حكومة رأس الخيمة
Government of Ras Al Khaimah

rakez
RAS AL KHAIMAH
ECONOMIC ZONE

Guidelines for HS&E Risk Management

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1. Purpose

Engaging in proactive risk management activity, in addition to assessing risk, will enable the early identification of various potential issues as part of a systematic approach to risk assessment.

The risk management program employs several systems to identify potential risks. Research indicates that incidents are rarely due to individual failures but are usually associated with the failure of systems.

2. Scope

These guidelines demonstrate how to assess risk and establish a common approach to risk management. The document has the following objectives:

A. Ensure there is a program for risk assessment as far as is reasonably practicable
B. Identify the hazards and risks associated with the work activity
C. Provide a program for performance and the development of risk elimination

3. Definitions

- RAKEZ: Ras Al Khaimah Economic Zone - Government of Ras Al Khaimah
- HS&E: Health, Safety & Environment.
- Incident: Any unplanned event resulting in, or having a potential for injury, ill health, damage, or other loss.
- Adverse Event: An unexpected, undesirable, or potentially dangerous occurrence. 'Event' means anything that constitutes an incident, unsafe act, near miss or dangerous occurrence. A 'dangerous occurrence' means an incident arising from activities in a place of work that cause or result in
  - the collapse, failure, explosion, bursting, electrical short circuit discharge or overload, or malfunction of any work equipment,
  - the collapse or partial collapse of any structure under construction or in use as a place of work,
  - the uncontrolled or accidental release of any chemical, fumes, or gas or the ignition of any substance,
  - a fire involving any substance, or
  - any unintentional ignition or explosion of explosives.
- First Aid: Intervention following an incident that resulted in injury, administered by a first aider on site, or where no treatment was required, with the injured generally able to return to normal duties afterward.
- Hazard: The potential of an activity, arrangement, circumstance, or substance to cause harm through injury/illness to a person, or damage to property or the work environment. For example, working at height is a hazardous activity, a machine without proper guards is a hazardous arrangement, insufficient light or too much noise are hazardous circumstances, and flammable liquids or toxic chemicals are hazardous substances.
- Lost Time Injury: This occurs when an employee cannot return to work for more than three days due to an injury or illness.
- Near Miss: An incident that could have but did not result in harm, loss, or damage to a staff, a visitor, a third party, property, or premises.
- Property Damage: Property damage incidents do not affect the HS&E performance statistics, but they provide a means of early identification of potential problem areas.
- Risk: The chance of something happening that will impact the achievement of organizational stated objectives or the likelihood that a specified undesired event will occur due to the realisation of a hazard by, or during, work activities. Risk always has two elements: the likelihood that a hazardous event may occur and the consequences of the hazardous event.
- Risk Assessment: The process of identifying hazards and qualifying the risk of harm such hazards might cause.
- Risk Rating: This is determined by a combination of the likelihood and impacts of the risk.
- Risk Register: A log of risks that threaten an organisation's success in achieving its declared aims and objectives. The register is a dynamic living document populated through the organisation's risk assessment and evaluation process. Such a register enables risk to be assessed and rated. It provides a structure for collating information about risks, which helps in the analysis of risks and decisions about whether or how those risks should be treated.

4. Process

Clients must effectively manage risk concerning anyone who might be affected by the organisation's activities. This aim is achieved through the implementation of a risk management system that pays due attention to efficiency by:

A. Identifying hazards
B. Assessing the risks associated with these hazards
C. Developing and implementing control measures to eliminate these hazards or reduce risks to acceptable levels
D. Evaluating ensure controls are effective
E. Recording findings and implementing them
F. Reviewing the risk assessment and updating if necessary.

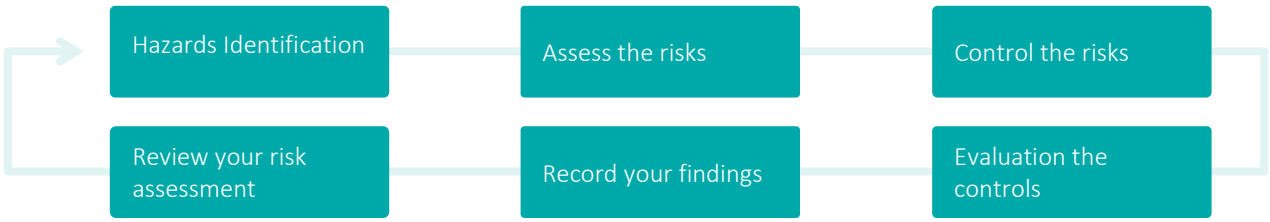


Figure1: HSE risk assessment process

5. Procedure

5.1. What is a Risk Assessment?

Each client is responsible for ensuring a clear and appropriate management structure that enables risk to be identified at a high level and operating management level and enables decisions to be taken at an appropriate level to eliminate harm.

The management of each BP/Inv must understand the risks associated with achieving its objectives and actively reassess and monitor them. Progress against action plans and residual risks will be an ongoing program.

Risks will be identified through risk assessments (see Appendix 1: Template Risk Assessments).

5.2. Aim of a Risk Assessment

Risk management is a key component in an organisation's overall safety management systems. The risk management process is the systematic application of management policies, procedures, and practices that determine the approach for communicating, identifying, assessing, monitoring, and reviewing risks. This involves a step-by-step approach that leads the user from an assessment of the activities they undertake and the identification of risks through to the incident reporting process. The aim of risk assessment is to identify potential sources of harm and loss and establish adequate controls or preventative measures that help prevent incidents or illness.

6. The key stages of a Hazard Identification and Risk Assessment Survey are as follows:

6.1.1. When to carry out a risk assessment

In relation to all risks analysed and assessed, and dependent on the likelihood of occurrences, immediate action should be taken to eliminate, reduce or transfer risks.

Each risk should be allocated to the risk owners responsible for taking appropriate action to minimise its impact/consequence.

Prior to commencing a risk assessment, an inventory of all work activities, processes, equipment, and machines used must be prepared for each work area or location being assessed. It is vital to include infrequent maintenance tasks as well as more routine day-to-day work.

6.1.2. How to analyse risks

The management of risk is an integral part of every process within each organisation and is central to having a robust system of internal control.

There are three steps involved when analysing risk:

A. Identify the risk/hazard
B. Analyse the risk
C. Evaluate the risk

A. Identify the risk/hazard

Identify the potentially harmful situation in terms of death, ill health, injury, or damage to property.

Describe the hazard, providing detail of the persons at risk and/or the consequences if the risk/hazard is realised.

The hazards must be identified for each activity, material, piece of equipment, and machine. A hazard checklist should be compiled, considering the nature of work activities and the locations where work is performed.

Hazard Checklist (this is not an exhaustive list)

Physical	Chemical	Biological	Psychological	Environmental, Mechanical/ Biomechanical
• Excessive noise • Extreme temperatures • Inadequate lighting • Ionising radiation • Lasers • Electricity • Tools • Pressurised systems • Improper ventilation • Stairs/ladders • Slipping/tripping hazard • Pinch points • Fire • Working at heights • Workplace violence	• Formaldehyde • Xylene • Acetaldehyde • Phenols • Hazardous drugs such as cytotoxic agents, ribavirin and pentamidine. • Waste gases • Dust/fumes • Smoke • Solvents • Pesticides • Paints • Flammables • Alkalis/acids	• Human immunodeficiency virus (HIV) • Vancomycin-resistant enterococcus (VRE) • MRSA • Hep. B virus • Hep. C virus • Mycobacterium • Fungi/moulds • Blood samples • Bodily fluids • Insects • Plants	• Stress • Rotating shift work • Prolonged working hours • Sexual harassment • Workplace violence • Inadequate staffing • Heavy workload	• Tripping hazard • Unguarded equipment • Air quality • Slippery floors • Confined space • Forceful exertion • Awkward posture • Localised contact stress • Vibration • Repetitive/prolonged motion • Lifting/moving • Cluttered or obstructed work areas/passageways

B. Analyse the risk

Risk analysis involves developing an understanding of the risks identified. In subjecting a risk to analysis, it is essential that existing control measures are recorded. These include all measures put in place to eliminate or reduce the risk and may include;

All existing controls to minimise risk should be listed on the risk assessment form. Time should then be taken to consider their adequacy (i.e. identify weaknesses in existing procedures and opportunities for error), implementation method, and effectiveness in minimising the identified risk to the lowest reasonably achievable

level. Management should not assume that controls that rely on people following correct procedures will always work.

The risk associated with each hazard must then be assessed by determining who might be harmed and how. The assessment should evaluate the potential for harm and its consequences. Consideration should be given to the number of persons exposed to the hazard, the frequency and duration of exposure to the hazard, potential failure modes, and routes of exposure.

The consequences of harm could range from slight injury or illness to lacerations, fractures, amputations, chronic pain, poisoning, cancer, or fatal injuries.

The risk depends on many, often related, circumstances:

- Is anyone exposed to the hazard?
- Is the hazard likely to cause injury?
- How serious would the injury be?
- Is the hazard well controlled?
- Is the level of supervision adequate?
- How long are people exposed?
- What are the levels of exposure that should not be exceeded?

C. Evaluate the risks

The purpose of risk evaluation is to make decisions based on the outcome of the risk analysis regarding which risks require treatment and the priorities of that treatment. Depending on the risk rating and the adequacy of the current controls in place, an evaluation is made to determine whether

A. The risk is acceptable
B. The risk should be addressed by:
    I. Avoid
    II. Transfer
    III. Control

After assessing risks, the likelihood of a hazard causing harm and the degree of harm should be estimated. This will help prioritise different high, medium, or low risks and determine the appropriate level of management effort and resources required to control each hazard. It will also assist in deciding how urgent any corrective measure needs to be.

6.2. How Risks Are Being Prioritised Based on Their Risk Factor

Risk Factor = Likelihood x Severity

Rating of Likelihood:

Description	Likelihood	Probability
Rare	Never occurred	1
Unlikely	Has occurred	2
Possible	Has occurred more than once	3
Likely	Occur several times	4
Frequent	Occur frequently	5

Rating of Severity:

Severity	Description	Probability

Insignificant	Minor injuries which may require self-administered first aid, the Injured person can continue to perform the duty	1
Minor	Injuries requiring on-site treatment by a medical practitioner, person unable to continue to perform the duty	2
Moderate	A serious injury requires treatment by a medical practitioner. Potential long-term/permanent disability	3
Major	Single fatality	4
Catastrophic	Multiple fatalities	5

6.3. What is a Risk Matrix?

The risk matrix below illustrates how to calculate risk.

Low	Medium	High	Extreme

LIKELIHOOD	SEVERITY				
	Insignificant	Minor	Moderate	Major	Catastrophic
Rare	1	2	3	4	5
Unlikely	2	4	6	8	10
Possible	3	6	9	12	15
Likely	4	8	12	16	20
Frequent	5	10	15	20	25

6.4. How to Apply a Risk Score

RISK RATING		
15-25	Extreme Risk	Do not proceed, immediately introduce further control measures to lower the risk, and re-assess before proceeding.
8-12	High Risk	Review and introduce additional controls to lower the risk.
4-6	Moderate Risk	Activity can operate subject to monitoring and maintaining strict control measures
1-3	Low Risk	No immediate action is required, monitor and manage

6.5. Is There an 'Acceptable Risk'?

A risk is judged acceptable if it is not going to be treated, although accepting a risk does not imply that it is insignificant. Risks in service may be considered 'acceptable' for various reasons:

- The level of the risk is so low that specific treatment is not appropriate within available resources.
- The risk is such that no treatment option is available – e.g. dependent on external factors such as government guidelines.
- The opportunity presented outweighs the threats to such a degree that the risk is justified.

6.6. How to Treat the Risk

There are three methods of treating the risk:

A. Avoid the risk
B. Transfer the risk
C. Control the risk

6.6.1. Avoid the risk

Avoiding the risk is achieved by deciding not to proceed with the activity that contains an unacceptable risk, choosing an alternative activity that meets the objectives and goals of the operation, or choosing an alternative and less risky methodology or process within the activity.

6.6.2. Transfer the risk

Risk transfer passes the organisation's risk to an external party. The most common method is the purchase of insurance, the cost of which depends on the level of assurance provided to the insurer in terms of the level of risk of a claim occurring.

6.6.3. Control the risk

Controlling risk is the most commonly used treatment option, as it focuses on reducing the likelihood and/or impact of the risk should it occur. The best practice is to remove or eliminate the risk; however, this is not always possible. It is part of the client to provide appropriate training, instruction, and supervision for all tasks. While this assists in controlling unsafe acts, further controls are often needed to reduce risk to acceptable levels.

Best practice states that controls must be examined in the following order to access their effectiveness.

6.7. How to Decide on Measures to Control Risk

Once the hazards have been identified and the associated risks assessed, action should be taken to reduce the risks so that working conditions are improved. The most effective ways of reducing risk are given below in order of priority.

A. Elimination
B. Substitution
C. Engineering Controls
D. Administrative Controls
E. Personal Protective Equipment (PPE)

6.7.1. Elimination



Elimination of hazards is the primary control measure. The ideal solution is to remove the hazard completely. This is the most effective control measure and should always be considered first, i.e. remove the risk from the activity, process, area, etc.

6.7.2. Substitution



Substituting with a safer-to-use alternative capable of performing the same task can effectively reduce risk. For example, substituting glutaraldehyde disinfectant with a less toxic orthophthalaldehyde disinfectant. Therefore, replacing dangerous articles, substances or systems of work with less dangerous versions is a simple and effective method.

6.7.3. Engineering control



Engineering controls include using machine guards, enclosing hazards, local exhaust ventilation, mechanical handling methods, or protective physical barriers. However, where hazards cannot be reduced, it may be necessary to develop/purchase appropriate equipment to minimise the risk.

6.7.4. Administrative control



Administrative controls can be used to reduce or eliminate exposure to a hazard by adherence to procedures or instructions. These may include training, supervision, a permit-to-work system, and job rotation. Training is an effective way of making a workplace safe. The training of employees should include the correct and safe way of performing a particular task, the proper use of machines, equipment, and tools, and an understanding of the hazards related to the work.

6.7.5. Personal protective equipment



Personal protective equipment (PPE) should be considered as a last resort. PPE does not eliminate the hazard and its failure results in immediate exposure to the hazard. It should be ensured that the collective protective measures highlighted above are exhausted before using individual protective measures such as PPE.

6.8. Competency of Risk Assessment Team

People responsible for carrying out hazard identification and risk assessment must have the necessary skills. The team should include a person directly related to the area to be assessed. This could be a relevant supervisor or any other employee from that area.

To ensure consistency of the risk assessment process, training on risk assessment shall be provided to those responsible for undertaking a risk assessment, including but not limited to:

- How to identify hazards;
- Evaluate risk;
- How to determine effective control measures utilizing the hierarchy of control;
- How to document and record risk assessments;
- Periodic refresher training shall be conducted to ensure employee's competency is maintained.

6.9. What is a Risk Register?

Each client must have a risk register that clearly outlines risks that threaten the organisation's ability to achieve its stated aims and objectives.

Components of an Organisation's Risk Register

Risk Number	The risk management unique reference number
Risk Source	Where did the risk originate (e.g. a high risk identified from a Business Continuity Plan or a Serious Incident)?
Date Added	When was the risk added to the register?
Risk Category/ Description	A high-level statement of the risk and more detail about how that risk might present itself and impact the organisation.
Likelihood	How likely is it that the risk will occur? Use the risk matrix.
Consequence	What would be the consequence(s) should it occur? Use the risk matrix.
Risk Grade	Use the risk matrix to top-grade the risk with current controls in place.

Management Action	Identify additional actions necessary to improve the management of the risk, and refer to a separate action plan/relevant part of a business plan in which it appears, if relevant.
Risk Owner	Who owns the risk? Identify a named person who will be responsible for taking action to effectively manage the risk.
Review Date	When will the assessment of the risk and any actions identified be reviewed?
Results of Review	What was the outcome of the review?
Date Last Reviewed	When was the risk last reviewed?
Risk Status	Is the risk still active, or is it no longer a live risk for the organisation?

6.10. Monitor & Review

Ensure the following questions are continuously addressed:

A. Has the chosen control measure been implemented as planned?
B. Are the control measures working, and are they adequate?
C. Did the implementation of control create other hazards?
D. Is the control of risk still adequate?
E. Was the risk management process reviewed at least annually and effectively?
F. Was the risk management process reviewed after an incident, change in process, etc.?

7. Appendix A Risk Assessment Template

ACTIVITY							DATE:			
LOCATION							NEXT REVIEW			
No	Hazard	Risk	Who May Be Harmed	Initial Risk			Control Measures	Residual Risk		
				LIK	SEV	RISK		LIK	SEV	RISK
1										
2										
Prepared By:							Approved By:			
Name:							Name:			
Signature:							Signature:			