HIMA ENGINEERING

Risk Management Manual

جمى للإستشارات الهندسية
Hima Engineering Office

CONTENTS

Section 1 – Introduction

This manual describes the Risk Management procedures for HIMA. It is intended to be used in conjunction with HIMA Safety Manual.

The Risk Management procedures for all types of risk should be consistent.

One aspect of business that can lead to new, unknown risks is change to the business. Therefore, this manual contains a section on Management of Change (MoC) from a risk perspective.

Should HIMA wish to expand the Risk Management to include other aspects of the business, this manual can be adapted to accommodate that need.

Section 2 – Risk Management

2.1 Introduction

This section describes the minimum requirements for risk management procedures within the HIMA operational area. The HIMA Risk Management programme has three basic steps:

- Risk Assessment
- Risk Analysis
- Risk Control

The procedures are written with the intention of being applicable to all areas of HIMA.

2.2 Definitions

The following list contains definitions of the terms used in this section whose meanings may not be obvious from their usage in this document.

Risk: a combination of the probability of a hazard being realised, the vulnerability to that hazard and the impact of hazard realisation.

Risk Assessment: identifying the danger, loss, injury, or damage and quantifying the risk elements (probability, vulnerability and impact).

Risk Analysis: examination and determination of danger, loss, injury, or damage factors.

Risk Control: removing, limiting, or mitigating, the effects of danger, loss, injury, or damage (implementing control or corrective measures, and monitoring effectiveness).

Risk Management: the entire process of assessment, analysis, and control of risk on a continual basis.

Direct Risk: factors that impact the local operation.

Consequential Risk: factors that affect others outside the organization, such as customers, environment, and down-stream users.

Material Change: significant modification to an operation that results in increased or modified ri

2.3 Effective Risk Management

Effective risk management needs to include all temporary and permanent areas of the HIMA operational organisation, personnel, processes, systems, equipment, and materials. This is achieved by:

- Minimising operational impact of risks.
- Ensuring compliance to company codes and standards.
- Implementing measures to reduce, or remove, or provide protection from risk.
- Eliminating adverse impact on the company and customers.

2.4 Scope

This risk management programme applies to all employees. Visitors, customers and contractors assigned to HIMA department.

2.5 Risk Assessment

Risk assessment is the first step in the risk management process. The risk assessment process identifies the risk areas and quantifies the risk elements (probability, vulnerability and impact).

2.5.1 Types of Risks

The types of risk that need to be assessed are as follows:

- *Permanent Risk* – always present during the routine operation.
- *Temporary Risk* – occasionally present for short periods during routine operations.
- *Direct Risk* – factors that only effect the local operation.
- *Consequential Risk* – factors that affect wider areas outside the local operation.

2.6 Risk Analysis

Risk analysis is the second step in the risk management process. Risk analysis is the examination and determination of danger, loss, injury, or damage factors. Once all foreseen risks have been identified and the risk elements quantified, an analysis of the collected information needs to be completed in order to determine later risk control measures and risk reduction strategies.

There should be a risk prioritisation process, where risk factors and associated likely impacts are listed and tabulated in a hierarchy according to their inherent potential severity and consequence. This enables an organisation to properly prioritise and conclude risk factors from the most severe and dangerous, down to the least impact and benign. This process offers the most efficient use of available resources with the highest order of safety and protection.

This process assesses the likelihood and impact of hazards. In addition it considers vulnerabilities arising from missing or ineffective controls. Risk Ratings are applied by the use of scores for each risk element

This process separates the minor acceptable or tolerable risks from the major risks by combining impact and likelihood scores and provides information to assist in the evaluation and treatment of risks.

2.6.1 Likelihood

The probability of causing harm or damage must be assessed. This probability will depend on answers to such questions as:

- Is there a history of similar occurrences, or is this an isolated occurrence?
- What other equipment or components of the same type might have similar defects?
- How many operating or maintenance personnel are following, or are subject to, the procedures in question?
- What percentage of the time is the equipment or the procedure in use?
- To what extent are there organisational, management or regulatory implications that might reflect larger threats to safety?

Likelihood (of a threat materialising)	
Category	**Description**
Probable	Is expected to occur
Possible	Might / could occur
Improbable	May occur in exceptional circumstances

2.6.2 Impact

In the event that a hazard is realised, the impact of the resulting events are categorised.

Impacts are considered under various types:

- Death
- Injury
- Damage to assets
- Damage to HIMA's reputation and public image
- Legal compliance breaches
- Breaches of Airport directives
- Social impact
- Environmental damage
- Economic data

Impact (if a threat were to materialise)	
Category	**Description**
Extreme	Risk impact would result in disastrous consequences, such as death of personnel, long- term disruption of business
High	Risk impact would result in serious consequences, such as serious injury to personnel, medium-term disruption of business.
Medium	Risk impact would result in some consequences, such as minor injury to personnel, short- term disruption to business.
Low	Risk impact would result in few consequences, such as minor disruption to business, but of limited overall consequence.

2.6.3 Risk Categories and Ratings

Following the allocation of scores to Likelihood of Occurrence (L), Impact (I) a Total Score is calculated for each Risk: Total Score = L x I

Total Score is used to identify the Risk Category. The following Risk Categories enable appropriate management responses to be identified for risks requiring specific actions. Such categorisation assists in determining priorities:

Impact	LOW	MEDIUM	HIGH	EXTREME
Likelihood				
PROBABLE	LOW	MODERATE	HIGH	EXTREME
POSSIBLE	LOW	MODERATE	MODERATE	HIGH
IMPROBABLE	LOW	LOW	LOW	MODERATE

Decisions concerning the treatment or tolerability of risks should be based upon consideration of the above risk categorisations as well as the need to balance costs and benefits.

Specific risk treatment options should be adopted for all extreme and high risks identified and adequately documented.

Normal preventive safety planning and practices can generally treat low and moderate risks.

In the event that two risks have the same rating and a decision has to be made as to which is the priority for action, then the risk with the highest impact will normally be the higher priority.

Treatments can be:

- Acceptance / Toleration to agreed levels
- Reduction, for example:
  - Revision of the system design
  - Change of equipment
  - Modification of operational procedures
  - Changes to staffing arrangements
  - Training of personnel to deal with the hazard
- Protect
- Removal
- Transfer

The form on the following pages can be used to make notes during a Risk Analysis.

HIMA **RISK ASSESSMENT FORM**			
Dept:		**Date:**	
Risk Location:			
Description		**Comments on Probability and Lack of Controls (Vulnerability)**	**Comments on Impact**
A1.	Security Risk Assessment		
A2.	Safety Risk Assessment		
A3.	Business Processes Risk Assessment		
Part B: Risk Analysis			
Description		**Comments on Probability**	**Comments on Impact**
B1.	Risk Exposure (exposure to permanent, temporary, and/or transient short-term risks)		
B2.	Direct Risk (risk to the local operation or area)		
B3.	Consequential Risk (risks that affect wider areas or others outside the local operation)		
B4.	Risk Criticality (at risk critical equipment or systems)		
B5.	Risk Probability (probability that the risk will occur)		
B6.	Risk Cost Impact (how big is the likely cost)		

B7.	Business Disruption (how badly will business be affected)		
B8.	Risk Severity (what is the magnitude, severity, and impact)		
B9.	Personnel Injuries (degree and numbers of likely personnel injuries/fatalities)		

Part C: Risk Control			
Description		**Comments on Controls for Reduction of Probability**	**Comments on Controls for Reduction of Impact**
C1.	Risk Mitigation (measures are in place to remove, reduce, transfer, and/or protect risk)		
C2.	Contingency Planning (adequate contingency plans are in place)		
C3.	Resources (have adequate resources have been allocated)		
C4.	Critical Equipment (back-up critical equipment or systems and spare parts are available)		
C5.	Risk Monitoring (are risks continually monitored)		
C6.	Risk Handling (are all corrective actions implemented in a timely manner)		
C7.	Risk Management Training (do employees have risk management training)		
C8.	Maintenance (adequate maintenance and repair)		
C9.	Emergencies Is a plan in place and tested?		
Conclusion Remarks:			
Recommended Corrective Action:			
Prepared by:		**Date:**	
Concurred by:		**Date:**	

2.7 Dealing with Risks

Risk control is the third and final step in the risk management process. Risk control is the process of removing, limiting, or mitigating, the effects of danger, loss, injury, or damage. This is achieved by contingency planning, effective resource allocation, adequate risk handling, timely maintenance and repair, continuous monitoring of risk reduction strategies, and loss control measures.

2.7.1 Risk Control

There are essentially three (3) risk control strategies that involve HIMA direct actions:

- *Remove* – complete removal of the risk factor. This is the most desirable strategy since it has the lowest level of risk, however; this may not be possible or feasible in the majority of operational circumstances, and may have a moderate-to-high implementation cost.
- *Reduce* – reduction of the risk factor to an acceptable level or transfer to an alternative safer location. This is the second most desirable strategy since it generally has a lower level of risk and is usually the lowest cost to implement, however; this may not be possible or feasible in some operational circumstances.
- *Protect* – provide additional protection from the risk factor. This is the third most desirable strategy when either risk removal or reduction is not possible or feasible. However, this generally has the highest implementation cost.

In addition there are two (2) indirect actions:

- *Accept / Tolerate* – if this is to be considered, tolerable levels must be agreed and approved.
- *Transfer* – for example by insurance.

2.7.2 Contingency Planning

Contingency planning is an effective route to mitigate and limit the effects of risk factors. The planning process should take into account an occurrence of the smallest incident right up to major disaster level. Contingency planning affects all levels of the organisation and should address two (2) basic elements:

- Plan to minimise the impact of risk factors.
- Plan to recover from the effects of the risk factors should an incident occur in the quickest and most economical route.

Flexibility is the key strategy to effectively plan for all foreseeable risks. So in order for a contingency plan to be viable and successful, it should be flexible enough to handle from the smallest to the largest occurrence.

2.7.3 Resource Allocation

Even with the most detailed planning for risk control and emergency response, recovery operations can often fail due to the lack of available resources. This may be as a result of major damage to resources during an incident, resources not in the correct location at the time of the incident, or a failure to appreciate the limits of existing resources. Accordingly, adequate resources (manpower, equipment, facilities, spare parts, etc) need to be allocated and in the correct location to meet all foreseeable risk factors.

2.7.4 Risk Handling

Potential major emergencies can be effectively avoided by appropriate risk handling. In other words, keeping an incident small in size results in a corresponding small impact, and allowing a small incident to grow much larger results in a much larger impact. Accordingly, adequate emergency procedures need to be in place to ensure that incidents are dealt with in a timely manner and not allowed to grow

2.7.5 Loss Control and Recovery

The essential element of timely recovery following an incident is adequate loss control measures. This will ensure that the operation gets back to normal in the shortest possible time frame at an economic cost utilising available resources. This reduces business disruption and minimises the direct losses to the local operation and consequential losses to others such as customers and downstream users outside the organisation. Loss control and recovery has a number of important steps that can vary depending on the nature, size and scope of an incident, and the effects on the operation, personnel and environment. The general loss control and recovery steps in the event of an incident are as follows:

- **Recovery – During an Incident**

  These are actions implemented to control the incident itself and to reduce the direct effects on the operation, personnel and environment, with the goal to return to normal operation as soon as possible.

- **Recovery – After an Incident**

  These are actions implemented after incident is over for clear-up of the incident site and returning to normal operation, as well as to reduce the subsequent effects on the operation, personnel and environment.

- **Remediation**

  Remediation measures can often be far-reaching, more comprehensive and a higher cost than regular recovery following an incident. Remediation includes such actions as removing pollution from spills or contamination from chemicals and may involve large areas or large numbers of affected persons, and may also take an extended time period to complete.

2.8 Risk Monitoring

Even minor changes to an operation can often result in a major change in to the risk control measures. The changes may be due to internal and external factors beyond the direct control of the operation, and so the risk control measures must change to suit the change in circumstances or risk on a continual basis to maintain adequate risk control. Accordingly, the risk assessment and risk analysis processes must be monitored and updated whenever there is a material change to the operation in order to maintain adequate risk control.

2.9 Scope

All HIMA supervisory and key personnel should be trained in the effective use and implementation of the HIMA Risk Management Procedure.

All HIMA employees should receive instruction on how to comply with the HIMA Risk Management Procedure; and how to perform their duties and work in accordance with the procedure.

2.10 Periodic Risk Assessment and Monitoring

All HIMA departments, with the Safety and/or Security Representatives, should conduct a detailed a risk assessment of the operational area every year; following a major incident; or whenever a material change occurs. A summarised written report should be presented including recommendations for corrective action to the HIMA CEO.

Specific risk assessment should be conducted before HIMA's first use of new types of equipment; materials; systems; vehicles; and manpower categories; together with the use of new or significantly modified buildings; facilities; safety measures; environmental and industrial hygiene protection measures. Management reporting on the results of specific risk assessments should be as directed by the HIMA senior member on a case-by-case basis.

Risk control measures should be continually monitored and corrective actions should be modified as necessary to suit minor operational changes. HIMA departments, with the Safety Representatives, should provide an annual report to the HIMA CEO on the current status and effectiveness of Risk Control measures in the department's area, and the results shall be discussed in the periodic HIMA Safety Committee (SC) meeting.

2.11 Risk Management Review

Management should appoint a person to be responsible for conducting a periodic review and assessment of the risk management system for effectiveness. (As security and safety are focused upon in this version of the manual, someone from these disciplines would be suitable as a reviewer). The review shall include employees at all levels throughout the operation.

Section 3 – Management of Change

3.1 Introduction

This section describes the minimum requirements for the Management of Change (MOC) procedures within the HIMA operational area. The MOC procedure is an effective management route to ensure that all HIMA personnel work in concert to successfully implement change processes e.g. when using new technology; during organisational or structural changes; facility major repairs or renovation; improved or replacement systems, processes, materials, equipment, or machines; or safety or environmental improvements.

This MOC procedure does not apply to replacements 'in-kind' or changes with a minor operational or safety impact, but HIMA personnel are encouraged to adopt the basic change management principles as appropriate.

3.2 Objective

The objective of the MOC procedure is to effectively manage all temporary and permanent changes to the organization, personnel, processes, systems, equipment, and materials. This is achieved by:

- Minimising operational impact
- Avoiding unnecessary disturbance to employees
- Maintaining adequate safety
- Ensuring compliance to codes and standards
- Reducing environmental risks
- Eliminating adverse impact on customers
- Achieving the desired business outcomes in the shortest possible time frame

3.3 Responsibilities

It is critical that all managers and others who have the authority to start change initiatives have a central person to inform of such initiatives in order that Safety Reps and Security Reps can be informed to analyse the potential impacts on safety and security. The managers must be aware of this central MOC person.

Therefore the CEO shall appoint an MOC Representative for the MOC process. The MOC Representative will be responsible for the overall implementation of the MOC procedures and

the monitoring thereof. The MOC Representative shall manage specific change processes under the direction of the CEO.

The responsibilities of the MOC Representative shall include but not limited to, the following:

- Implementing the MOC process in accordance with this procedure, applicable HIMA General Instructions, Codes and Standards.
- Maintaining adequate records of the MOC process.
- Providing a periodic status report to the CEO for the MOC process.
- Systems, processes, materials, equipment, machines, safety or environmental factors, within HIMA. This shall include duration and extent of the change, together with the any change in the level of safety or environmental protection.
- Ensuring that all facilities, systems, processes, materials, equipment, machines, are adequately reinstated after completion of change process.
- Maintaining a log of any incidents or unintentional events that occur during the change process; and reporting them to the CEO, stating the location, nature, likely cause, and corrective action taken.
- Maintaining accurate as-built records of alterations to facilities, systems, processes, equipment, and machines, completed during the change process.

3.3 MOC Team

An MOC Team shall be formed at the direction of the CEO when required for specific change management. The team will consist of the MOC Representative, administrative and technical representatives from concerned departments, together with advisors from other organisations, as necessary. The MOC Representative will coordinate and manage the MOC Team activities and objectives. The duties of the MOC Team will be to promote the change objectives and ensure the smooth implementation of the change processes.

3.4 Scope – Types of Change

The scope of the MOC process encompasses three types of changes that may be perceived to have moderate or major operational impact:

- Organisational change
- Technical change
- Administrative change

Major change processes are changes that have a significant potential to cause serious disruption to the daily operation or safety of one or more HIMA departments. Moderate change processes are changes that have a significant potential to cause serious disruption to the daily operation or safety of one or more units within a HIMA department

3.5 Change Impact

Change processes can have a number of impact levels, ranging from factors that affect the entire operation to only a single person; planned or unplanned changes; changes initiated from within HIMA or from external sources; permanent changes or temporary changes; all with varying time durations. Examples include:

- Critical change
- Major, moderate, or minor change
- Emergency change
- Temporary change
- Permanent change
- Transient short-term change
- Long-term change
- Infrequent repeat change
- Change with a safety or environmental impact
- Organisational and structural changes
- Equipment, machines, technology, systems, or material change
- Change of location

3.6 Process

Planned or unplanned changes are to be viewed as a four step process.

- Step 1 – problem/opportunity identified, need for change established
- Step 2 – corrective action/MOC plan developed
- Step 3 – implement change, manage operational impact
- Step 4 – change completed, assess and monitor post impact

3.7 Risk Management – MOC

The MOC process needs to establish a safe operating range during change by utilising risk management strategies. The risk management strategies shall be in accordance with HIMA Risk Management Procedure as described in this manual, which need to be established before the change process begins and constantly monitored/re-evaluated/updated during the change implementation process. The risk management strategies should be established for all foreseeable factors within the MOC process, which have the potential to affect the operation and/or the safety of personnel. The risk management strategies include, but not limited to:

- Establish acceptable upper and lower limit values for all operational and safety factors
- Identify types of limit
- Conclude acceptable risks, using reduce; remove; and protection strategies
- Identify the design, operational, and safety codes/standards
- Utilise previous operational experience

3.8 MOC Effectiveness Review

The MOC representative is responsible for conducting a periodic review and assessment of MOC activities for effectiveness.