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		Revision no:	0
	<b>RISK ASSESSMENT PROCEDURE</b>	Rev. Date	25/08/2010
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## Revision Matrix

Rev. No	Date of Issue	Issue by HSE	Approved By HSE Council	
0				
Rev. No	Date of Issue	Issue by HSE	Nature of Revision	Approved by HSE Council
1				
2				
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## 1. PURPOSE

The Risk Assessment Program has been established to provide detail on identification, assessment and control of occupational safety and health risks.

The ADNOCs COPV5-03 requires every employer of its group companies to undertake a suitable and sufficient assessment of the risks to the health and safety of employees and others to which they are exposed.

Application of the principle contained in this program will reduce occupational safety risks to people by ensuring that hazards are identified, risks are assessed and appropriate prevention and control measures implemented.

## 2. SCOPE

This program applies to all institutes premises which are identified as laboratories, workshops, mechanical rooms, warehouses and other work areas housing potentially dangerous materials, conditions, machinery or processes.

## 3. Definitions

*Hazard* is a situation that has the potential to harm a person, the environment or damage property.

*Risk* is the probability (likelihood) of harm or damage occurring from exposure to a hazard, and the likely consequences of that harm or damage.

*Risk Assessment* is the process of evaluating the probability and consequences of injury or illness arising from exposure to an identified hazard.


*Hazard Control* is the elimination or minimisation of risk associated with an identified hazard.

*Workplace* is defined as any Division/ Departments, Unit, Research Institute includes any place (including any vehicle) where a staff member works and any place where a person goes while at work.

## 4. Roles and Responsibilities

### Departmental Chairs and Supervisors

- Implement this procedure in their area of responsibility and accountability.
- Provide required resource and support for the mitigation of the identified hazards.

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- Ensure that the identification of hazards and the completion of risk assessments using the appropriate risk assessment procedure.
- Implement appropriate risk control measures.

#### **HSE department:**

- Assist departments with the risk assessment and mitigation process as requested.

#### **Researchers and students:**

- Be aware of the risks involved with their work.
- Follow all procedures that have been recommended as a result of the risk assessment and mitigation process.
- Reporting any hazards associated with the working environment, work tasks or activities to their supervisors as soon as becoming aware of them.


### **5. Procedure**

#### **Establishing the hazard management context**

For all hazards a hazard management process must be undertaken, establishing the parameters of the process including the criteria by which hazards will be assessed. The hazard management model should be followed to ensure all hazards are identified, assessed, controlled and evaluated for effectiveness. The level of risk is to be determined through the risk assessment process and recommended control measures implemented.

Hazards are required to be identified, assessed and controlled:

- When planning work processes
- Prior to purchase, hire, lease, commissioning or erection of equipment or substances
- Whenever changes are made to the workplace, system or method of work, equipment or substances
- Whenever new information becomes available regarding work processes, equipment or substances.
- Prior to any new process / research work being undertaken or where a new hazard has been identified a risk assessment must be completed to ensure that all risks are adequately controlled.
- When all risks are adequately controlled or pose minimal risk no further action is required. Should further control measures be required a full risk assessment must be completed.

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No process should be undertaken unless adequate control measures are in place.

## 5.1 Steps Involved in the Risk Assessment Process

Following Steps are followed in the process of Risk Assessment

- Step 1 : Identification of hazards
- Step 2 : Assessment of Risk
- Step 3 : Risk Control
- Step 4 : Hazard Register
- Step 5 : Monitoring and Review

## 5.2 Step 1: Identification of Hazards

This is the most important step in the risk management process. A hazard which is not identified cannot be controlled. Accordingly, it is crucial that this step is as comprehensive as possible. Hazard identification must be conducted in close consultation with the people performing the activity. Normally following methods are used to assist the supervisor and staff to identify hazards in the workplace:

- **Analyse** the procedure and look at what could reasonably be expected to cause harm.
- **Determine** worst case scenario of the experiment (ex. Leakage, power failure etc).
- **Check manufacturers' instructions** or data sheets for chemicals and equipment as they can be very helpful in spelling out the hazards and putting them in their true perspective.
- **Remember to think about long-term hazards to health** (ex. high levels of noise or exposure to harmful substances) as well as safety hazards.


## 5.3 Step 2: Assessment of Risks

Once the hazards have been identified, the next step is to assess the risks. Risk is the probability (likelihood) of harm or damage occurring from exposure to a hazard, and the likely consequences of that harm or damage.

**The greater the consequences, the greater the risk, similarly the more certain the event, the greater the risk.**

Risk assessment is a process of analysis and evaluation of the hazards occurring which can be described as follows,

- A risk analysis is carried out using the risk matrix provided. (Refer 5.8.4 of this document)

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- Probability is assessed in accordance with the graphic scale. (Refer 5.8.1-3 of this document)
- Severity in each case is assessed in accordance with the graphic scale (Refer 5.8.1-3)
- Probability x Severity = RISK

**HIGH RISK = Unacceptable** – exposure to intolerable loss to People, Assets, Environment

**MEDIUM RISK = Acceptable, but must be managed to be AS LOW AS REALISTICALLY POSSIBLE** – the measures must be planned and documented as to how the frequency or severity will be reduced.

**LOW RISK = Acceptable** without further action being required.


Using the matrix and corresponding schedule of severity & probability the risk levels are provided by the color coding. The corresponding risk is indicated by the number from this calculation (Probability x Severity = RISK)

*EG. 5 X 5 = 25 is the highest risk level & 1 x 1 = 1 is the lowest risk level.*

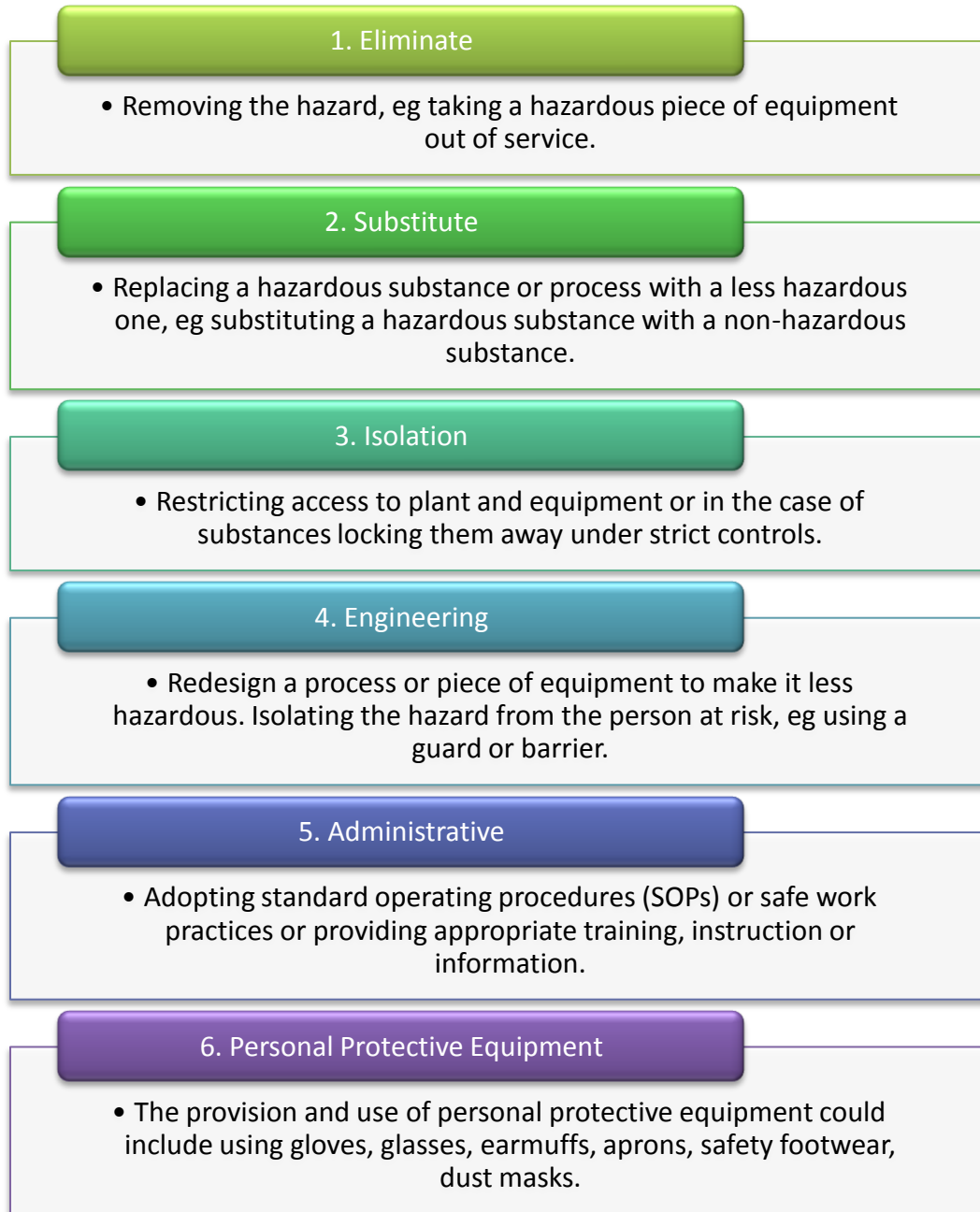
Assistance and training (to identify hazard/aspects, evaluate and their control) can be provided by HSE department upon request.

### **5.4 Step 3: Risk Control**


Risk control must be achieved by using a predetermined hierarchy of controls. The primary aim of risk control is to eliminate the risk and the best way of achieving this is to remove the hazard. If this is not possible the risk must be minimized by using one or more of the other control options from the hierarchy. The risk control measure selected must be the highest possible option within the hierarchy to reduce the risk to the lowest level as reasonably practicable. Existing controls should be re-evaluated to determine if the most appropriate control measure is in place.

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*The hierarchy of controls includes:*



- In many cases, it will be necessary to use more than one control. Back-up controls, such as personal protective equipment, should only be used as a last resort.

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- While the risk control process concentrates on controlling the highest ranked risks first, this does not mean that lower ranked risks which can be controlled quickly and easily should not be controlled simultaneously. The best available control measures should be put in place as soon as possible, noting that in some cases it may be necessary to put temporary controls in place until better controls can be implemented. Wherever there is a high risk the activity must cease until adequate controls are implemented.
- The risk control phase must take account of any necessary changes to existing control measures to ensure that the best available protection is afforded. In doing so, it important to check current controls against the hierarchy of risk controls to determine whether the highest option on the list is used. Where controls have been in place for some time they are to be re-evaluated to identify improvement.
- As with all stages of the hazard management process, consultation is required to ensure that management, staff at all levels and contractors can make a contribution to the identification, assessment and control of risks associated with hazards. For specific occupational hazards there may be legislation, codes of practice or ADNOC standards that will provide information to assist in the identification of what controls should be implemented.
- If an identified hazard does not meet acceptable levels as required by regulations and/or best practices, the operation is to be ceased immediately and locked out (if necessary) until modifications have been made that make the plant, substance or work process legally compliant.
- Controlling hazards is critical to reduce the risk to an acceptable level.

### **5.5 Step:4 Hazard Registers**


The data collected from identifying, assessing and controlling hazards is to be recorded in the Hazard Register. Refer Forms HSE/FORM/XX.

### **5.6 Step 5: Monitoring and Review**

Hazard management should be an ongoing and constantly improving process. To ensure the effectiveness in eliminating or minimising risk, the process must be continuously reviewed and steps taken to implement revised control measures, where appropriate. It ensures that new hazards and those overlooked in the original exercise are identified and controlled.

The monitoring and review process involves:

- systematically checking existing risk control measures to assess their effectiveness;
- collecting data on any new hazards which have arisen;

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- Formulating new control measures.
- In repeating the original elements of the hazard management program, other related activities should be undertaken periodically and systematically as part of the monitoring and review process. These include:
  - scheduled inspections;
  - ongoing measurement and testing;
  - workplace monitoring where necessary (for hazards such as noise or contaminants) etc;
  - periodic accident and injury analysis;

### 5.7 Performance measures


- All hazards identified by the work area are accurately recorded in the hazard Register (HSE/Form/XXX).
- Risk assessments have been properly completed for all identified hazards.
- All control measures have been implemented for identified hazards and any failure of control measures recorded and reported to the line manager.
- All plant registers have been properly completed and all registrations are current.

### 5.8 Evaluation of Hazards

- All identified hazard (safety or environmental) mat be evaluated as follows.

#### 5.8.1 Occupational Health and Safety

Severity	Rating
Injury such as small cuts	<b>1</b>
Injury requiring self attention causing suspension of activity for more than half an hour	<b>2</b>
Injury requiring self attention causing suspension of activity for more than two hours	<b>3</b>
Minor accident causing Injury requiring self / nurse/ doctor attention leading to suspension of activity for more than a day or two.	<b>4</b>
Major accident causing Injury requiring self / nurse/ doctor attention leading to suspension of activity for more than a week / leading to temporary/permanent disability	<b>5</b>


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### **5.8.2 Environmental**

<b>Severity</b>			<b>Rating</b>
<b>Resource</b>	<b>Noise</b>	<b>Air/Water/Land</b>	
Easily available	< 40 dB	Impact on work environment / property/ Flora / Fauna due to non hazardous non inflammable substance non toxic substance.	<b>1</b>
Scarcely available renewable resource	40 to 74 dB	Impact on work environment / property/ Flora / Fauna due to moderate to high release of non toxic / non inflammable substance	<b>2</b>
Easily available /non renewable ressource/recyclable	75 to 89 dB	Impact on work environment / property/ Flora / Fauna due to low release of toxic / hazardous / inflammable substance but controlled	<b>3</b>
Hazards material chemical non recyclable e.g. floppies, etc.	90 to 104 dB	Impact on work environment / property/ Flora / Fauna due to high release of toxic / hazardous / inflammable substance	<b>4</b>
Scarcely available non renewable	> =105dB	Impact on Globe due to controlled release of toxic / hazardous / flammable substances into atmosphere	<b>5</b>

### **5.8.3 ASSETS (PROPERTY DAMAGE)**

<b>Severity</b>	<b>Rating</b>
<25,000 Dirham	1
From 25,000 Dirham to <100,000 Dirham	2
From 100,000 Dirham to <250,000 Dirham	3
From 250,000 Dirham to <500,000 Dirham (1/2 Million Dirham)	4
>500,000 Dirham (1/2 Million Dirham)	5

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### 5.8.4 Risk Evaluation Matrix

Risk Rating = Severity X Probability

Severity ( Check appropriate Tables)		1	2	3	4	5
Probability/Likelihood of occurrence						
Multiples times a day or continuous	5	5	10	15	20	25
Once in a day to week	4	4	8	12	16	20
Once in a week to month	3	3	6	9	12	15
Once in a month to six month	2	2	4	6	8	10
More than six months	1	1	2	3	4	5

Risk Category	very low	Low	Moderate	High
Risk Rating	1 to 3	4 to 8	9 to 15	16 to 25