process for identifying, assessing and managing risk on the Company or Project sites. This procedure is aligned to the enterprise Risk Management Procedure Risk but provides additional guidance for site personnel in basic risk management principles.



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This procedure applies to all site processes basic risk management at Operation Companies such as Mining, Hydropower etc. whether conducted by employees, contractors or visitors.

### 3. Definitions

Term	Meaning
Consequence	The outcome or impact of an event
Control	A measure that is modifying risk. Also known as risk solution or risk treatment
Event	Occurrence or change of particular set of circumstances
Frequency	The number of particular set circumstances
Hazard	A source of potential harm.
Likelihood	Chance of something happening, a description associated with probability or frequency.
Residual Risk	Level of risk remaining after risk treatment
Risk	The effect of uncertainty of objectives. Uncertainty is the state of deficiency of information related to, understanding or knowledge of an event, its event, its consequences or likelihood, an effect is deviation from the expected – may be harm or benefit.
Risk analysis	Process to understand the nature of risk identification, risk analysis and risk evacuation.
Risk assessment	The process of risk identification of policies, risk analysis with criteria to determine whether the risk is acceptable or tolerable.
Risk management	Coordinated activities to direct and control an organization with regard to risk.
Risk management process	Systemic application of policies, procedures and practice to the activities of communicating, consulting the context, and identifying, analysis evacuating, treating, monitoring and reviewing risk.
Risk owner	Person with the accountability and authority to manage a risk
Risk reduction	Action taken to lessen the likelihood and negative consequences associated with a risk



Risk treatment	Process of implementing measure to modify and control the risks.
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#### **4. Risk Management Cycle**

Employees are required to systematically identify, assess and control risk using the processes described in this procedure to ensure risks associated with tasks are appropriately managed to an acceptable level.



All employees have a responsibility to report and fix hazards, to check their work areas and tools prior to commencing work, and to stop working when is not possible to conduct the work safely.

#### **5. Responsibility**

Managers and Section Leaders	Ensure personnel are trained in risk management practices
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	<p>relevant to their work as identified in the training matrix.</p> <p>Ensure access to documentation required by works. Regularly review risk registers.</p> <p>Ensure this procedure is complied with across departmental areas. Assess compliance through observation of practices.</p> <p>Review JSA's at completion of work.</p>
Supervisors	<p>Promote risk management practices as described in this procedure at team pre shift tool box and safety meeting.</p> <p>Review JSA's before commencement of work.</p> <p>Monitor JSA and Take 5 Compliance.</p> <p>Monitor and improve work practices through task and behavior observations</p>
Safety Teams	<p>Ensure appropriate systems are in place and reviewed</p> <p>Monitor compliance</p> <p>Coach workers and leaders in risk management practices</p>
Employees	<p>Conduct risk assessments as trained</p> <p>Follow procedures</p> <p>When unsure, check with supervisor</p> <p>Stop work when the work is not safe</p>

All workers, contractors and visitors have the right and the obligation to stop work if they believe the work is unsafe. Once the work has been stopped further discussion with the supervisor is required to plan the work so that it can be done safely.

## 6. PPE and equipment and required

As applicable for tasks such as all equipment including clothing which is intended to be worn by a person at work and which protects him/her against one or more risks to his/her health or safety, ex. Safety helmet, gloves, eyes protection, high-visibility clothing, safety footwear, safety harnesses etc.

The following items of personal protective equipment (PPE) must be worn at all time by all staffs as required at each worksite.



**Example of PPEs are:**

Helmet, Safety shoes, safety vest/work shirt, earplug, hand gloves etc.



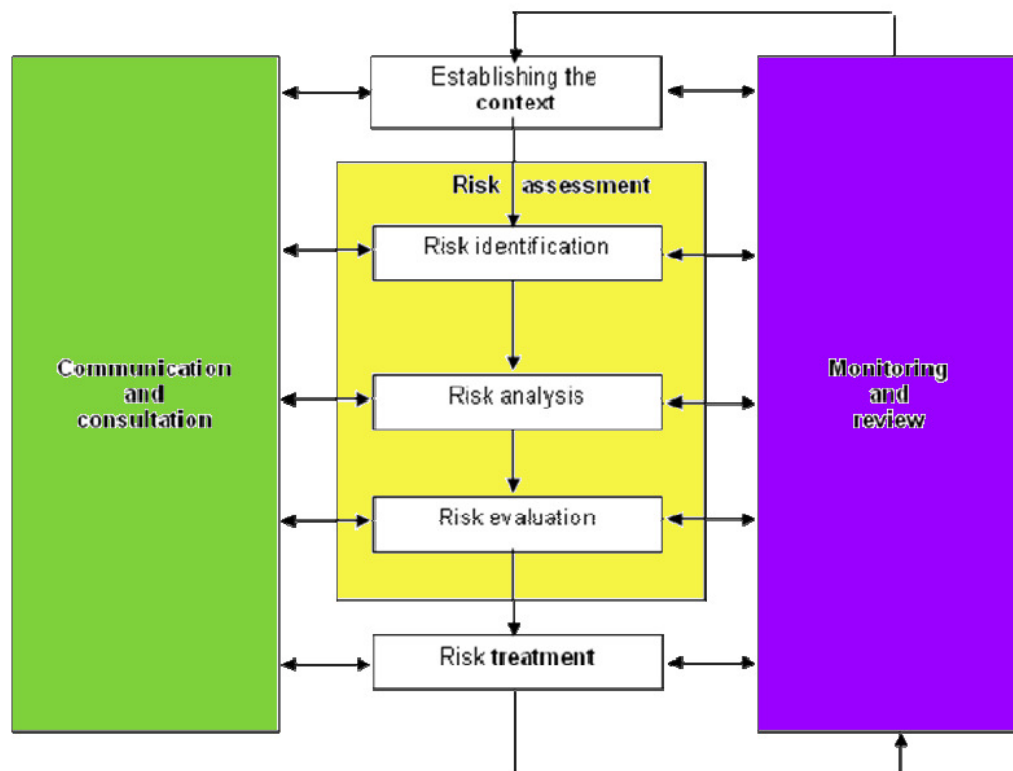
## **7. Procedure**

### **7.1. General**

Risk management is a process consisting of coordinated activities to direct and control an organization with regard to risk. Risk management involves establishing an appropriate infrastructure and culture, applying a logical and systematic frame work and communicating risks associated with any activity, functions or process in a way that will enable organizations to minimize losses and maximize gains.

The main elements of the risk management process are depicted in the risk management process overview diagram below as described in ISO 31000:2009:





### **7.2. Communicate and Consult**

Communication and consultation are vital during each step of the risk management process to ensure appropriate experience, knowledge, ownership and support is gained and should take place during all stages of the risk management process.

Personnel to be involved will vary depending on the risk being managed ut may include both internal and external stakeholders. Examples may include operators, maintainers, engineers, supervisory personnel, subject experts, planners, HSE personnel, IT, HR, other department areas who may be affected by the activity, community personnel, government and non-government organizations, suppliers, contractors or others who may be impacted or a vested interest.

### **7.3. Establish and Context**



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Establishing the context defines basic parameters of risks that needs be managed and sets the scope for the rest of the risk management process. This step involves identifying the activity, process project, function or equipment to be risk assessed, which allows consideration of the key stakeholders to be involved, the key business drivers, social, regulatory, cultural, competitive, financial and political environment factors.

Establishing the context will ensure the risk assessment team stays within the defined boundaries and ensure all factors have been considered.

### **To assist in establishing to context, consider the following:**

- Specific inclusion or exclusion
- Are risk task or site based; process or equipment based; environment based?
- Legal, government, non-government or community requirements and stakeholders
- Political environment
- Operational guidelines, goal and objectives
- Internal standards and procedures
- Capabilities in terms of resources, including staff, systems, process, equipment , skill and knowledge
- Corporate culture

### **7.4. Risk Identification**

This step aims to identify the risks that need to be managed, identification involves assessing what, why, where, when and how sources or events could impact process or organization. It is important that a well-structured systematic process is used to develop a comprehensive list of sources of risks and events that might have an impact as risks not identified will be excluded from further analysis during the process.

In this step, consider, “what happen”? And how/why/when it might happen?



**Risk identified by the following processes:**

- Incident, injury, damage and near miss reports
- Hazard reports
- Inspections and audits
- Historical data (previous incidents in this and other similar workplaces)
- Risk registers
- Employees experiences
- OHS database
- Journals, newsletter, safety alerts
- Subject experts.

**7.5. Risk Analysis**

Risk analysis is developing an understanding of the risk. This step involves consideration of the causes of risk, the consequences and the likelihood of those consequences occurring. Factors that affect consequences and likelihood must be identified, it is important to remember that an event can have multiple objective. When considering the risk, existing control and the effectiveness should be taken into account. Risk issues should be included in this process regardless of whether they are under the control of the organization.

The risk exposure wheel below provides a summary of possible issues for considerations when conducting a risk assessment.



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When analyzing consequence and likelihood, sources of information to be considered should consider personal experiences, mine past records, practice and relevant experience, relevant published literature public consultation, experiments/prototypes, specials, and expert judgments.

Analysis can be undertaken with varying degrees of detail, depending on the risk, the purpose of analysis, and the information, data and resources available. Analysis can be qualitative, semi-qualitative, or quantitative or combination, depending on the circumstances.

Inherent, residual, target risk assessments will be conducted in major risk assessments and risk registers to ensure risk life cycle and possibilities are fully considered.

Residual risk (with current controls in place) is the only assessment required when conducting Take 5 and JSA's

When analyzing risk, firstly assess the maximum reasonable consequence that could occur and then consider the likelihood of that consequence occurring from the activity under consideration.

The corporate consequence table, likelihood table and risk matrix is to be used to assess consequence and likelihood and provide a risk score. The risk acceptability (tolerability) table which provides a guides a guide for employees



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in relation to how to manage the various levels of risk once an assessment has been conducted.

**These processes are described below.**

**Consequence Table:**

Level	Health and Safety	Environment	Social	Security	Regulatory	production	Financial \$US
1 Slight	First aid injury, minor health impact	Slight / temporary impact one environment. Corrected <1day. Any amount contained within design requirements without additional impact or minor <50liter non-acutely hazardous spill or emission on or off site.	Slight impact on community well being. Written/ verbal complaint from community. Immediately rectifiable.	Single minor breakdown of property security controls. Recoverable without further escalation.	Minor technical breaches that are tolerated or ignored by regulatory authorities resulting in no action.	Work stoppage <6 hrs from one mine department or losses.	\$1 to \$20,000
2 Low	Small number of injury, medical aid injury, transfer	Minor non-compliance resolved within one week. low impacts on biophysical environment. Easily compensated loss of some non-endangered flora/ fauna. Any amount contained within secondary contain, no additional impacts. Or <500liters of non acutely hazardous spill or equivalent emission on site.	Low but ongoing impact community health / well being. Takes some time to resolve.	Repeated / multiple minor breakdown of property security controls. Recoverable without further escalation.	Infrequent expedience of regulatory obligations and or expectations resulting in a decrease in regulatory authority tolerance and or an increase in reporting requirement.	From 6 hours to 1 days production loss from one mine department or costs/ loss as per	\$20,000 to \$200,000
3 Medium	Injury resulting in absence from all work duties. (Long-term medical treatment	Non-compliance (\$), requires <2weeks remediation, impact on	Impact that go beyond the local concerns but are recovered	Significant breakdown of property security control. Recoverable	Occasional (once per year or less) or moderate failure to meet significant	From 6 hours to 1 days total production loss or costs / loss as per	\$200,000 to \$1,000,000



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		required for an individual.	biophysical environment managed locally, loss (>1hectare or fauna replaceable or compensable, but at a cost) of non-endangered flora/fauna (including aquatic life). Any amount impacted by mining. Quickly contained & corrected hazardous spill or emission on or off site.	quickly and without significant lasting reputational or relationship impacts.	le at cost without further escalation.	regulatory obligations and / or expectations resulting on a fine or censure.		
4	High	Single fatality, multiple extensive injuries / industrial diseases requiring significant hospitalization Permanent severs life altering impact on one person	Significant non-compliance, (against local or recognized international standards). High local impacts on biophysical environment resolvable but up to \$5M. loss of endangered/ highly regarded flora/ fauna (including aquatic life). Significant contaminant outside contain but on site. Non acutely hazardous spill (500-15000liters) / or equivalent emission off site.	National and international concerns. Sustained NGO/ stakeholder activism resulting in reputational damage. Difficult to resolve quickly	Breakdown of property security that is resolvable but only after significant reputational/ property damage. Sustained allegations of Human Right abuse, difficult to manage.	Repeat or severe failure to meet significant regulatory obligations resulting in large and/ or increasing fines and / or a loss of regulatory community trust.	From 1 day to 7days total production loss from one or all departments or costs/ loss as per	\$1,000,000 to \$5,000,000
5	Extreme	Multiple fatalities. Permanent severs life altering disabilities for multiple people. Large number of people	Severe impacts on biophysical environment. Very difficult to resolve and remediation >\$5M. Significant loss of endangered / highly	Complete breakdown of relationship with key stakeholders. Sustained negative media coverage on a	Complete breakdown of property security beyond the capacity of operation controls to	Sustained inability to meet significant regulatory obligations resulting in cessation or severs restriction on operations	Over 7 days total production loss or costs / loss as per	Over \$5,000,000



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		requiring long term hospitalization.	regarded flora/ fauna (including aquatic life). Acutely hazardous spill or equivalent emission on or off site.	national international level. Cessation or severe restriction of operation. Public outage.	manage. Severe Human Right breaches.			
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**Likelihood Table:**

Rating	Descriptor	Suggested frequency
1	Rare	Doubt it could happen in present or even in a changing environment. Conceivable but highly improbable. The aspect / event may occur in very exceptional circumstances.
2	Unlikely	Less likely to happen in present or even in a changing environment. The impact could occur at some time. The aspect / event has happened elsewhere under slightly similar circumstances.
3	Possible	It could happen in present or event in a changing environment. Would not be surprised to see it happen. The aspect / event has occurred before here or in similar circumstances elsewhere.
4	Likely	It probably will happen in present or even in a changing environment. The aspect / Event is expected to occur. The aspect / event occurs in most circumstances.
5	Almost certain	Happens all the time in present or even in a changing environment. The aspect / Event has occurred. The aspect / event occurs in almost all circumstances.



**Consequence and Risk Matrix:**

		Consequence				
		1 Slight	2 Low	3 Medium	4 High	5 Extreme
Likelihood	5 Almost Certain	5	10	15	20	25
	4 Likely	4	8	12	16	20
	3 Possible	3	6	9	12	15
	2 Unlikely	2	4	6	8	10
	1 Rare	1	2	3	4	5

**7.6. Risk Evaluation**

The purpose of risk evaluation is to make decision, based on the outcomes of the risk analysis, about which risks need treatment or control and treatment priorities. Risk evaluation involves comparing the level of risk found during the analysis process with the risk criteria (acceptable and non-acceptable risk) which was established when the context was considered. This step in the risk management process will determine if the work proceeds or if further actions are required to ensure the work is completed safely.

On some occasions, it may that risk is acceptable (low or moderate risk) with the current controls in place, on other occasions it may be decided that risk is unacceptable (high risk ) and further analysis and control measures may be required.





**Risk Acceptability (Tolerability) Table:**

Risk	Rating	Action Required	Person authorizing
15-25	High	Review and corrective action required to reduce risk to a more acceptable level. Usually work will be conducted under permit or emergency response conditions. Procedures or JSA must be in place and reviewed prior to commencing task. Risks are to be reviewed and reported at least	Department Manager
5-12	Moderate	Further work required to reduce risk. Procedures or JSA must be in place and authorized by Supervisor/Superintendent prior to commencing work. Risks are to be reviewed at least quarterly.	Supervisor or Superintendent
1-4	Low	Corrective action where practical Take 5 required to be conducted by worker prior to the commencement of work. Risks are to be reviewed at least quarterly.	Worker or Supervisor

**7.7. Risk Treatment**

Risk treatment involves selecting appropriate options to alter the risk and reduce it to a more acceptable level. Risk treatment involves a cyclical process of:

- Assessing a risk treatment,
- Deciding whether residual risk levels are tolerable
- If not tolerable, generating a new risk treatment and
- Assessing the effectiveness of that treatment.

Treatment options may include the following:

- Avoiding the risk by deciding no to start or continue with the work
- Removing the risk source
- Changing the consequence
- Changing the likelihood
- Taking or increasing the risk in order to pursue an opportunity
- Sharing the risk with other parties (including contractors and risk financing); and



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- Retaining the residual risk by informed decision.

The Hierarchy of control (below) shall be utilized when considering treatment option to ensure consideration is given to the most effective control measure.

All reasonable attempts must be made to eliminate the risk before moving onto the lower levels of the hierarchy.

#### **Hierarchy of Control:**

	Control Type	Control Descriptor	Examples
	Elimination	removing the risk	deciding not to do the work, wiping up spills, removing poorly stacked items from high shelving
	Substitution	replacing the process, substance, equipment with a safer alternative	battery powered tools vs electrical powered, EWP's, cranes, hoists, diluted concentrations of hazardous substances, pellets vest powders, smaller loads for lifting
	Engineering	designing, re – designing, modifying equipment	Hand rails, emergency stop buttons, ventilation, guarding, catalytic converters, dead man switches
		Isolation: separating the hazard from the worker	Bundling of chemicals, explosive magazines, control rooms; windrows, welding curtains and other physical barriers
	Administration	instruction and training to increase awareness	Procedures, JSA's, Take 5's, training, supervision, signage, job rotation
Soft Control least effective	Personal Protective Equipment (PPE)	last line of defence and should never be relied on or be the only control /treatment in	Safety helmets, safety boots, ear plugs, safety glasses, welding masks, harness

A combination of measures may be required to manage the risks identified but should always consider the hard controls before implementing the softer



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controls as if only soft controls are in place, it is reasonable to expect that the incident will occur again as the potential for human error is not managed.

The following questions should be asked when control measures have been implemented.

- Have all the necessary control measures been fully and effectively identified?
- Are there any additional competencies required to complete the task?
- Is the risk effectively controlled?
- Do the controls introduce any new hazards or increase risk in another area?
- Are the controls practical, cost effective and as low as reasonable practicable?

The term as low as is reasonably practicable describe the process of deciding o how to manage the risk. The concept of “practicability” “practicability” in ALARP considers the ideas of practicality (can something be done?) as well as the costs and benefits of action or inaction (is it worth doing something in the circumstance?). The two aspects need to be carefully balanced to ensure risks are treated appropriately.

When risk is close to the intolerable level the expectation is that the risk will be reduced unless the cost of reducing the risk is grossly disproportionate to the benefits gained

If there are further risk reductions available, they need to be evaluated giving consideration to:

- Best practice in industry.
- Compliance with recognized standards (not just legislative standards).
- The current state of knowledge about the hazard and its control.
- Suitability of the proposed risk reduction to your work environment (including staff acceptance).
- Cost.

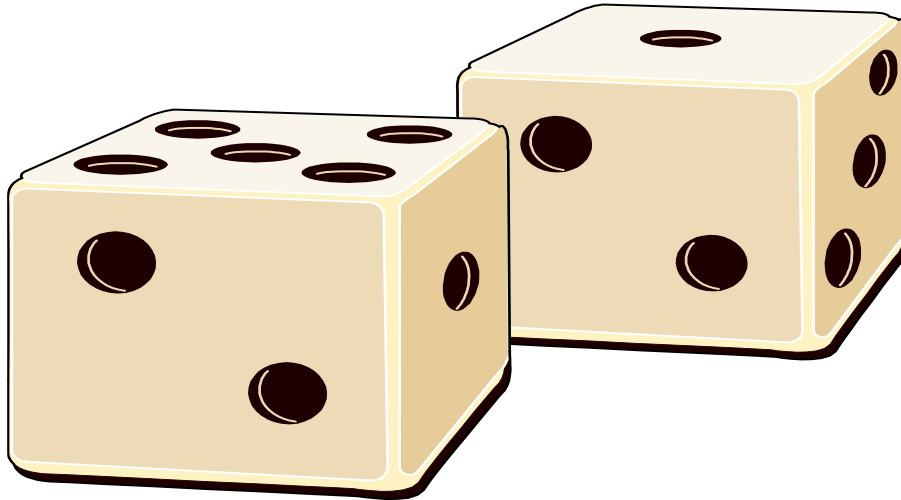


When implementation risk treatments, actions must identify:

- A description of the proposed actions
- Time frames for completion, and
- Accountability for implementing the action.

### **7.8. Risk Control**

The word risk means the “chance” or “possibility” of a certain outcome occurring.



The “chance” of getting the number 5, each time we roll a dice is 1 in 6. The risk or possibility of getting a 5 never changes, no matter how many times we roll the dice.

- ❖ From a safety point-of-view the term risk has a more specific meaning. “The amount of danger, or anticipated harm or injury, which could occur as a result of being exposed to a hazard”.

$$\text{Hazard} \times \text{Exposure} = \text{Risk}$$

Risk can be represented as a simple “mathematical equation” as shown above.



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- ❖ Think back to elementary school mathematics and the “zero rule” that applies to multiplication.

$$4 \times 0 = 0 \text{ or } 0 \times 4 = 0$$

Anything multiplied by zero must equal zero.

$$0 \text{ Hazard} \times \text{Exposure} = \text{No Risk}$$

If hazards can be eliminated then so too is the risk of injury, harm or damage.

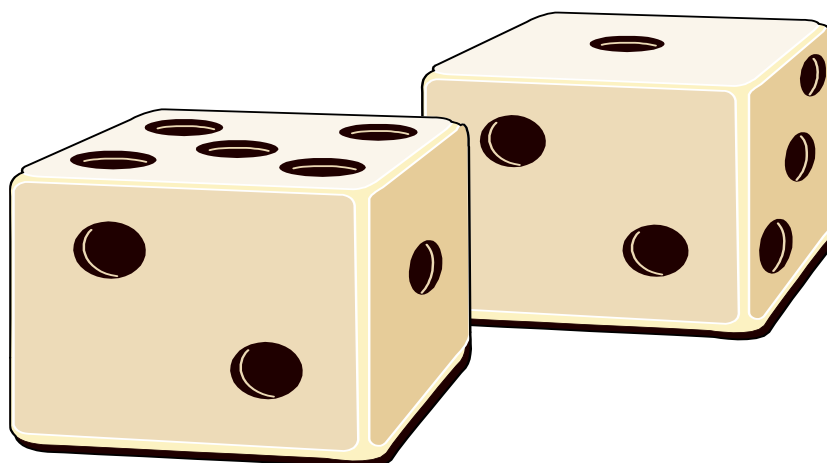
***No hazard = no risk.***

$$\text{Hazard} \times 0 \text{ Exposure} = \text{No Risk}$$

If exposure to a hazard can be prevented there is still no risk.

***Hazard but no exposure = no risk.***

- ❖ It is not always possible to completely eliminate hazards from the workplace.
- ❖ It is difficult to completely prevent exposure to a hazard.





There will always be some degree of “residual risk”.

***Risk management*** is making sure that the risk is kept as low as reasonably practical (ALARP).

## **7.9. Monitoring and Review**

Ongoing review is essential to ensure that the risk management plan/activity remains relevant and appropriate. Factors that may affect the likelihood and consequences of an outcome may change, as may the factors that affect the suitability or cost of the treatment options. It is therefore necessary to repeat the risk management cycle regularly. It is necessary to monitor risks, to ensure the effectiveness, efficiency and appropriateness of the controls and to ensure that they remain appropriate, effective and efficient as other changes in the organization occur and ensure that emerging risks are identified.

### **Priority shall be given to:**

- High risks
- Credible failure of treatment strategies, especially where this would result in high, or frequent consequences
- Risk related activities that feature high incidence of change
- Risk tolerance criteria especially where this results in high levels of residual risk
- Technological advances that may offer more effective or lower cost alternatives to current risk treatments
- Legislative changes.

### **Monitoring and Review practices will include:**

- Review of JSA's during the activity as changes occur
- Review of JSA's by supervisors at the completion of a task
- Regular procedural reviews as required by document control processes
- Line management reviews of risk registers
- Behavioral and task observations



- Work area inspections
- Internal auditing
- External auditing
- Discussion at tool box, pre shift and other safety meetings
- Incident analysis through INX system
- Incident investigation processes.

## **8. Risk Management Tools**

The following risk management tools are in use at Companies, Sectors business and Project constructions etc.:

- ❖ Level 1 risk assessments – Take 5
- ❖ Level 2 risk assessments – Job Safety Analysis (JSA )
- ❖ Level 3 risk assessments – High Level Risk
- ❖ Risk Registers
- ❖ Hazard reports
- ❖ Safe Work Procedures
- ❖ Job Safety Observations (JSO's).

### **8.1. Take 5 Risk Assessments**

A level 1 risk assessment or Take 5 is a simple and basic risk assessment conducted by workers prior to commencing a task. Workers use a checklist to guide them in the identification of risks which could arise from their work and requires controls to be documented to effectively manage the risk. This low level risk also provides guidance for when a JSA is required. The Take 5 risk assessments is conducted by individuals when conducting low risk, routine tasks and may also be used as the work and conditions change. Take 5's shall be regularly reviewed by supervision and those conducting job safety observations to coach workers in basic risk assessment principles of identification and control of hazards and ensure appropriate controls are in place for the task being conducted.



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Supervisors are responsible for ensuring Take 5's are completed and regularly reviewed. Completed Take 5's shall be kept in individual workers booklets.

### **8.2. Job Safety Analysis (JSA)**

Job Safety Analysis (JSA) is a level 2 risk assessment and is a more comprehensive and structured risk assessment of a task than a Take 5. The JSA process involves breaking the task down into sequential and logical steps to allow each step to be considered and analyzed. The hazards of each step are identified and then the controls for each hazard are identified. Once all the controls to manage the identified hazards have been identified, a risk assessment is conducted of the 'residual risk', that is the risk that remains after the controls have been put in place. A decision based on PBM risk tolerability table is made whether work is acceptable (low or moderate). If the risk is identified as serious or greater, the department Manager must review the JSA and authorize work to go ahead, implement additional controls, conduct further risk assessments, or abandon the task until the risk is reduced to an acceptable level.

A JSA is developed by workgroups prior to commencing a task and may require assistance from key subject experts. Completing a JSA requires an experienced person to facilitate the process to ensure the job steps are appropriate, risks are identified and appropriate controls are in place. Supervisors must review and sign off on all JSA's prior to work commencing and also at the completion of the task to complete the monitoring and review section of the JSA.

JSA's may only be used for the task they have been developed for and should not be reused without review and revision. Previous JSA's should be used as a reference documents when conducting the same or similar tasks.





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Once a JSA has been used several times, it shall be used to develop a safe operating procedure. The JSA used to develop the SOP must be maintained for the life of the procedure to demonstrate the task was risk assessed. Each department shall maintain all JSA's in departmental files.

A new JSA must be written for each task, with the previous JSA used as a reference document. JSA's are conducted:

- When there is no procedure for the task
- When a task has not been performed before
- When a procedure does not identify the hazard encountered
- With new equipment
- With new chemicals/substances
- During complex and unusual tasks i.e. shutdowns

### **8.3. High Level Risk Assessments**

Level 3 risk assessments or High Level Risk Assessments will be facilitated by trained personnel for complex and/or high risk tasks. These may be qualitative, semi quantitative or quantitative risk assessments, depending on the style of risk assessment required. Types of risk assessments may include Hazops, Fault Tree Analysis, and Root Cause Analysis etc.

Departments must maintain a register of all high level risk assessments in departmental files.

### **8.4. Risk Registers**

Risk Registers have been developed for each operational area, and provide a record of known risks for each area, together with the controls in place to minimize the risk. It is the responsibility of each area Manager to ensure the register is maintained and up to date. Risk registers should be reviewed regularly and when incidents or changes to processes, plant and organization occur. As a minimum, 'high' risk ranked tasks should be reviewed and reported



at least monthly through the site monthly report and 'moderate' and 'low' ranked risks shall be reviewed at least quarterly.

### **8.5. Hazard Reports**

All persons have a responsibility to report and fix hazards during the course of their work; irrespective of the hazard being is within their area of responsibility. Where a hazard poses an immediate danger, work must be stopped until the work can be safely performed. Workers may report hazards on hazard report forms, directly into INX or through supervision. Where a hazard is identified that may impact negatively on other workers, efforts must be taken to barricade the hazardous area to restrict entry or provide a spotter until the area can be made safe.

### **8.6. Safe Operating Procedures (SOP)**

Safe Operating Procedures have been developed to ensure tasks are conducted in a safe, effective and efficient manner. It is mandatory to follow the SOP. A SOP is developed from a risk assessment (usually a JSA) and must be stored for the life of the SWP. SOP's must be developed using Company templates and any changes must be approved by Department Managers and also be communicated to personnel who may be impacted by the change.

### **8.7. Job safety Observations (JSO)**

Job Safety Observations are regularly conducted to monitor compliance with the safety management system and facilitate review of the system by collecting data for analysis, trending and preventative action. In addition, JSO's provide an opportunity to engage employees and improve communication processes, have unstructured conversations in relation to safety, identify and recognize positive behaviors and identify and rectify potentially unsafe situations and behaviors.

## **9. Training**



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Training in risk management and the safety management tools is regularly conducted by the HSE training department. Training requirements identified in departmental training matrices.

### Example: Conducted HSE Training



HSE Training for Staff work in the Office.



HSE Training for Supervisors, Technicians, Operators, and Workers Work Nightshift and Dayshift at the Site and Process Plant to prevent and working safely.

## 10. Record and Management

SOP's shall be store on the internet in the document control repertory.

JSA's shall be reviewed by stored in departmental electronic folders and also in hardcopy if desired.



Inspections, hazards and JSO records shall be stored in the electronic event management software, Risk registers shall be stored on the Company intranet website.

## **11. Conclusion/ Summary.**

This essay is a Risk Management Procedure development research and study 2021. in the Working areas Mining and Hydroelectric Power Projects of Risk Management / Risk Assessment. Part of this essay constitute the deliverable defined in the Doctorate Safety Engineering Programme 2021 as: “Research of existing Risk Management and Risk Assessment Methods”.

The purpose of this document/ essay is to address identified open problems in the Work site /area of Risk Management and to provide Company for addressing further open issues at a Company, Business sector, and Construction Project level.

This document/ essay contributes to solving the following problems:

- Low awareness of Risk Management activities within public and private sector organizations;
- Absence of a “common language” in the area of Risk Management to facilitate communication among stakeholders;
- Lack of surveys on existing methods, tools, and good practices.

Further identified open issues/needs in the area of Risk Management / Risk Assessment, such as interoperability of methods and integration with corporate governance, are presented by means of a Project describing and prioritizing possible future actions to be performed in that area.

Elements of work conducted within the Company/ Project Working on technical and policy issues of Risk Assessment and Risk Management have been integrated into this document/ essay.



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Contact details: NPC Hydroelectric Power Project, HSE Department, Mr Kaoxiong SONGZACHENG, HSE Compliance Section Leader, email:

[kaoxionsongzacheng@yahoo.com](mailto:kaoxionsongzacheng@yahoo.com)

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