 هيئة مياه وكهرباء أبوظبي Abu Dhabi Water & Electricity Authority	<b>ABU DHABI WATER &amp; ELECTRICITY AUTHORITY (ADWEA)</b>	Effective Date : 18.06.2009		
		Volume	Chapter	Version
		19	19	1
<b>Page 1 of 31</b>				

<b>PERSONAL PROTECTIVE EQUIPMENT (PPE)</b>	Approved by:
	Planning & Development Director:



## PERSONAL PROTECTIVE EQUIPMENT (PPE)

**Prepared by:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
HSE SPECIALIST

**Reviewed by:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
TECHNICAL ADVISOR

**Approved by:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
PLANNING & DEVELOPMENT  
DIRECTOR



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume Chapter Version

19 19 1

**Page 2 of 31**

Approved by:

Planning & Development Director:

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

<b>TABLE OF CONTENTS</b>	<b>Page</b>
<b>i. Purpose</b>	<b>5</b>
<b>ii. Definitions</b>	<b>5</b>
<b>iii. Existing Laws</b>	<b>5</b>
<b>1. INTRODUCTION</b>	<b>5</b>
<b>2. GENERAL PRINCIPLES FOR THE SELECTION AND USE OF PPE</b>	<b>6</b>
<b>2.1 Use of PPE</b>	<b>6</b>
<b>2.2 Suitability and Selection of PPE</b>	<b>7</b>
<b>2.3 Compatibility of PPE</b>	<b>8</b>
<b>2.4 PPE Assessment</b>	<b>8</b>
<b>2.5 Maintenance and Replacement of PPE</b>	<b>8</b>
<b>2.6 Storage of PPE</b>	<b>9</b>
<b>2.7 Information, Instructions and Training</b>	<b>9</b>
<b>2.8 Use of PPE</b>	<b>10</b>
<b>2.9 Reporting loss or defect</b>	<b>11</b>
<b>3. SELECTION, USE AND MAINTENANCE</b>	<b>11</b>
<b>3.1 Head Protection</b>	<b>11</b>
<b>3.2 Eye Protection</b>	<b>14</b>
<b>3.3 Safety Footwear</b>	<b>16</b>
<b>3.4 Hand Protection</b>	<b>19</b>
<b>3.5 Protective clothing for the body</b>	<b>21</b>



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 3 of 31**

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:

Planning & Development Director:

<b>3.6</b>	<b>Hearing Protection</b>	<b>23</b>
<b>4.</b>	<b>RESPIRATORY PROTECTION EQUIPMENT (RPE)</b>	<b>25</b>
<b>4.1</b>	<b>Type of RPE</b>	<b>25</b>
<b>4.2</b>	<b>The decision to use RPE</b>	<b>25</b>
<b>4.3</b>	<b>Suitability of RPE</b>	<b>25</b>
<b>4.4</b>	<b>Selecting Appropriate RPE</b>	<b>26</b>
<b>4.5</b>	<b>Standards Marking</b>	<b>26</b>
<b>4.6</b>	<b>Use and Maintenance of RPE</b>	<b>26</b>
<b>5.</b>	<b>PPE FOR EMERGENCY RESPONSE</b>	<b>27</b>
<b>5.1</b>	<b>Types of PPE for Emergency Response Activities</b>	<b>27</b>
<b>5.2</b>	<b>Performance of Emergency Response PPE</b>	<b>27</b>
<b>5.3</b>	<b>Breathing Apparatus and RPE</b>	<b>28</b>
<b>5.4</b>	<b>PPE for use during Fire Fighting</b>	<b>31</b>





**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 5 of 31**

Approved by:  
Planning & Development Director:

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

**i PURPOSE**

This document sets out the requirements for the selection, use and maintenance of Personal Protective Equipment (PPE) at all of the Group Companies operational sites/facilities. Its purpose is to help ensure that, when PPE is needed to prevent adverse health effects on personnel from work activities, the correct equipment is available and operating effectively.

**ii DEFINITIONS**

<b>ACGIH</b>	American Conference of Governmental Industrial Hygienists
<b>ANSI</b>	American National Standards Institute
<b>BS</b>	British Standard
<b>CEN</b>	Comite Europeen de Normalisation (European Committee for Standardisation)
<b>ISO</b>	International Standards Organisation
<b>NIOSH</b>	National Institute for Occupational Safety and Health
<b>OSHA</b>	Occupational Safety and Health Administration
<b>PPE</b>	Personal Protective Equipment
<b>RPE</b>	Respiratory Protective Equipment

**iii EXISTING LAWS**

Existing UAE legislation relevant to the subject of this Code of Practice includes:

- Federal Law Number 8, Year 1980: Regulation of Labour Relations and Order Issued in implementation thereof.
- Ministerial Order No. (32), 1982.

Article 91 of Federal Law No. 8 stipulates that 'every employer shall provide adequate preventative equipment to protect workers against occupational diseases that may occur during work.....'

**1. INTRODUCTION**

As required by ADWEA and the Group Companies HSEMS, Group Companies must carry out a suitable and sufficient risk assessment of any work activity that may present risks to the health of personnel. The outcome of the risk assessment dictates what actions may be required to eliminate health risks or, where this is not possible, to reduce them to as low as reasonably practicable.

Where risk reduction and control are necessary in the workplace, engineering controls and Safe Systems of Work must always be considered first. Personal protective equipment (PPE) must be considered only as the last resort and after all other methods of risk reduction have been explored.

Where PPE is required, Group Companies must ensure that personnel are provided with, and use, suitable equipment. Selection is important, and employees must receive instruction and training on using it appropriately and maintaining it.



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 6 of 31**

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:

Planning & Development Director:

This procedure includes general principles on the selection and use of PPE, and also gives detailed information on the various types of PPE available. It also identifies the processes and activities for which each type of PPE may be required, its selection and maintenance.

**2. GENERAL PRINCIPLES FOR THE SELECTION AND USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE).**

Personal protective equipment is defined as any piece of equipment that is designed to be worn for the protection of health and safety. It includes, but is not limited to:

- Safety harnesses.
- Breathing apparatus, respirators.
- Eye protection.
- Hearing protection.
- Gloves.
- Safety footwear.
- Helmets.
- Aprons.
- High visibility clothing.

It is not sufficient just to provide PPE at the workplace. Group Companies must ensure it is readily available and accessible and/or clear instruction is given on where to obtain it.

In circumstances where no PPE can give adequate control of the risk, then the PPE that would give the best protection that is practicable in the situation must be provided.

**2.1 Use of PPE**

PPE must only be used as a last resort and when other methods of risk prevention/reduction are not practicable/sufficient. There are several reasons for considering PPE only as the last resort. Other means of controlling risks can potentially protect everyone at the workplace, whereas PPE will only protect the person wearing it. The actual degree of protection afforded by PPE is difficult to assess, because the theoretical level of protection is rarely achieved. The effectiveness of PPE is dependent upon the PPE being suitable, correctly fitted, maintained and used. It can also be the case that the wearing of PPE can restrict mobility or vision of the user, or add to the weight that the user must carry and affect the work efficiency. These factors may lead to other health and safety risks.



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 7 of 31**

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:

Planning & Development Director:

**2.2 Suitability and Selection of PPE**

PPE must be suitable for the degree of protection which it is required to provide. In particular, PPE shall not be considered suitable unless:

- It is appropriate for the risk(s) involved.
- It is appropriate for the conditions at the place where exposure to risk may occur.
- It takes account of ergonomic requirements.
- It takes account of the state of health of the person wearing it.
- It is capable of fitting the wearer correctly.
- It is effective in preventing or controlling the risk(s) involved without increasing the overall risk(s).

Several types of PPE may be suitable for any particular job. The key issues to be considered when selecting appropriate PPE are:

- The type of job and the demands it may place on the worker. Consideration must be given to all aspects of the job including the length of time for which the PPE will be worn, the mobility, vision and communication required by the worker, the physical effort required by the job, and the methods of work.
- The level of risks likely to be encountered.
- The parts of the body to be protected.

Other factors may also need to be considered in the selection process such as:

- Disposable versus re-usable.
- Maintenance requirements.
- Durability in use.
- Availability of equipment in different sizes.

All PPE must be of the appropriate standard and should be certified to an internationally accepted standard, e.g. American standards (OSHA/NIOSH) or European standards. If there are any doubts about the suitability of the PPE, advice must be sought from a suitably qualified and competent person e.g. Occupational Hygienist.



## ABU DHABI WATER & ELECTRICITY AUTHORITY (ADWEA)

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

Page 8 of 31

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Approved by:

Planning & Development Director:

#### 2.3 Compatibility of PPE

Where there is more than one risk to health that requires the wearing of PPE, it is important that the PPE selected is compatible and continues to be effective against the risks. For example, where a hard hat and a respirator are simultaneously required, it is important to check that both can be worn correctly and that both continue to give adequate protection from the risks for which they have been selected.

#### 2.4 PPE Assessment

In order to ensure that PPE is suitable and effective for the level of protection required, Group Companies must:

- Assess any risks to health that have not been avoided by other means.
- Define the characteristics that PPE must have in order to be effective against the assessed risks. Risks that the equipment might introduce must also be taken into account.
- Question whether the available PPE has the characteristics that make it effective against the assessed risks.

If there is reason to suspect that the assessment is no longer valid or there has been a significant change in the matters to which it relates, the assessment must be reviewed and the Group Company must ensure that any required changes are made.

#### 2.5 Maintenance and Replacement of PPE

Group Companies must ensure that any PPE provided to employees is maintained in effective working order and in good condition.

An effective system of maintenance of PPE is essential to make sure that the equipment continues to provide the degree of protection for which it was designed. Maintenance requirements should include where appropriate, cleaning, disinfection, examination, replacement, repair and testing. The responsibility for carrying out maintenance must be established and documented, together with the details of the procedures to be followed and their frequency. Where appropriate, records of tests and examinations must also be kept. The maintenance programme will vary with the type of equipment and the use to which it is put.

PPE must be regularly examined to ensure that it is in good working order, and always before it is issued to the wearer. PPE must also be examined before it is put on and must not be worn if it is found to be defective or has not been cleaned - such examinations must be carried out by properly trained personnel in accordance with the manufacturer's instructions. While most PPE will be provided on a personal basis, some may be used by a number of people. There must therefore be arrangements for cleaning and disinfecting as necessary before PPE is reissued.

A sufficient stock of spare parts must be kept available for repair/replacement as necessary. Only manufacturers' designated spare parts are permitted to be used in maintaining PPE, or the equipment may not provide the required degree of protection.



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 9 of 31**

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:

Planning & Development Director:

Manufacturers' maintenance schedules and instructions (including recommended replacement periods and shelf lives) must be followed at all times.

Simple maintenance can be carried out by the person who is to wear the PPE provided he has been given suitable training. More complex repairs must only be done by specialist personnel who have received the necessary training.

In certain circumstances, it may be more appropriate to provide a supply of disposable PPE (e.g. single use coveralls) that can simply be discarded after use. If disposable PPE is used, it is important that users know when it should be discarded and replaced.

## **2.6 Storage of Personal Protective Equipment**

Group Companies must ensure that appropriate storage is provided for PPE when it is not in use.

The storage must be adequate to protect the PPE from contamination, loss, or damage by harmful substances, damp or sunlight. Where PPE becomes contaminated during use, it must be stored separately from the uncontaminated PPE in a separate area, and suitably labelled. If the PPE itself contains hazardous materials, for example asbestos, it must be sealed in an appropriate container and clearly labelled.

PPE that is ready for use must be clearly segregated in the storage area from that which is awaiting repair or maintenance.

## **2.7 Information, Instruction and Training**


Group Companies must ensure that employees are provided with such information, instruction and training as is necessary to enable the employee to use the PPE properly.

A systematic approach to training is needed; this means that everyone who is involved in the use or maintenance of PPE must be trained appropriately.

People involved in maintaining, repairing, testing and use of the equipment will also need training. Training must include elements of theory as well as practice in using the equipment, and must be carried out in accordance with the recommendations and instructions supplied by the PPE manufacturer.

The extent of the instruction and training will vary with the type, complexity and performance of the equipment, as well as the frequency with which it is used, and the needs of the people being trained. For PPE that is simple to use and maintain, some basic instructions to the users may be all that is required. On the other hand, the safe use of complex equipment may depend on an adequate understanding of the principles behind the PPE, and regular maintenance and testing.

The instruction and training must include both theoretical and practical elements. Theoretical training must include:

 هيئة مياه وكهرباء أبوظبي Abu Dhabi Water & Electricity Authority	<b>ABU DHABI WATER &amp; ELECTRICITY AUTHORITY (ADWEA)</b>	Effective Date : 18.06.2009		
		Volume	Chapter	Version
		19	19	1
		<b>Page 10 of 31</b>		

<b>PERSONAL PROTECTIVE EQUIPMENT (PPE)</b>	Approved by:
	Planning & Development Director:

- An explanation of the risks present and why PPE is needed.
- The operation, performance and limitations of the equipment.
- Instructions on the selection, use and storage of PPE related to the intended use.
- Written operating procedures, such as permits to work, involving PPE must be explained.
- Factors which can affect the protection provided by the PPE such as: other protective equipment; personal factors; working conditions; inadequate fitting; and defects, damage and wear.
- Recognising defects in PPE and arrangements for reporting loss or defects.

Practical training must include:

- Practice in putting on, wearing and removing the equipment.
- Practice and instruction in inspection and, where appropriate, testing of the PPE before use.
- Practice and instruction in the maintenance that can be done by the user, such as cleaning and the replacement of certain components.
- Instruction in the safe storage of equipment.

In addition to initial training, refresher training may be required from time to time. Records of training details must be kept on individuals' personnel files, to assist in the administration of the training programme.


## 2.8 Use of Personal Protective Equipment

Group Companies must take all reasonable steps to ensure that any PPE provided to employees is properly used. Procedures for use must be documented and made available to those who need it.

Every employee must use any PPE provided to him in accordance with any instructions and training received on the use of PPE.

Every employee who has been provided with PPE must take all reasonable steps to ensure that it is returned to the accommodation provided for it after use.

PPE must only be used in accordance with the Group Company's instructions, which must in turn be based on the manufacturer's instructions for use. Adequate levels of supervision must be provided to ensure that the training and instructions in use of PPE are being followed.

	<b>ABU DHABI WATER &amp; ELECTRICITY AUTHORITY (ADWEA)</b>	Effective Date : 18.06.2009		
		Volume	Chapter	Version
		19	19	1
		<b>Page 11 of 31</b>		
<b>PERSONAL PROTECTIVE EQUIPMENT (PPE)</b>		Approved by: Planning & Development Director:		

## 2.9 Reporting loss or defect

Employees must take reasonable care of PPE provided and report any loss or obvious defect as soon as possible. If employees have any concerns about the serviceability of the PPE, they must immediately consult their supervisor.

Group Companies must establish the necessary procedures to enable their employees (or contractors) to report any loss or defects in PPE. These arrangements must also ensure that defective PPE is repaired or replaced before the employee concerned re-starts work.

## 3. SELECTION, USE AND MAINTENANCE OF PPE

### 3.1 Head Protection

#### 3.1.1 Types of Head Protection

There are three types of head protection used widely in the industry:

- Industrial safety helmets that can protect against falling objects or impact with fixed objects.
- Industrial scalp protectors (bump caps), which can protect against striking fixed obstacles, scalping or entanglement. Caps, etc. that can also protect against scalping/entanglement.
- Hair protection.

Group Companies must put in place measures to reduce or control at source any risk to the head.

Safety helmets must be worn by all personnel entering Group Company workplaces where a risk of head injury may exist. This includes all Group Company operational facilities and construction areas. Group Companies should designate 'hard hat' areas, and provide suitable head protection for everyone entering these areas, including visitors.

Head protection should fit properly and be comfortable.



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 12 of 31**

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:

Planning & Development Director:

**3.1.2 Processes and Activities Requiring Head Protection**

The following are examples of activities and processes involving risks of falling objects or impacts, which may require the provision of head protection:

- Building work, work on (or near) scaffolding and demolition work.
- Work in pits, trenches, shafts and tunnels.
- Work with bolt-driving tools.
- Blasting work.
- Work near hoists, lifting plant, cranes and conveyors.
- Work with containers, machinery, silos, storage bunkers and pipelines.
- Transport activities involving a risk of falling material.
- Work from suspended access systems, etc.

**3.1.3 Selection of Suitable Head Protection**

To provide the right level of protection, head protection must:

- Be of an appropriate shell size for the wearer.
- Have an easily adjustable headband, nape and chin-strap.

Head protection should also be as comfortable as possible in order to encourage use. Key factors in comfort of head protection are:

- A flexible headband of adequate width and contoured, both vertically and horizontally, to fit the forehead.
- An absorbent, easily cleanable or replaceable sweat-band.
- Textile cradle straps.
- Chin straps (when fitted) which:
  - Do not cross the ears.
  - Are compatible with any other PPE needed.



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 13 of 31**

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:  
Planning & Development Director:

- Are fitted with smooth, quick-release buckles that do not dig into the skin.
- Are made from non-irritant materials.
- Can be stowed on the helmet when not in use.

**3.1.4 Compatibility with the Work to be Done**

Head protection must be selected so as to be compatible with and not hinder the work being done.

Different types of industrial safety helmet are available for different applications. Users/supervisors must check manufacturer's instructions regarding the suitability for a particular task and compatibility of head protection with other types of PPE.

**3.1.5 Maintenance**

Head protection must be maintained in good condition at all times. In particular, it must:

- Be stored, when not in use, in a safe suitable secure storage area. It must not be stored in direct sunlight or in excessively hot, humid conditions.
- Be visually inspected regularly for signs of damage or deterioration.
- Have defective harness components replaced as required. Harnesses from one design or make of helmet cannot normally be interchanged with those from another.
- Have the sweat-band regularly cleaned or replaced.

**3.1.6 Damage to Shell**

Damage to the shell of a helmet can occur when:

- Objects fall onto it.
- It strikes against a fixed object.
- It is dropped or thrown.

Always follow the manufacturers' instructions on use, and if damage occurs, the helmet must be replaced.



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 14 of 31**

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:

Planning & Development Director:

**3.1.7 Deterioration in Shock Absorption or Penetration Resistance**

Deterioration in shock absorption or penetration resistance of the shell can occur from:

- Exposure to certain chemical agents.
- Exposure to heat or sunlight.
- Ageing due to heat, humidity, sunlight and rain.

Chemical agents that must be avoided include paint, adhesives or chemical cleaning agents. Where names or other markings need to be applied using adhesives, advice must be sought from the helmet manufacturer.

**3.1.8 Replacement**

Exposure to heat or sunlight can make the shell go brittle. Group Companies should consult suppliers and/or manufacturers data, or take specialist advice on helmet material suitability and replacement frequency for the climate in UAE. It is important to check for signs of damage before and after use, and if any is found, replace the helmet.

Head protection must be replaced at intervals recommended by the manufacturer, irrespective of visible damage. It will also need replacing when the harness is damaged and cannot be replaced, or when the shell is damaged or it is suspected that its shock absorption or penetration resistance has deteriorated - for example when:

- The shell has received a severe impact.
- Deep scratches are visible.
- The shell has any visible cracks.
- Deterioration has occurred due to exposure to high temperatures/humidity

**3.2 Eye Protection**

Eye protection is needed to protect against the hazards of impact (e.g. in work with power driven tools where chippings may fly off), splashes or liquid droplets during the handling of hazardous chemicals, dust, gases (especially where gases or vapours are used under pressure), welding (where intense light or other optical radiation is emitted at dangerous levels), non-ionising radiation and the light from lasers.

Where any such risks have been identified, Group Companies must provide personnel with appropriate eye protection, and give instruction and training on selection, use and maintenance.



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 15 of 31**

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:

Planning & Development Director:

### 3.2.1 Types of Eye Protection

Eye protectors include safety spectacles, eyeshields, goggles, welding filters, face-shields and hoods. Safety spectacles can be fitted with prescription lenses if required.

### 3.2.2 Processes and Activities Requiring Eye Protection

The following are examples of activities and processes involving a risk to the face and eyes for which eye protectors must be used:

- Handling or coming into contact with acids, alkalis and corrosive or irritant substances.
- Working with power-driven tools where chippings may fly off or abrasive materials is propelled.
- Working with molten metal or other molten substances (e.g. welding).
- During any welding operations where intense light or other optical radiation is emitted at levels that may cause risk of injury.
- On any process using instruments that produce light amplification or radiation.
- Using any gas or vapour under pressure.

Eye protectors must be provided both for persons directly involved in the work and also for others not directly involved or employed but who may come into contact with the process and be at risk from the hazards.

### 3.2.3 Selecting Suitable Eye Protection

The selection of eye protection depends primarily on the hazard. However, comfort, style and durability must also be considered.

- **Safety spectacles** are similar in appearance to prescription spectacles but may incorporate optional side-shields to give lateral protection to the eyes.
- **Eyeshields** are like safety spectacles but are heavier and designed with a frameless one-piece moulded lens. Vision correction is not possible as the lenses cannot be interchanged. Some eyeshields may be worn over prescription spectacles.
- **Safety goggles** are heavier and less convenient to use than spectacles or eyeshields. They are made with a flexible plastic frame and one-piece lens and have an elastic headband. Safety goggles are more prone to misting than spectacles. Double glazed goggles or those treated with an anti-mist coating may be more effective where misting is a problem. Where strenuous work is done in hot conditions, 'direct ventilation' goggles may be more suitable. However these are unsuitable for protection against chemicals, gases and dust. 'Indirect ventilation' goggles are not



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 16 of 31**

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:  
Planning & Development Director:

perforated, but are fitted with baffled ventilators to prevent liquids and dust from entering. Indirect ventilation goggles will not protect against gas or vapour.

- **Faceshields** are heavier and bulkier than other types of eye protector but are comfortable if fitted with an adjustable head harness. Faceshields protect the face but do not fully enclose the eyes and therefore do not protect against dusts, mist or gases. Visors on brow guards or helmets are replaceable. They may be worn over standard prescription spectacles and are generally not prone to misting. Face shields with reflective metal screens permit good visibility while effectively deflecting heat.
- **Glare filters or sunglasses: UV Protection for Eyes.** Wearing suitable glare filters protects the eyes from UV flash from welding and allied processes. Sunglasses protect the eyes against the sun's harmful UV rays. Exposure to the sun's UV radiation can lead to a sunburn-like condition which is normally a temporary, but uncomfortable, condition. Long-term exposure to the sun's harmful invisible rays can speed up ageing of the macula, the focusing part of the retina, and can also lead to cataracts. It is important therefore to specify and/or buy sunglasses that meet minimum standards for protection.

**3.2.4 Maintenance**

The lenses of eye protectors must be kept clean as dirty lenses restrict vision, which can cause eye fatigue and lead to accidents.

Eye protectors should normally be issued on a personal basis and used only by the person they are issued to. If eye protectors are re-issued for any reason, they must be thoroughly cleaned and disinfected. Eye protectors must be protected by being placed in suitable cases when not in use. Eye protector headbands must be replaced when worn out or damaged.

Lenses that are scratched or pitted must be replaced, as they may impair vision and their resistance to impact may be impaired. Transparent faceshields must be replaced when warped, scratched or have become brittle with age.

**3.3 Safety Footwear**

The feet and legs are at risk from hazards such as falling objects, electricity, excessive heat, and metal and chemical splashes. The use of safety footwear such as safety boots with steel-toe caps, rubber boots or anti-static footwear can help protect against these hazards. Whilst Group Companies must put in place control measures to remove or reduce the risk at source, there is a general requirement that safety footwear must also be worn at all times by all personnel working in or visiting any operational facility. This is particularly important for personnel involved in the following types of work:

- Construction work.
- Mechanical/manual handling.
- Work in flammable atmospheres.



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 17 of 31**

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:

Planning & Development Director:

- Work with hazardous chemicals.

Group Companies must provide instruction and training to personnel on selecting the right safety footwear for the job, and maintaining and replacing it as required.

**3.3.1 Types of Safety Footwear**

The following are examples of types of safety footwear:

- **Safety Boots or Shoes** are the most common type of safety footwear. These normally have steel toe-caps. They may also have other safety features including slip resistant soles, steel midsoles and insulation against extremes of temperature.
- **Rubber Boots** protect against water and wet conditions and can be useful in jobs where the footwear needs to be washed. They are usually made from rubber but are available in polyurethane and PVC, which have greater chemical resistance. Rubber boots can be obtained with corrosion resistant steel toe-caps, rot-proof insoles, steel midsoles, ankle bone padding and cotton linings.
- **Anti-Static Footwear** prevents the build up of static electricity on the wearer. It reduces the danger of igniting a flammable atmosphere and gives some protection against electric shock.
- **Conductive Footwear** also prevents the build up of static electricity. It is particularly suitable for handling sensitive components or substances. It gives no protection against electric shock.

**3.3.2 Activities Requiring Safety Footwear**

The following are examples of activities involving risks to the feet.

- **Construction:** Work on building and demolition sites will usually require safety footwear to protect the feet from falling objects, objects dropped by the handler, tripping accidents and wheels running over feet.
- **Mechanical and Manual Handling:** There may be a risk of objects falling on or crushing the front of the foot. There may be a risk of a fall through slipping which could result in damage to the heel on impact.
- **Electrical:** People who work where there are flammable atmospheres must wear anti-static footwear to help prevent ignitions due to static electricity.
- **Thermal:** Work in hot conditions requires footwear with heat-resistant and insulating soles.
- **Chemical:** Footwear provided when working with hazardous chemicals must be both impermeable and resistant to attack by chemicals.



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 18 of 31**

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:  
Planning & Development Director:

### 3.3.3 Selecting Suitable Foot Protection

The selection of foot protection depends primarily on the nature of the hazard. However, comfort, style and durability also need to be taken into account. The choice must be made on the basis of compatibility with the work, degree of protection afforded, and the requirements of the user.

Generally, safety footwear should be flexible, wet resistant and absorb perspiration. Boots are required where ankles need protection. The ability of the footwear to resist corrosion, abrasion and industrial wear and tear must also be considered. The manufacturer's instructions and markings for appropriate use and level of protection should always be followed.

The key features of safety footwear which should be considered in selection are:

- **Soles:** Work shoes and boots must have treaded soles for slip-resistance. Soles can be heat and oil resistant, slip resistant, shock resistant, anti-static or conductive.
- **Steel Toe-Caps:** They must be capable of resisting a heavy sharp object falling from a considerable height.
- **Heat Resistance:** Leather or other heat resistant materials can be used in safety footwear to offer protection against heat, sparks and molten metal.
- **Waterproofing:** People working in wet places must wear safety footwear impervious to water. Rubber and PVC are suitable waterproofing materials for footwear because they are not permeable. There are 'breathable materials' which are water resistant, but which also allow air to get through and perspiration to get out, and may therefore be more comfortable and more hygienic.

### 3.3.4 Electrical Hazards

The following provide protection against electrical hazards:

- **Anti-Static Footwear** offers suitable protection against the hazard of static electricity and will give some protection against mains electric shock.
- **Conductive Footwear** offers greater protection against static electricity and is used where the wearer handles very sensitive components or materials. **IT MUST NOT BE WORN WHERE THERE IS A DANGER OF ELECTRIC SHOCK.**

### 3.3.5 Maintenance

Safety footwear must be maintained in good condition, checked regularly and discarded if worn or deteriorated. Laces should be checked and replaced if necessary. Materials lodged into the tread should be removed. The stitching should be checked for loose, worn or cut seams.



## ABU DHABI WATER & ELECTRICITY AUTHORITY (ADWEA)

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

Page 19 of 31

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Approved by:

Planning & Development Director:

#### 3.4 Hand Protection

Hands are at risk of injury in many of the activities carried out in the industry. Cuts, abrasions or even amputations can occur in manual handling and construction work, while hands and skin are at risk of burns or skin disease where chemicals are handled. Other dangers include electrical shock, and radioactive contamination. Group Companies must put in place measures to protect against, or reduce these risks. However, in certain circumstances, protective gloves will also need to be worn.

Where hand protection is required, personnel must be provided with an appropriate type of safety glove, and given instruction on the selection, use and maintenance of the gloves. They should also be trained to always wash hands after work, and apply a barrier cream as a protective measure.

##### 3.4.1 Types of Hand Protection

Gloves of various designs provide protection against a range of industrial hazards, including:

- Cuts and abrasions.
- Extremes of temperature.
- Skin irritation and dermatitis.
- Contact with corrosive or toxic liquids.

In some situations where gloves cannot be used, skin protection may be aided by the use of barrier creams.

##### 3.4.2 Processes and Activities Requiring Hand Protection

The following processes and activities involve risk of injury to the hands, or are hazards for which hand protection may be necessary.

- **Manual Handling:** Hands may be pierced by abrasive, sharp or pointed objects or damaged by impact when handling goods. However, when there is moving equipment, gloves should not be worn since the glove may become trapped in the moving equipment and draw the hand into the machinery.
- **Construction and Outdoor Work:** Gloves can protect against disease spores that may seriously infect small cuts and abrasions.
- **Hot and Cold Materials:** Gloves will also protect against hazards from handling hot or cold materials (e.g. as in cold stores) and work involving contact with naked flames or welding.
- **Electricity:** Certain approved types of rubber gloves can protect against electric shock.
- **Chemical:** There are many tasks where the hands may come into contact with toxic or corrosive substances. Gloves that are correctly selected and used can provide a barrier between the

*This document is the property of ADWEA, and can not be used nor given to outside party without prior authorisation*

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Approved by:

Planning & Development Director:

wearer's skin and the harmful substance, preventing local damage, or in some cases absorption through the skin.


- **Radioactivity:** Danger from contamination when handling radioactive materials. Impervious gloves can act as a barrier to radioactive liquids and dusts gaining access to the skin and from there into the body by ingestion. They can also directly block alpha radiation.

#### 3.4.3 Selecting Suitable Hand Protection

Gloves or other hand protection must be capable of giving protection from hazards, be comfortable and fit the wearer well. The choice must be made on the basis of compatibility with the work, suitability for protection and the requirements of the user. The manufacturer's instructions and markings for appropriate use and level of protection must always be followed. When selecting gloves for chemical protection, reference must also be made to chemical permeation and resistance data provided by manufacturers.

The key features of safety gloves and their protective properties are:

- **Penetration and Abrasion:** Gloves made from chain-mail or leather protect against penetration and abrasion. Gloves made from knitted Kevlar will provide protection against cuts and gloves manufactured from Kevlar needlefelt give good puncture resistance.
- **Thermal Protection:** Depending upon their weight and construction, terrycloth gloves will provide protection against heat and cold. Gloves manufactured from materials such as Kevlar, glass fibre and leather can be used to provide protection at higher temperatures.
- **Fire Resistance:** Chromed leather gloves are fire retardant.
- **Chemicals Protection:** Chemical protective gloves are available in a range of materials including natural rubber, neoprene, nitrile, butyl, PVA, PVC and Viton. The degree of protection against chemical permeation depends on the glove material, its thickness and method of construction.
- **Electrical:** For working on live electrical equipment where voltages may reach but not exceed 650V, one-piece gloves made of raw natural or synthetic rubber, or a combination of the two, give protection against electric shock
- **General Use Gloves:** Rubber, plastic or knit fabric gloves are flexible, resist cuts and abrasions, repel liquids and offer a good grip. Rubber gloves allow a sensitive touch and give a firm grip in water or wet conditions. Cotton knit, leather or other general-purpose gloves are suitable for most other jobs. General use gloves must only be used to protect against minimal (low risk) risks to health and safety.

	<b>ABU DHABI WATER &amp; ELECTRICITY AUTHORITY (ADWEA)</b>	Effective Date : 18.06.2009		
		Volume	Chapter	Version
		19	19	1
<b>PERSONAL PROTECTIVE EQUIPMENT (PPE)</b>		<b>Page 21 of 31</b>		
		Approved by:		
		Planning & Development Director:		

### 3.4.4 Maintenance

Care should be taken in the donning, use, removal and storage of protective gloves. They must be maintained in good condition, checked regularly and discarded if worn or deteriorated. The gloves should be a good fit, leaving no gap between the wearer's sleeve and the glove itself. If there is a danger of chemicals entering the glove at the cuff, armllets must be worn. Gloves should be maintained in accordance with the manufacturer's instructions.

Contact between the gloves and chemicals should be kept to a minimum as the physical characteristics of a glove can be altered by some chemicals and may lead to the impairment of its protective properties.

Chemicals should not be allowed to come into contact with the skin.

### 3.5 Protective Clothing for the Body

There are many different types of protective clothing, including coveralls or aprons to protect against chemical splashes and spills, high visibility clothing for personnel working in areas where they must be seen to be safe, and life-jackets and buoyancy aids for work at sea. Selection depends on the type of job being done, and the level of risk.

Group Companies must provide personnel with appropriate protective clothing for work such as:

- Jobs involving the use of chemicals and hazardous substances.
- Work in extreme atmospheres or weather conditions.
- Fire fighting.
- Welding.

Instruction and training must be given on circumstances in which protective clothing should be worn, as well as on appropriate selection and maintenance. It should be emphasised that personnel are compromising their own safety if they do not wear appropriate protective clothing in particular circumstances.

#### 3.5.1 Types of Protection

Types of clothing used for body protection include:

- Coveralls, overalls and aprons to protect against chemicals and other hazardous substances.
- Outfits to protect against temperature extremes and bad weather.



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 22 of 31**

Approved by:

Planning & Development Director:

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

- Types of clothing worn on the body to protect the person include:
- High visibility clothing.
- Life-jackets and buoyancy aids.

**3.5.2 Processes and Activities Requiring Protective Clothing**

The following are examples of the sorts of processes and activities that require protective clothing for the body.

- Laboratory work or work with chemicals, dust or other hazardous substances.
- Construction.
- Highway and road works.
- Work at sea.
- Spraying pesticides.
- Welding.
- Fire-fighting.

**3.5.3 Selecting Suitable Protective Clothing**

Protection from chemicals and hazardous substances:

- **Low Risk Chemicals** can be protected against by wearing chemical-resistant clothing.
- **Strong Solvents, Oils and Greases** require heavier protection afforded by coats, overalls and aprons made from neoprene or polyurethane coated nylon, or Terylene or rubber aprons.
- **Chemical Suits** protect against more potent chemicals. They are totally encapsulating suits which are either vapour-proof or liquid-splash proof and are fed with breathable air. Chemical suits have a life expectancy of three to four years and must be inspected every three months even if not in use. This entails an air test and looking at all of the seams.
- **Vapour Suits** protect against hazardous vapours. They must be air-tested with the manufacturer's test kit, before being stored in a protective case. Manufacturers of vapour proof suits generally provide a testing and repair service.
- **Splash-Resistant.**
- **Fibres and Dust.** Protection can be obtained by wearing suits made from bonded olefin, which keeps out fibres and particles.



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 23 of 31**

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:

Planning & Development Director:

### 3.5.4 Maintenance

Protective clothing must only be used for the purpose intended. It must be maintained in good condition and checked regularly. It must be repaired or discarded if damaged.

### 3.6 Hearing Protection

While controlling noise at source is the best approach to minimising noise exposure, effective hearing protection may also be required. Group Companies must provide hearing protection to personnel employed in facilities with high noise level environments.

Where personnel experience a daily personal noise exposure of greater than 85dB (A), then ear protection must be provided. Where area noise surveys indicate noise levels of greater than 90dB (A), signs must be posted to indicate that each high noise area has been designated an Ear Protection Zone and ear protection must be worn in these areas. Personnel working in an Ear Protection Zone, or in an area where there is a likelihood of very loud impulsive noise, must be provided with ear protection and trained to use it.

Information, instruction and training on the use of ear protection must include:

- The duty of personnel to wear appropriate ear protection in high noise level environments.
- The damage that can occur to hearing through noise exposure.
- How to fit ear protection properly, and use it with other PPE.
- The importance of using ear protection at all times, so that its effectiveness is not compromised.
- The reduction in effectiveness caused by long hair, earrings, hats etc., particularly if these becomes caught between the seal of an earmuff and the head.

#### 3.6.1 Types of Ear Protection

Ear protection includes:

- **Earplugs** which fit into the ear canal.
- **Semi-inserts or canal caps** which cover over the entrance to the ear canal.
- **Earmuffs** which completely cover the ear.
- **Enclosures** (entire head)



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 24 of 31**

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:

Planning & Development Director:

**3.6.2 Activities Requiring Hearing Protection**

The following activities involve risk of damage to the hearing, or are hazards for which ear protection may be necessary.

- Construction.
- Working with power-driven tools.
- Work near pumps and compressors.
- Work near turbines/generators.
- Work close to pipes or ducts with high fluid or air flows.
- Work around engines.

In an Ear Protection Zone, ear protectors must be worn by anyone entering the area, whether or not they are undertaking work there.

**3.6.3 Selecting Suitable Ear Protection**

The selection of ear protection depends on the level and type of noise. The daily personal noise exposure of personnel must be reduced to below 85dB (A). Suppliers' information should be consulted when selecting the most appropriate ear protection for any particular task.


Ear protection should be hygienic, and should not interfere with other PPE. For example, ear plugs should be chosen in circumstances where another item of PPE, such as safety glasses, would interfere with the seal of ear muffs and consequently reduce their effectiveness.

Comfort is an important consideration. Where possible, personnel should be offered a choice of appropriate ear protection so they may select which type suits them best. Disposable ear protection may be preferable to re-usable in certain circumstances.

**3.6.4 Maintenance**

Ear protection should be checked daily to ensure it remains clean, and in good condition. Replace compressible earplugs that are no longer soft and pliable and earmuffs where the seals show signs of damage. Check that headbands remain tight, and replace headbands that are worn out or damaged.

Earplugs and semi-inserts (canal caps) should be issued on a personal basis and used only by the person they are issued to for hygiene reasons. Re-useable ear protection should be thoroughly cleaned and disinfected after use, and stored in a suitable case when not in use.

	<b>ABU DHABI WATER &amp; ELECTRICITY AUTHORITY (ADWEA)</b>	Effective Date : 18.06.2009		
		Volume	Chapter	Version
		19	19	1
		<b>Page 25 of 31</b>		

<b>PERSONAL PROTECTIVE EQUIPMENT (PPE)</b>	Approved by:
	Planning & Development Director:

#### 4. RESPIRATORY PROTECTIVE EQUIPMENT

Respiratory Protective Equipment (RPE) is designed to prevent or limit the exposure of persons to dangerous substances that may be inhaled. RPE should only be used when it is not reasonably practicable to control exposures to hazardous substances by other means, e.g. where work is to be carried out in a confined space, or during emergency conditions.

Where personnel have been instructed to use RPE, they must do so.

##### 4.1 Types of Respiratory Protective Equipment

There are three types of Respiratory Protective Equipment (RPE):

1. Air Purifying Respirators (e.g. mechanical filter cartridge, chemical filter cartridge, mechanical and chemical cartridge, gas masks, PAPR).
2. Atmosphere or Air Supplying Devices
3. Combination of Air Purifying and Air Supplying.

##### 4.2 The Decision to Use RPE

The control of exposure to substances hazardous to health should always, wherever possible, be achieved by means other than personal protective equipment (PPE). Where this is not practicable and residual inhalation exposure risks exist, suitable RPE must be provided.

On the basis of the risk assessment, it can be decided which types of RPE are likely to provide the required level of protection. The decision on what type of RPE to be used for a particular circumstance must be made by a suitably competent person.

##### 4.3 Suitability of RPE

RPE is designed to be worn in contaminated atmospheres. However, effective protection is possible only when the RPE chosen is:

- Suitable for the task.
- Suited to the wearer and the environment.
- In good condition.
- Worn correctly by someone who has been trained to use it.



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 26 of 31**

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:

Planning & Development Director:

#### 4.4 Selecting Appropriate RPE

As there are many types of RPE, care is needed to choose the right equipment for a particular situation. Supervisors should involve wearers in the selection process and, where possible, provide them with a choice of suitable RPE.

Where there is doubt over the selection of suitable RPE, Group Companies must confirm with the manufacturer or supplier that the chosen equipment is suitable for the task and for the conditions in which it is to be used.

#### 4.5 Standards Marking

No RPE is to be used unless it is either CE-marked (the European standardization mark, which indicates that the equipment is recognised to be of an appropriate standard) or clearly identified as complying with another nationally or internationally recognised standard (e.g. Australian ANSI, or US, NIOSH-MSHA).

#### 4.6 Use and Maintenance of RPE

In addition to the general requirements outlined above, Group Companies must take account of the following points when using and maintaining RPE:

- The performance of a tight-fitting face piece (filtering face pieces, half and full-face masks) depends on a good contact between the wearer's skin and the face-seal of the mask. For this type of equipment, a fit check needs to be performed each time the RPE is put on. Loose-fitting face pieces (hoods, helmets, visors, suits etc.) cannot be used in negative pressure equipment that relies on the wearer's lung power to draw in air.
- Maintenance of RPE is essential and should include cleaning, disinfection, examination, repair, testing and record keeping. In addition, facilities for its safe storage must be provided.
- RPE must not be modified in any way without the knowledge and consent of the manufacturer.
- Compressed breathing air used in RPE must at least meet the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification For Air, G-7.1-1989 and must have:
  - Oxygen content by volume of between 19.5 percent and 23.5 percent.
  - Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less.
  - Carbon monoxide content of 10 ppm or less.
  - Carbon dioxide content of 1 000 ppm or less.
  - Lack of noticeable odour.



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 27 of 31**

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:

Planning & Development Director:

Oxygen concentrations greater than 23.5 percent must only be used in equipment designed for oxygen service.

**5. PPE FOR EMERGENCY RESPONSE**

**5.1 Types of PPE for Emergency Response Activities**

PPE may be required to enable personnel to successfully escape the effects of an incident or to otherwise safely respond to an incident, including carrying out search and rescue activities. Such PPE falls into one of the following three categories:


1. Devices to allow personnel to escape from toxic hazards (Section 5.4).
2. Devices to allow personnel to undertake search and rescue and other necessary emergency response activity safely, where there is the potential for toxic hazard, including from combustion products (Section 5.4).
3. Clothing to protect personnel from the effects of fire during emergency response activities (Section 5.5).

Devices in categories 1 and 2 comprise respiratory protection equipment (RPE), which may also be required for certain operational or maintenance activities, such as entry into confined spaces.

**5.2 Performance Of Emergency Response PPE**

Emergency response PPE falls within this category and must have performance standards set.

Emergency response PPE covered by this Code of Practice must be checked on a regular basis to ensure that the equipment is available and will perform as required. This must be accomplished and verified using a suitable written scheme of examination.

 هيئة مياه وكهرباء أبوظبي Abu Dhabi Water & Electricity Authority	<b>ABU DHABI WATER &amp; ELECTRICITY AUTHORITY (ADWEA)</b>	Effective Date : 18.06.2009		
		Volume	Chapter	Version
		19	19	1
		<b>Page 28 of 31</b>		
<b>PERSONAL PROTECTIVE EQUIPMENT (PPE)</b>		Approved by: Planning & Development Director:		

### 5.3 Breathing Apparatus and Respiratory Protective Equipment

Group Companies must select emergency RPE so that it is suitable for each circumstance. Equipment must be stored, maintained and used correctly, including provision of appropriate training for those who may need to use or maintain it.

RPE equipment for emergency response falls within the definition of equipment requiring a performance standard. In such cases, equipment must be selected that fulfils the requirements of the performance standard. Most manufacturers and suppliers of RPE provide information on the performance and use of their systems.

As a minimum the RPE must:

- Reduce the wearer's exposure to toxic gases or hazardous particulates to as low as reasonably practicable, during escape from the hazard or during the work in the specified environment.
- Provide clean air at a suitable rate during the whole period it is worn.
- Fit the wearer correctly, especially the face-piece.
- Be properly stored and maintained.
- Not introduce additional hazards that might put the user's health and safety at risk.

When developing performance standards, selecting or developing written schemes of examination for emergency RPE, Group Companies must take account of:

- The type of hazardous material or materials to be protected against.
- The maximum and likely concentration of toxic gas or particulates. For example, asbestos fibre concentrations during uncontrolled stripping operations can exceed the level of protection provided by any commercially available RPE.
- The need to protect eyes or other parts of the body, as well as respiration.
- Sealing of the RPE.
- The effect of facial hair on PPE performance and the requirement for, and implementation of, a facial hair policy.
- Use of qualitative or when necessary quantitative face fit testing (see below).



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 29 of 31**

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:  
Planning & Development Director:

- Whether the equipment can be worn with glasses or jewellery.
- The potential for oxygen deficiency when in use.
- The type of work to be undertaken since more strenuous jobs will require a greater air supply.
- The temperatures at which people will be working.
- The length of time people will be wearing the equipment.
- How comfortable the RPE is and whether people will wear it correctly for the full length of time required.
- Whether the job involves extensive movements (including climbing), restrictions or passing of obstructions.
- Any additional hazards introduced by the RPE such as tripping over or entanglement of lines when using compressed airline breathing apparatus.
- The potential for hazardous material such as asbestos fibre adhering to the RPE with risk of exposure to people at the completion of the job.
- The need to communicate verbally during work, escape or emergency response.
- Cleaning of the RPE after use.
- Ease of training and degree of competence required in equipment use.
- Whether regular medical evaluations are needed for personnel using RPE.

People come in all shapes and sizes, so one particular size or type of RPE is unlikely to suit everyone. The performance of face-pieces depends on achieving a good contact between the wearer's skin and the mask face seal. Quantitative fit testing must be carried out to ensure a good fit.

Repeat quantitative fit testing will be required if changing to a different model of RPE, or to a different sized face-piece, or there have been significant changes to the facial characteristics of the wearer, such as significant weight gain or loss.



**ABU DHABI WATER & ELECTRICITY  
AUTHORITY (ADWEA)**

Effective Date : 18.06.2009

Volume	Chapter	Version
19	19	1

**Page 30 of 31**

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:

Planning & Development Director:

All emergency RPE must be checked to see that it is clean and in good working order both prior to use and before it is returned to storage. In particular check:

- The condition of the head harness and the face-piece including seal and visor.
- The condition of the inhalation and exhalation valves where fitted.
- The condition of any threaded connections or seals.
- The condition and type of filter(s); that they are "in-date" and fitted properly.
- The airflow rate for power-assisted and powered respirators compared with the manufacturer's specifications.
- Whether the RPE is complete and correctly assembled.
- Additional tests in accordance with the manufacturer's instructions.

The time available for a prior-to-use check of RPE during emergency response may be limited. Performance standards, written schemes of examination and maintenance routines and schedules must take this into account by ensuring that emergency RPE remains ready for use at all times.

RPE must only be procured from suppliers and manufacturers where there is continued independent surveillance of production to ensure that the equipment continues to meet the stated standard.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Approved by:

Planning & Development Director:

**5.4 PPE For Use During Fire Fighting**

Personal protective equipment for use during fire fighting or where some protection against fire is necessary during emergency response requires a performance standard. The performance standard and equipment selection procedure must take into account:

- The hazards the equipment protects against.
- The duties of persons using the PPE.
- The risk of flash or explosion.
- Whether activities are to be carried out in "close proximity" to the fire or there is the risk of "flame-lick".
- Provision of garments of the correct size and fitting them to each individual.
- Possible mismatches between various components of the PPE, for example a fire suit, helmet (including visor and neck curtain), fireproof gloves and fireman's boots must be compatible to remain effective if they are to be worn together.
- The possible need to wear RPE as well as the PPE.
- The need for additional PPE to avoid exposure to hazardous substances.
- The mobility requirements of the wearer especially the ability to withdraw from hazards.
- The ability of the wearer to communicate with his immediate colleagues and the emergency response coordinator.